

Hannah Baumer

Royal Holloway, University of London

Male prisoners' motivation to engage in exercise as a means  
of promoting physical and mental well-being

A thesis submitted for the degree of Doctor of Philosophy

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## 2. Abstract

Adopting Self-Determination Theory (SDT; Ryan & Deci, 1985) as a theoretical framework, the present thesis sought to develop a comprehensive understanding of male prisoners' motivation to engage in exercise, and subsequent well-being outcomes of exercise behaviours.

Study I tested the suitability of SDT as an appropriate framework for understanding male prisoners' exercise motivations through a quantitative approach. This included the development of a scale for identifying male prisoners' individual motives for exercise, which was employed alongside several existing measures to provide support for two key premises of SDT; the presence of a self-determination continuum, and the principle of basic psychological need satisfaction.

Study II employed prisoner interviews to explore structural and cultural factors related to exercise motivation. Thematic analysis shaped the identification of adaptive and maladaptive masculine ideals that are created in response to social influences, shaping prisoners' perceptions of structural barriers to exercise and their identification with exercise as a means of managing the inherent tension that exists in prison.

The final study adopted a mixed methods approach to evaluate a sports-based intervention (SBI) in prison, known as Cell Workout (CW). The evaluation identified several means through which CW promoted prisoners' individual motivation and supported adaptive masculinities. Drawing on the positive outcomes of CW, the evaluation provides a detailed understanding of how SBIs in prison can maximise prisoners' motivation to engage in exercise for the good of their physical and psychological well-being, leading to engagement in further healthy behaviours.

The thesis concludes by considering the theoretical and practical implications of adopting SDT as a framework to shape an understanding of male prisoners' exercise motivations, and the importance of recognising the role of prison management in changing the overall culture of the prison to be supportive of positive masculinities and maximise well-being through exercise.

### 3. Publications

There are four publications which have arisen through the development of this thesis. The first forms the basis of the literature review for Study II:

Baumer, H., & Meek, R. (2018). Sporting masculinities in prison. In M. Maycock, & K. Hunt (Eds.), *New Perspectives on Prison Masculinities*. (pp. 197-222). (Palgrave Studies in Prisons and Penology). Palgrave Macmillan Ltd. doi: 10.1007/978-3-319-65654-0

The second is a version of Study III which is intended for public consumption:

Baumer, H. (in press-a). *Promoting Prisoners' Motivation to Exercise: An Evaluation of The Cell Workout Workshops*. School of Law, Royal Holloway, University of London, Surrey, England

The third is a book chapter that focuses on delivery approaches to sport interventions that aim to improve well-being, and this underpins the methodology section of Study III:

Baumer, H. & Meek, R. (in press). Motivating Prisoners to Exercise. In G. Leavey and G. Breslin, *Mental health and well-being interventions in sport: A case study analysis*.

The fourth is a paper which outlines recommendations for policy and practice based on the outcomes of Study III:

Baumer, H. (2018). Effective prisoner engagement through the promotion of sport motivation: Implications for policy and practice. *Howard League for Penal Reform Early Career Academics Network Bulletin*, 36.

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## **5. Chapter 1 – Overarching literature review and methodology**

### **5.1. Research overview**

The adult prison population in England and Wales rose by 82% in the thirty years prior to 2017, with just under 85,000 people in prison as of June 2017 (Ministry of Justice, 2017a). And whilst the number of people incarcerated continues to rise, so does the prevalence of psychological issues amongst this population. Prisoners encounter the Criminal Justice System with a range of extensive health and social problems (Stewart, 2008), as much as 90% are reported to suffer from at least one psychiatric disorder (Singleton, Meltzer & Gatward, 1998), and the issues are of far greater prevalence than seen in the general population (Lester et al., 2003; Ministry of Justice, 2012b; Senior and Shaw, 2007). These health inequalities have a considerable impact, with a mortality rate that is fifty per-cent higher for prisoners than the general population (Sattar, 2001). The Department of Health recognise that prisoners suffer from health inequalities and social exclusion (Social Exclusion Unit, 2002), which is reflective of issues in the broader society that are widening the economic gap between social groups, becoming a contemporary issue of increasing importance. What is more, if these health inequalities are left unaddressed in the prison population they can lead to an increased risk of reoffending (Bowles, 2012), and the issue of offenders returning to the community without engaging in any health rehabilitation processes during their incarceration has worsening effects on their physical and mental well-being (De Viggiani, 2007; Fazel and Danesh, 2002; Gatherer, Moller & Hayton, 2005), which serves to thwart any efforts at rehabilitation that prisons may adopt.

The aim of rehabilitation is to promote desistance from crime, which Maruna and Toch (2005) emphasise as a complex process characterised by numerous factors which affect prisoners' experiences of imprisonment, including age, personality, previous life experiences, and the institution itself. Unfortunately, the experience of prison often serves to worsen prisoners' health issues and impede efforts at rehabilitation. Sykes' ethnographic study of a New Jersey State Prison (1965; 1958), framed prisoners' experience of prison life in terms of five key deprivations which he coined "pains of imprisonment": the loss of liberty; desirable goods and services; heterosexual relationships; autonomy; and security. Through these experiences Sykes proposed that the prison environment creates symbolic and material frustrations which lead to the creation of an oppositional prison culture, uniting against prison management and the social order, with criminogenic effects. This understanding of the lived experience of prison, known as the 'deprivation model' suggests that prisons are not a deterrent for crime, but in fact can have criminogenic effects by compelling prisoners to act in opposition to prison management (Shammas, 2017), whilst empirical research has found that longer sentences result in higher recidivism rates (Cayley, 1998; and Latessa & Allen, 1999). Thus, prisons must be mindful of the inherent negative health impact that incarceration can have if they are to successfully promote recidivism. Furthermore, it is important to recognise that reducing recidivism should not be the sole aim of all prison-based research and practice, and it is arguable that the rhetoric of health is lost inside prisons when health is continuously linked to recidivism. Access to means of promoting and maintaining good health is a human right and health inequalities across the population need to be rectified, arguably, prisons provide the ideal place in which to reduce this gap through interventions that seek to promote motivation to engage in healthy behaviours. However, not all researchers would wholeheartedly agree with this perspective, as Andrews, Bonta & Wormith argue, it is the responsibility of public health services to recognise crime prevention as one of

their aims, and therefore the justice system should not be looking to promote prisoners' needs of "excellence in play and work, inner peace, creativity, self-determination and on and on" (p. 750, Andrews, Bonta & Wormith, 2011). Part of the argument which Andrews et al. put forward is placed in the context of a resource deficit across prisons, advising against adding to the workload of forensic mental health professionals by introducing programmes such as the Good Lives Model (GLM; Ward, 2010), which seeks to promote prisoners' basic needs such as friendship, creative pursuits and positive self-regard as the basis for reducing criminogenic needs, rather than focusing on criminogenic needs in the first instance. Andrews et al. posit that the GLM does not add anything of value to the approach offered by the principles of the Risk-Need-Responsivity model (RNR model; Andrews, Bonta & Hoge, 1990), which looks to reduce reoffending by targeting criminogenic needs which are functionally related to criminal behaviour, such as antisocial associates, substance misuse, and circumstances in domains of family, work, or leisure. The RNR model has some strong advocates and has been shown to reduce recidivism (Andrews & Bonta, 2010; Andrews et al., 1990), proving itself to be an effective approach in the context of formally addressing criminogenic needs. However, efforts to promote prisoners' well-being and reduce the criminogenic effects of imprisonment do not need to be centred in formal forensic settings, nor do they have to be resource-heavy, and there is scope for such approaches to compliment formal interventions to address criminogenic needs such as the RNR model, rather than replace them.

#### **5.1.1. Benefits of sport and exercise in the general population.**

The psychological health benefits of physical activity are reported amongst the general population, with many studies demonstrating reductions in stress (Hassmén et al., 2000; Kull 2002; Plante & Rodin, 1990; Salmon, 2001; and Schnohr et al., 2005), depression (Byrne & Byrne, 2003; DiLorenzo et al., 1999; McGale, McArdle & Gaffney, 2011; North et

al., 1990; and Stern and Cleary, 1982), and anxiety (Carraro & Gobbi, 2012; Kerr & Kuk, 2001; Lubans, Aguiar & Callister, 2010 ; Morgan & Raven, 1985; O'Connor, Carda & Graf, 1991; Petruzello et al., 1991), and a pivotal new study revealing that, regardless of intensity, as little as one hour's exercise per week may be sufficient to *prevent* future cases of depression depression (Harvey, Øverland, Hatch, Wessely, Mykletun & Hotopf, 2018). (Hassmén, Koivula & Uutela, 2000; Salmon, 2001). Significant reductions in anxiety levels for those with intellectual difficulties (IDs) who participate in physical activity have been reported (Carmeli, Barak, Morad, & Kodesh, 2009; and Carraro and Gobbi, 2012), which is of salience in the prison population where IDs are overrepresented, and such individuals are likely to suffer from high levels of anxiety (Esbensen, Rojahn, Aman, & Ruedrich, 2003; Sravakaki & Lunsky, 2007). Aside from the positive impact on aversive mood states such as depression, physical activity can also impact on constructs such as self-esteem, which Stern & Cleary (1982) suggest is more likely to yield significant results amongst 'normal' populations, and therefore makes for a suitable intervention to be adopted by the prison population as a whole. Increases in self-concept through exercise engagement, a similar construct to self-esteem, are attributed to enhanced body image, the social support experienced by exercising with the same group on a regular basis, and neurochemical effects such as increased serotonin synthesis (DiLorenzo et al., 1999).

In terms of formal psychological interventions, the inclusion of physical activity has been shown to improve therapy outcomes in some instances (Rueter, Mutrie & Harris, 1982), and is advocated by patients as a more therapeutic approach over and above psychotherapy and medication (Martinsen and Medhus, 1989; Sexton, Maere and Dahl, 1989). However, Mead et al.'s (2009) meta-analysis of twenty-eight randomised control trials comparing exercise to standard treatment found the effect size of exercise was not different to the effect size for therapy, although, they do conclude that more methodologically robust trials are

needed to obtain more accurate estimates of effect size in this area. Broadly, despite academic advances, researchers such as Lowther, Mutrie & Scott (2002) acknowledge the work that still needs to be done before exercise can be properly established as a contributor to the treatment of mental health issues, and causality is yet to be properly established, with no conclusive evidence to indicate whether exercise increases psychological well-being, or whether those who are psychologically well are more likely to exercise (Busby & Kremer, 1994; Cashin, Potter & Butler, 2008; Hassmén et al., 2000).

### **5.1.2. Benefits of sport and exercise for the prison population**

Research has already demonstrated the specific benefits of sport<sup>1</sup> in prisons, demonstrating its positive impact on rehabilitation and behavioural change (Buckaloo et al, 2009; Nelson, 2006), particularly in promoting desistance, positive relationships, identity transformation and education and employment opportunities (Meek, 2014). Specifically, Cashin, Potter & Butler's (2008) Australian study found reductions in feelings of hopelessness and loneliness in prisoners who exercised 3-6 times per week compared with no exercise at all or over-exercising (seven times or more a week; Page and Tucker, 1994). Hopelessness is a tremendously important measure of well-being amongst offenders, as it is more highly correlated with suicide and suicidal intent than depression (Beck et al., 1974). Cashin, Potter & Butler (2008) noted that there was only a small degree of variation in their results, which meant there were likely to be other factors as well as exercise impacting on the reduction of hopelessness in prison, and that exercise would serve well as part of a multifaceted approach to alleviate poor psychological well-being in prison settings. Thus, sport has the potential to support existing health care pathways in prisons, and despite claims

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<sup>1</sup> For this thesis, unless otherwise stated, the terms "sport", "exercise" and "physical activity" are used interchangeably, reflecting all forms of physical activity, whether it be casual or organised, competitive or non-competitive, based on the definition of sport from the European Sports Charter (Council of Europe, 2001).

to the contrary, so-called 'hard to reach' socially and economically deprived communities which are reflective of the backgrounds of many prisoners, respond very well to physical activity participation, showing long-term adherence amongst sedentary individuals from such communities (Lowther, Mutrie and Scott, 2002), and interest in participating in sport with prisons specifically is often high (Buckaloo et al., 2009; Lewis and Meek, 2012).

High attrition rates in psychological and related therapies contribute to the issue of prisoners' unmet health needs and can cause major difficulties, with researchers calling for strategies to reduce this (McGuire, 2008). McGale et al. (2011) demonstrated that integrating exercise and cognitive-behavioural therapy may be one way of addressing these attrition rates, demonstrating that this combined approach is an effective means of engaging young, sedentary males (aged 18-40), a demographic that reflects the male prisoner population and who are less likely to seek professional help. Outcomes from McGale et al.'s 10-week randomised control trial revealed a considerable decrease in depression scores amongst the 104 participants, through the facilitation of team-based exercise, purposeful social support, group discussion, and other group activities.

Sport and exercise may also be time and cost effective compared with psychotherapy and drug treatment, and for those who will not consider more traditional means of intervention such as pharmacology or psychotherapy due to personal reasons. Such constraints are magnified in the prison environment where the need for such treatment is high, yet cost-saving is deemed a priority, time to deliver interventions is limited due to safety priorities, and male prisoners in particular may not feel comfortable seeking formal psychological support.

### **5.1.3. Lack of sport and exercise engagement in prisons**

To understand what behavioural change looks like in the context of promoting physical activity, it is important to recognise what characterises an absence of physical activity. The literature often uses the terms ‘physical inactivity’ and ‘sedentary behaviour’ interchangeably, but a recent paper by Fenton et al. (2018) provides a useful distinction between the two. The authors propose that physical inactivity is the lack of sufficient or regular engagement in moderate intensity physical activity (defined as moderate paced walking), whilst sedentary behaviour is characterised by low energy expenditure and being in a sitting or reclining posture, such as watching the television, using the computer or driving. Through these definitions, most unemployed prisoners spending the majority of their day in their cell would be defined as sedentary, however, they could also be considered physically active if they regularly attend the gym or exercise in their cell or on the wings to reach the recommended level of physical activity. Conversely, a prisoner who is employed on the servery could be considered non-sedentary, but if they do not engage in any formal exercise then they would be defined as physically inactive.

This distinction is important in the context of prisons, as it has been shown that sedentary behaviour can have adverse health effects regardless of being physically active, such as cardiovascular disease and type II diabetes (Carson, Wong & Winkler, 2014; and Hamilton, Hamilton & Zderic, 2014), which has led to a focus on reducing sitting time as a public health priority (Owen et al., 2010). Although the present research is focused on physical activity and physical inactivity, these findings suggest that regardless of attempts to promote physical activity engagement in prisoners, prisons need to do more in terms of chronic disease prevention by ensuring prisoners do not spend increasing amounts of time being sedentary, which is inevitable if they are left in their cell for much of their waking day. Exercise science research has also revealed that sedentary behaviours and physical activity

are influenced by different motives (Quartiroli & Maeda, 2014), and that sedentary behaviour in leisure time is influenced by more autonomous motives than the same behaviour at school or work, which are experienced as more controlling (Gaston, De Jesus, Markland & Prapavessis, 2016). These findings suggest that the factors which contribute to prisoners' sedentary behaviours are likely to differ from those which contribute to their physical activity behaviour. Furthermore, the controlling prison environment is likely to have an impact on perceptions of so-called 'leisure time', or any 'free' time spent outside of the cell, so that choosing to be non-sedentary is likely to involve different motives to those experienced outside of prison. Consequently, an understanding of the individual and socio-environmental influences that impact on prisoners' engagement in sedentary behaviours requires dedicated domain-specific research, which is outside of the scope of the present thesis. Thus, this research focuses on prisoners' engagement in physical activity.

A decade ago, national guidelines for physical activity devised by Pate et al. (1995) and endorsed by the Department of Health (DoH; 1996), suggested that adults should get at least 30 minutes of moderate-intensity exercise on most days, if not every day of the week. More recently, healthcare campaigns have begun to focus more and more on lifestyle exercise, with guidelines measuring recommended physical activity in the form of 10,000 steps per day (Spilner & Robertson, 2000), similarly, Pate et al. (1995) suggest that the stated levels of activity can be reached through lifestyle exercise such as walking, gardening or housework. These proposals for accumulating the recommended amount of weekly physical activity through so-called "lifestyle exercise" are in line with suggestions that aerobic exercise participation without the inclusion of a physical lifestyle is not enough to promote health (Abadie, 2007). As Abadie suggests, the key to motivating individuals to participate in physical fitness activities is "to determine which exercise delivery system is most effective, and to determine the preference for each individual" (p.23, Abadie, 2007). The physical

activity pyramid (Leon & Norstrom, 1995) suggests that a complete exercise program essential to receiving preventative health benefits should aim to encourage active daily lifestyles alongside structured physical activity, with participation in recreational activity two to three times per week, resistance and stretching exercises two to three days per week, and leisure activity two to three times per week. An exercise prescription that reflects the preference of each individual whilst spanning the variety of exercise types described by Leon and Norstrom is just not possible within the current confines and restrictions of the prison environment. Injuries are a strong influence on maintenance or dropout rates of physical activity in the community (Sallis et al., 1990), and prisoners with injuries are likely to suffer even further, as those who are injured in the community generally report more time spent walking as a form of exercise (Hofstetter et al., 1991), whilst opportunities for walking are limited in prison. Although remedial gym sessions are often available for those with injuries who have been referred by the prison health team these are limited in frequency and depending on the injury and related exercise intensity they may not provide sufficient time and resource as an alternative to walking. Taking these factors into account, the challenge that prisons face is providing a varied physical activity program that will maximise the physiological and psychological health benefits for prisoners, often to be delivered within a restricted amount of time and with limited resource.

The Service Specification for Physical Education, as released by the National Offender Management Service (NOMS; 2011), specifies that, where reasonably permitted, prisoners over the age of 21 should be allowed to participate in an average of 1 hours' worth of physical education (PE) a week; which is doubled for those under 21 years old. In addition to this, PE is scheduled as part of the core curriculum within juvenile facilities (for prisoners under the age of 18). These differences in policy are likely to have worsening implications for the over 21s, with recommended physical activity from DoH (2011) being two and a half

times that of the average allowance specified by NOMS. Even though under 21s are afforded twice as much PE per week this still sits under the recommended weekly allowance of 2 ½ hours per week, which is of particular salience when offenders are spending increasing amounts of their day locked in their cells, unable to maintain an active daily lifestyle and accrue physical activity through alternative means.

Despite NOMS specifications, there is significant variance across participation levels in sport and exercise for all offenders. A freedom of information request submitted to the Ministry of Justice found levels of participation in physical activity to be 56% on average, with a considerable range of between 28% and 82% across the adult male estate (Meek, 2014). However, it is important to note the definition of ‘participation’ that underpins these figures, which is any prisoner who has attended the gym at least once in a monthly period. Thus, the figures provided by the Ministry of Justice do not provide a particularly helpful account of how many prisoners are receiving adequate amounts of exercise with respect to frequency, intensity or duration. Such variance in participation figures is supported by Condon, Hek & Harris’ (2008) research which found that, although male prisoners report higher frequency of exercise whilst in prison than outside, their access is particularly varied, with prisoners across all categories of prisons finding that their access to the gym was infrequent or non-existent, with no apparent reasons for the variation.

Although they may not be apparent to the prisoners, there are numerous reasons for the varying levels of participation in physical activity. A report by the Independent Monitoring Boards into YOI Isis (2013) revealed that difficulties in recruiting and retaining staff forced a change of regime that meant that offenders were behind their cell doors for substantial portions of the day. As a result, basic entitlements such as shower, gym and association were being lost. This would account for some, but not all, of the variance in sport and exercise participation across prisons in general. The inequality of engagement in physical

activity is exacerbated by the hyper-masculine environment of the prison gym, which enforces a preference for solitary, weights-based exercise (Baumer & Meek, 2018; Johnsen, 2001), whereas research suggests that the type of exercise which may be most supportive of psychological well-being is aerobic (Raglin, 1997) and social (DiLorenzo et al., 1999; Sonstroem, 1997; Meek and Lewis, 2014; Parker, Meek & Lewis, 2014; Weiss and Ebbeck, 1996). Overall, there is still a great deal of work to be done in promoting the importance of participation in sport and exercise across all prisoners, and studies should look to account for reasons behind participation and non-participation in order to support the development of such interventions.

#### **5.1.4. Need for innovative means of health promotion**

There have been many publicised cuts to prison services, and given the increasing population, resources look set to be stretched even further. For prisoners, this will likely result in less time for purposeful activity and more time behind the cell door, in turn leading to poor morale amongst staff, more self-harm and violence amongst prisoners, and ultimately a culture of tension which prevents rehabilitation (Criminal Justice Alliance, 2012).

Therefore, there is a need for more innovative means of promoting prisoners' well-being which are not resource-intensive and serve to promote prisoners' motivation to engage in formal programmes that promote desistance from crime. At present, sports activities are not suggested as a formal intervention to address health needs in the general prison population, but Glorney et al. (2010) name sport as an intervention to address the need for management and promotion of physical healthcare in high secure settings. Through the consideration of relevant literature focusing on the impact of sport and exercise on both social and psychological needs, there may also be an argument which highlights sport and exercise as interventions for additional domains of need, including education, life skills, and drugs and alcohol. Research into the impact of sports-based interventions (SBI) in prison suggest that

they may offer a suitable and comprehensive approach to promoting prisoners' well-being and addressing these needs.

A typical SBI in prison adopts sports as its key focus and seeks to achieve additional aims related to outcomes such as personal development or employability (Woods, Hassan & Breslin, 2017b), as Rollnick, Miller, & Butler (2008) propose, a prison SBI should address the cognitive, behavioural and environmental factors involved in ambivalence and reluctance to change. The benefits of engaging in SBIs for prisoners include decreases in anxiety (Battaglia et al., 2014; Gallant, Sherry & Nicholson, 2015; Harner, Hanlon & Garfinkel, 2010; and Hilyer et al., 1982), and stress (Bilderbeck et al., 2013; Harner et al., 2010), improved sleep quality (Martin et al., 2013), an increased ability to model appropriate social behaviours (Gallant et al., 2015), development of personal and interpersonal skills (Leberman, 2007), positive changes in attitudes and thinking behaviours and promoting desistance from crime (Meek & Lewis, 2014), and an increased sense of achievement and self-efficacy (Parker et al., 2014). These studies highlight the ever-growing body of research which advocate the use of SBIs to promote prisoners' well-being, but if the long-term effects of physical activity on prisoners' well-being are to be maximised, then it is important to understand what motivates prisoners to engage in physical activity once a SBI has ended. Furthermore, the provision of SBIs in prison is currently limited, so there is utility in understanding how best to promote prisoners' motivation to engage in physical activity to promote their well-being outside of SBIs.

#### **5.1.5. Reliability and validity issues of exercise psychology research**

There are many issues with reliability and validity across empirical exercise psychology research that need to be addressed before studies can establish cause and effect relationships (Byrne & Byrne, 1993), and before physical activity establishes itself as a key

contributor to mental health treatment (Lowther, Mutrie & Scott, 2002). Furthermore, numerous variables contribute to the differing impact of physical activity on well-being, including individual differences (Daley and Maynard, 2003; De Geus, van Doornen & Orlebeke, 1993; Dishman, Farquhar & Cureton, 1994) and socio-environmental factors (Biddle, Treasure & Wang, 2008; Ryan & Deci, 2000; Power et al., 2011). Specifically, studies have found conflicting results when exploring the differences between aerobic and anaerobic exercise<sup>2</sup> in relation to mental well-being. With some studies suggesting that anaerobic exercise cannot reduce state anxiety in the same way as aerobic exercise (Raglin, 1997), whilst others have found no difference in rates of depression between weight lifting and running (Byrne & Byrne, 2003; Doyne et al., 1987). This is of importance for the present research as weight lifting, a form of anaerobic exercise, is particularly prevalent in prisons (Johnsen, 2001). Therefore, any investigation of prisoners' mental well-being in relation to physical activity should consider whether aerobic and anaerobic forms of exercise differ in their impact on mental well-being.

Another key factor when addressing the impact of sport and exercise on mental wellbeing is intensity. Recommendations for optimal cardiorespiratory fitness reflect moderate-intensity physical activity (British Heart Foundation, 2014; United States Department of Health & Human Services, 2015), and research tends to suggest that moderate intensity is also optimal for psychological benefits (Mammen & Faulkner, 2013; Moses et al., 1989; Pitts and McClure, 1967; Sexton et al., 1989), suggesting that a curvilinear relationship exists between exercise intensity and measures of psychological wellbeing (Arent et al., 2005; Dunn, Trivedi & O'Neal, 2001). However, there are consistent findings of reductions

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<sup>2</sup> Aerobic exercise requires the utilisation of oxygen, and the term is often used to refer to cardiovascular exercise such as running or cycling. Anaerobic exercise is short lasting, high-intensity activity, where the body's available oxygen supply is exceeded and energy sources stored in muscle are required as fuel, weight lifting being a common example of this.

in anxiety over time for high intensity exercise by Raglin and Wilson (1996), O'Connor (1995) and Dishman, Farquhar & Cureton, (1994). Research has also found that high-intensity exercise causes more *rapid* reductions in global anxiety measures and reductions in fear of anxiety related bodily sensations, which low-intensity exercise was unable to do (Broman-Fulks et al., 2004). Overall, personality, psychological health, physical capacity and degree of physical fitness are all likely to have an impact on whether or not high-intensity exercise is psychologically beneficial (Raglin, 1997). In terms of adherence however, research suggests that work rate is likely to be higher during preferred intensity conditions in comparison to a prescribed intensity (Parfitt, Rose and Markland, 2000), or intensities that are too high (Ekkakakis & Petruzello, 1999). In addition, exercise intensity as a variable is wholly subjective and hard to measure accurately (Dishman & Buckworth, 1997), therefore, studies suggest that perceived exertion, as measured by Borg's 15-grade scale of Ratings for Perceived Exertion (RPE scale; Borg, 1970), is a more reliable construct than maximal capacity to assess exercise outcomes (Raglin, 1997). Although the scale is not without its limitations, as Morgan (1994) outlines, perceived exertion is easily influenced by confounding psychological differences such as anxiety and may also be confounded by preferred versus prescribed distance or duration (Kerr & Kuk, 2001).

Tuson, Sinyor, & Pelletier (1995) criticise much of the existing research on exercise and mood for being atheoretical in nature. It is arguable then, that exercise and wellbeing research based on a theoretical model would be better placed to establish cause and effect relationships and testing existing models would help to provide clear reasons as to how and why exercise impacts on wellbeing, thus providing tangible results to inform practice. Furthermore, domain-specific research is needed to understand the contextual factors that are most conducive to promoting well-being through physical activity in any given population.

Research into the impact of physical activity on prisoners' psychological well-being is very limited, and Woods et al., (2017a) emphasise the need for future studies of this type to include psychological change theory in their design, as many previous studies have failed to do. Woods et al. also identify a distinct lack of consideration for the perspectives of key stakeholders who are responsible for the design and delivery of prison SBIs, which would help to inform practical guidelines for prisons to adopt to promote prisoners' well-being.

In response to the issues outlined above, this thesis applies Deci and Ryan's (1985a) Self-Determination Theory (SDT) as a theoretical framework to understanding prisoners' motivation to exercise as a means to improve well-being. SDT supports identification of individual motives for behaviour, whilst considering the impact of socio-environmental factors on these behaviours, therefore, it provides a comprehensive framework with which to understand the complexities of prisoners' behaviours within the prison environment.

## **5.2. Research hypotheses and research questions**

This thesis consists of three studies, Study I examined the suitability of SDT as an appropriate framework for understanding male prisoners' exercise motivations through a quantitative approach. Using data from 89 prisoners across measures of basic psychological needs for exercise (autonomy, competence and relatedness), exercise motivation and various health measures, Study I hypothesised that, in line with SDT, there would be a positive relationship between the extent to which prisoners' basic psychological needs for exercise were met, the extent to which their motivations to exercise were experienced with an internal locus of causality, and their psychological well-being. Study I then developed a measure of male prisoners' exercise motivation that could be applied within the framework of SDT, and hypothesised that the factors which underpin the measure would differ from the exercise motivations of the general population as outlined by existing measures. The new measure was

also applied alongside measures of psychological well-being in a series of quantitative tests to identify key phenomena with regards to prisoners' exercise motives.

Study II adopted a qualitative approach to build on the findings of Study I and identify the socio-environmental factors that influence prisoners' individual exercise motivations. Face to face interviews with 22 prisoners explored experiences of exercise and healthy behaviours in prison, guided by some of the key or unusual findings from Study I. The research questions of Study II aimed to identify the factors that influence prisoners' basic psychological needs in relation to exercise, the key structural and cultural factors related to prisoners' exercise behaviours, and the extent to which these factors impact on the relationship between prisoners' individual motivation and participation levels in relation to exercise.

Finally, Study III aimed to identify what works to promote prisoners' motivation for exercise in a practical sense by adopting a mixed methods approach to evaluate a SBI delivered in prison. The study applied an extensive set of measures including interviews, daily diaries and open-ended survey questions before the start of the intervention (n = 105), on completion (n = 78) and between 2-6 months following completion (n = 34). This final study provided a conclusion to the findings of studies I and II by exploring how the individual motives outlined in Study I can be promoted, and what can be done to overcome the structural and cultural barriers to exercise that were outlined in Study II, as well as exploring whether engagement in physical activity impacts on prisoners' motivation to engage in further healthy behaviours such as education or smoking cessation.

## **6. Methodology**

The relationship between prisoners' motivation, attitudes, beliefs and readiness to engage in behavioural change is often applied in the context of formal psychological

interventions aimed at promoting desistance from crime (Maruna, 2001). However, research on prisoner motivation to engage in behaviours purely for the enhancement of physical and mental health is limited, even though it could be argued that the adoption of such behaviours form the basis of a multi-level process of change and movement towards desistance. The notion of ‘change’ in the context of the present research refers to a move towards engaging in “healthy behaviours”, or behaviours that are good for you both physically and mentally, such as healthy eating and education, with a view to promoting engagement in formal psychological interventions aimed at reducing risk and, in turn, desistance from crime.

The present research provides a critical realist analysis of prisoners’ motivation to engage in healthy behaviours, using quantitative data to explore the consistencies in prisoners’ psychological and physiological health, and behavioural motivation, and searching for the reasoning and meaning behind these outcomes through qualitative data that allows for consideration of the complexity of physical activity participation across prisoners as a unique social group.

### **6.1. Research aim**

To identify factors related to prisoners’ motivation to engage in exercise as a means of promoting well-being, and the implications of this behavioural change on engagement in further healthy behaviours.

### **6.2. Research paradigms**

Epistemology, otherwise known as the theory of knowledge, is central to research in the social sciences as it defines how we as individuals acquire knowledge and make sense of the world. Choosing an epistemological stance enables a researcher to make decisions about the type of factors that may be influencing their research problem, and therefore what they need to measure to identify possible meaningful relationships. A researcher’s epistemological

stance therefore influences all major decisions with regards to how a research project is approached, in particular how it shapes beliefs about ontology (the study of being; what is reality?); theoretical framework (theory explaining why a research problem exists) and methodology (how do we go about finding things out?). Herein, these three elements, alongside epistemology, will be collectively referred to as a research paradigm, a term also adopted by many of the major writers in the field of philosophy (Creswell & Plano Clark, 2007; Greene, 2007; Teddlie & Tashakkori, 2009).

For the most part, researchers with different beliefs adopt alternative paradigms and therefore alternative ways of thinking about their research problem. Although there are examples of researchers who opt for an a-paradigmatic stance, claiming that their chosen methodologies are independent of the epistemology that surrounds them (Patton, 1990). In contrast to an a-paradigmatic approach, some researchers choose to adopt a multiple paradigmatic stance, drawing upon more than one paradigm in their research. Possible issues with adopting multiple paradigms lie with the opposing epistemologies and ontologies that exist at a paradigm's core, however there are existing models which provide a framework as to how paradigms may be mixed (Creswell & Plano-Clark, 2007; Greene, 2007). The third paradigmatic option is the single paradigm approach, adopting a paradigm which encompasses both qualitative and quantitative methods. In the present study, quantitative and qualitative methods are integrated through the research design to strengthen analysis of research questions which are rooted in the same epistemological and ontological beliefs, rather than reflecting alternative paradigms. Therefore, the present research adopts a single paradigm approach, to enable clear integration of research findings.

It is commonly accepted that there are four paradigms in the social sciences; post positivism (which succeeds positivism); constructivism; transformative; and pragmatism. It is also worth noting that these paradigms are epistemological viewpoints in their own right,

independent of any methodological factors. The post positivist view is that there is a single reality that exists independently of the mind and is probabilistically true, whilst constructivists believe that we as individuals construct our own understanding of the world based on our own experiences and how we reflect on these experiences, therefore there is more than one version of reality. Consequently, post positivist and constructivist approaches closely identify with quantitative and qualitative methods, respectively. In the 1960s and 1970s there was a widespread philosophical view that quantitative and qualitative approaches were bound by separate and opposing epistemological assumptions, and therefore were incompatible. Opposition to this view of methodological dualism received momentum in the 1980s in the form of mixed methods research, which is now seen to be accepted as the third methodological movement (Hall, 2013; Tashakkori and Teddlie, 2003).

Mertens (2003) proposed the transformative paradigm as a solution for researchers seeking to adopt a mixed methods approach. However, the applicability of the transformative paradigm is somewhat narrow as it can only be adopted by research focusing on the lives and experiences of marginalised groups such as women or ethnic minorities. This is seen as a fundamental flaw and limits its use in wider research, with researchers suggesting the approach is better suited as the “purpose of a research project” (p. 680; Tashakkori & Teddlie, 2003).

In an attempt to reconcile post positivist and constructivist epistemologies to form a truly mixed methods paradigm, Peirce, Dewey and James in the 19<sup>th</sup> and early 20<sup>th</sup> centuries, and Rorty in the late 20<sup>th</sup> century collectively formulated pragmatism (Hookway, 2016). A pragmatists’ view of reality is that it contains elements that are accessible to us as researchers and therefore *independent* of the mind, as well as elements that are constructed by individuals and *dependent* on the mind. Unlike traditional views of epistemology, pragmatism is oriented “toward solving practical problems in the ‘real world’ (p. 8; Feilzer, 2010), as opposed to

basing itself on assumptions about the nature of knowledge. Pragmatism is not without its share of criticism, however. A pragmatist believes that beliefs become true when they ‘work’, or their effects are good or useful; but this belief presents many difficulties (Russell, 1910; 1945). The problem with an approach like this when choosing a research design specifically is that in order to choose a method which appropriately measures what is thought to be ‘true’, one would need to already know what ‘good’ or ‘useful’ looks like; but this cannot be known at such an early stage. So, although pragmatism claims to provide a paradigm solution for mixed methods research, it does not justify reasons for using such a methodological approach. A robust mixed methods paradigm must provide clear theoretical reasons for combining the two methodological approaches and, arguably, a critical realist approach is the only single paradigm to do this.

### **6.3. Critical realism**

Critical realists believe there is one true reality and social structures influence the way individuals view this, creating multiple versions of the same reality. Braun and Clark (2013) eloquently describe critical realism (CR) as looking at a view through a prism, “*what is seen is nuanced by the shape of the prism (the prism is culture, history etc.) If you could just get rid of that prism, you’d be able to see what lies behind it (the truth), but you can never get beyond it.*” (p. 28; Braun & Clarke, 2013). As a contemporary, comprehensive paradigm that has received widespread support from the social science community (Braun & Clarke, 2013; Creswell & Clark, 2011; Pawson & Tilly, 1997; Sayer, 2000), CR is concerned with the philosophy of science, ontology, epistemology and aetiology, as well as making explicit claims as to what social science should seek to achieve and what the relevant predictions and explanations ought to look like. Bhaskar initiated the CR movement in the 1980s and 1990s, and believed it to be important to critique both the objects of knowledge and process of knowledge production for a well-rounded view of reality (Bhaskar, 1975; 1987; 1993).

Bhaskar was also keen to realise the potential for social science to be emancipatory, and as Matthews (2009) highlights, it is the ability of CR to link theory, method and intervention that gives it the capacity to push research from merely making conclusions to becoming impactful and emancipatory.

Critical realists posit that if we are to make a difference through research then, in contrast to a pure constructivist perspective, we must imagine there is some form of tangible reality that we can access to influence it. As Madill, Jordan & Shirley (2000) put it, there is a real and knowable world sitting behind the subjective and socially-located knowledge that we as researchers *can* access. So, CR seeks to analyse the social structures that influence action, challenging false beliefs and prompting positive change by changing the way individuals interpret and react to situations. In this sense, both structure and agency are considered, enabling the approach to justifiably underpin a wide range of research methods including both qualitative and quantitative approaches.

A critical realist adopts a retroductive (abductive) approach to reasoning, logically moving from an observation, or research question, to a theory by identifying patterns and regularities within the structures and mechanisms which sit behind the phenomenon. Once a pattern has been identified this formulates the basis of the research hypothesis, which can then be tested through empirical means. Quantitative data can determine where consistencies may lie, whilst qualitative data provides depth and exploration of these suggested patterns, looking for reasoning, motivation and meaning. A critical realist researcher will aim to reach a point of saturation in their data by testing their formulated hypotheses through the application of alternative events or data that may contradict their findings, thus reformulating and refining their findings as further irregularities may arise. There is a phenomenon known as 'depth' realism, as outlined by Benton & Craib (2011), which recognises that empiricism revolves around the creation of laws which fail to uncover the true nature of structures and

mechanisms, therefore being open to continual criticism and change as social processes continue. Additionally, a critical realist recognises that the process of investigation is a product of social relations and so they must be continually aware of the limitations and benefits that these interactions create, and the extent to which one can be truly objective as a researcher.

It has been argued that, as a philosophy, critical realism is better placed to explain complex healthcare interventions than the traditional approaches which are too exclusive and authoritarian (Porter and O'Halloran, 2012). In recent times, critical realism has proved useful in smoking research to provide an understanding of smoking behaviours in low socio-economic groups despite the recent cultural denigration of smokers (Ford, 2001), and specifically in prison health research to provide the framework for an analysis of tobacco smoking in prisons (Taylor, Ogden & Corteen, 2012).

## **7. Reflexivity**

To make sense of my participants' experiences with exercise in the context of prisons it was important for me to observe some aspects of prison life and interact with prisoners, so I spent some time at the outset of my research visiting six prisons across the UK, and a substantial amount of time in HMP Wandsworth throughout my final two years. I also took the time to write field notes at lunch breaks, when I was away from any prisoners, or between interviews, when my thoughts and observations were fresh in my mind. I always refrained from writing notes whilst with prisoners, particularly in the interviews, relying on my voice recorder instead. I felt this was crucial in developing an honest relationship with participants and to immersing myself in their interactions between one another and their responses to my questions.

Any attempt by a researcher to observe behaviours in a real-life environment is limited by the researcher's own body, and as a young, female, non-staff member in a male prison my very presence sparked curiosity. I was not able to view the spaces of the prison in their "natural" form, or witness true interactions between prisoners, because my very presence changed the dynamics of the space I was in. Therefore, to understand prisoners' experiences of exercise and masculinity and how the context of prison impacted these behaviours I relied on conversations with my participants to supplement the observations I had made. From a CR perspective this is not problematic, as there is great value in understanding the prisoners' own perspectives of how the prison works. I could identify what prisoners saw as their reality, and then use this understanding to identify how this reality could be altered to improve health through exercise engagement. For this reason I was also more interested in prisoners' *perceived* exercise motives in the creation of the exercise motivation measure, and less concerned with an interpretation of how these motives may have been formed, because someone's personal reasons for engaging in a behaviour are a phenomenologically accessible way of identifying the regulatory processes at play.

Although I am aware that qualitative data gathering only took place through me, and interviews may have always been tainted by my presence, I took this on board and tried to develop a relationship with my participants that allowed them to talk freely about their experiences. I shared many interests with most participants, as I am from the same geographical area, I share the same accent, and I have a love of sport and exercise, which all provided a useful foundation on which to begin conversations. More than being a useful tool for gathering data, my genuine interest in the topic of exercise motivation kept me thoroughly engaged throughout my research and meant that I enjoyed talking with participants about their experiences, which I feel helped to create a sense of rapport. I also believe that in interview situations my gender became more beneficial than limiting, as I feel that it put the

interviewees at ease and to a certain extent they may have felt more comfortable discussing their emotions with a female, particularly a female who was independent of the prison. There is some research to support this perspective, as women interviewing men is a common preference among in-depth interviewers (Bradburn & Sudman, 1989; Fowler & Mangione, 1990), and Rubin (1976) reports that men feel more comfortable talking about intimate topics with women than with other men, as they have greater experience of expressing their feelings to women rather than men, a sentiment which is echoed by Scully (1990) in her experience of interviewing convicted rapists.

I was also very aware of the spaces within the prison in which interviews were conducted and the impact these had on responses. The first tranche of interviews was conducted on the residential wings, and although the interviewee and myself were the only two in the room, it was very clear to hear the noises from the wing outside the door. The second tranche of interviews was conducted in the legal visits suite, which made for a far more appropriate interview environment. There was a noticeable difference in interviewees' mannerisms throughout this second tranche, they were much more relaxed and we had more time to speak openly about their experiences, with each interview running the full length of our meeting, and concluding with a comment about how enjoyable the conversation had been. On the wing there is a constant acknowledgement of the surroundings, so one cannot forget about being within a prison and prisoners are often waiting to do something, or defend something, or answer to something. The visits suite was secure but was 'outside' of the prison and felt much more personal. Furthermore, the trainer (LJ, an ex-prisoner) who delivered the Cell Workout workshops (the prison sports-based intervention from where my data was obtained), was not in the prison for these interviews, and this meant the conversation did not focus on him or even the workshops themselves. This did not seem to

deter the interviewees at all, and they were open to talk about their healthy behaviours and experiences of prison in general.

In terms of my role as a researcher and the barriers this can create to gathering reliable data, I believe I was viewed by participants in terms of my connection with Cell Workout (CW), rather than as a PhD researcher or psychologist. When framing participants' involvement in the research they were advised that as well as contributing to my thesis, they were also supporting the future of CW and other similar programmes, increasing the likelihood that it would be rolled out in more prisons. As the participants felt positively about CW they were very happy to engage, and the potential for response bias in this respect has been considered. As a supporter of CW myself I am invested in the outcomes of my research, and I have spent a considerable amount of time with the trainer and the participants outside of the workshops. This experience provided me with a unique opportunity to develop a deep understanding of prisons and prison life, but I have also been mindful that although I do want to demonstrate how important and positive CW is overall, this may have created some bias towards positive outcomes. However, from the perspective of wanting to support the development of CW and future SBIs I have been aware of the aspects that need improving, as well as those which work well. I have also been bound by the framework of SDT, which has helped to shape my outcomes and minimise bias, forcing me to focus on how CW promotes motivation for exercise, rather than just on the positive affect that arises from engagement. Furthermore, although I am a supporter of CW I was not directly involved in its delivery, which allowed me to take a step back and identify flaws in its development and delivery which may not have been apparent to me if I was more involved, whilst being seen as fairly independent.

I feel that my association with CW as part of a broader project of research into the use of sport and physical activity in prisons, as led by my supervisor Professor Meek and

supported by the MoJ, gave me further legitimacy in the prison. This seemed to give me the support of gatekeepers within the prison that other researchers would not necessarily have, and led to a relatively smooth experience in terms of ethical approval and freedom to collect data throughout the prison, including the use of a voice recorder in interviews and two days' worth of interviews in the legal suite managed by the prison on my behalf. However, despite my connection to CW and the support I received from the prison I remained independent in my approach, which was underpinned by my key objective to assert myself as a professional psychologist and researcher. This objective was supported by my continued engagement with relevant literature, independent organisations across the criminal justice field, and academic events. These experiences allowed me to continually engage with a diverse range of views and experiences, from service users to academics and practitioners, helping me to remain objective in terms of identifying best practice and recognising what does not work so well.

Data collection was supported by LJ, who gathered all start and end surveys from participants. This was tremendously helpful in terms of time saving, and it meant that response rates, particularly for the start surveys, were very high. Follow-up data was harder to obtain, but having LJ escort me around the prison to gather surveys was invaluable, and highlighted the barriers that researchers can come up against when trying to complete tasks that would be relatively simple outside a prison. There are drawbacks to having LJ involved in some of the data gathering, as he was not independent, and this may have impacted on responses somewhat, however, given the constraints of the prison environment the benefits of his involvement outweighed the potential negatives. Furthermore, outcomes from survey responses were supported by my independent observations of the workshops and interviews, to minimise the effect of any bias.

As my research has clear real-world application in terms of informing the development of future SBIs, I have been aware of its potential audience. The language used

in academic papers can be bound by institutions, therefore I have written two versions of the CW evaluation. One version is presented in my thesis, and a second has been made more accessible to an audience outside of academia, particularly stakeholders involved in the delivery of prison interventions, and for prisoners themselves, to understand the implications of my research outcomes (Baumer, in press-a).

The final consideration in my reflexive piece has played a key role in shaping my research, and that is my experience of being situated in an interdisciplinary department. As a student in the School of Law I have engaged with Psychologists, like myself, as well as Sociologists, Criminologists, and Lawyers. This interaction has given me valuable insight into many different areas of research, such as ethnography and carceral geography, and has deepened my awareness of structural and cultural influences, leading me to pay careful consideration to theories of masculinity and incarceration. My second study takes on a much greater sociological stance than I believe I would have taken if I had been based in an entirely psychological department, and through an acknowledgement of socio-environmental influences, SDT has provided the ideal theoretical framework on which to apply my qualitative findings. I believe my thesis would not be as comprehensive and robust if I had not been challenged by other disciplines in the department, and this experience has given me a broader perspective towards research in general.

## **8. Ethical considerations**

This research aimed to explore prisoners' exercise motivations by gathering data from a group of participants who took part in a sports based intervention (SBI) which was reviewed and approved by the ethical committee of the School of Law at Royal Holloway, University of London, and the National Offender Management Service (known now as Her Majesty's Prison and Probation Service). The collection of this data did not require ethical review by a NHS or Social Care Research Ethics Committee or management permission

through the NHS R&D office. Nonetheless, there were clear ethical issues which can arise from working with prisoners, particularly when addressing wellbeing, and these were carefully considered by the researcher. With such high rates of mental and physical health needs amongst offenders going undiagnosed or untreated, this type of evaluation is crucial in the bid to improve existing means of health promotion. To provide the most accurate picture of the prisoners' experiences with exercise in prison it was crucial to approach the participants themselves, which the present research did through surveys and face to face interviews. The researcher's academic supervisors, Prof Rosie Meek and Dr Emily Glorney, both have a great deal of experience of working with offenders and were well placed to review the measures used in the evaluation of the SBI, ensuring they were sensitively worded and appropriate for the prisoner population. It was felt that limiting the data gathering to questionnaires presented a real danger in terms of ignoring key factors which were not covered in the scope of the questions. Subsequently, the decision was made to include face to face interviews as well as questionnaires to obtain a greater depth of detail in relation to the prisoners' views and experiences of the SBI.

There were no known risks associated with research participation. Participants were made aware that they did not have to take part in the research, but that by completing the questionnaires they consented to their responses being used to evaluate the SBI, and they were free to withdraw their data at any point up to a month following the final data gathering, and were free to do so without providing a reason. Participants all had a chance to speak to either their trainer or the researcher about the evaluation at any point, and the final report will be made available to the prison for participants to view should they wish to. No directly identifiable personal data was collected during this research. Completed interviews and surveys were anonymised and participants referred to by pseudonyms and unique identifiers. This information is stored in a locked filing cabinet. Participant responses and personal

information are stored in separate electronic databases to further avoid the potential of access to identifiable data and both are encrypted and password protected.

The researcher ensured her own safety by being in the company of LJ or a member of staff when moving around the prison, always ensuring that the security team were well informed of her presence in the prison, and with a member of staff within ear shot for all interviews. Surveys were distributed by the trainer and interviews were either conducted in a room which adjoins the room in which the SBI cohort were based, or in the legal visits suite. The researcher kept regular contact with her supervisors throughout and discussed any concerns and impact with them. The researcher also had access to a prison researcher peer support network as well as a University counselling service.

## 9. Chapter 2 - Study I

### 9.1. Behavioural models

The purpose of exercise psychology research is to establish and fulfil the potential of sport and exercise across a range of populations. To achieve this, behavioural determinants of sport and exercise need to be identified and managed. As stated by Dishman, "Exercise behaviours are more complex, time consuming, and effortful than most other behaviours that are targeted for change in behaviour therapy" (p. 372, Dishman, 1991). Despite this challenge, research suggests that success for programmes aimed at increasing physical activity may increase from 40% to as much as 60% with the inclusion of behavioural change interventions (Dishman & Sallis, 1994). Two of the most widely recognised and accepted behavioural approaches to changing physical activity behaviour are Social Cognitive Theory (SCT; Bandura, 1986) and the Transtheoretical Model of Behaviour (TTM; Prochaska & DiClemente, 1983). The former posits that human behaviour is determined by three factors; cognitive, environmental and behavioural, and has been applied to physical activity research to predict participation and adherence (Harmon et al., 2014; Kahn et al., 2002; and Martin et al., 2011). The TTM has a multidimensional design with four main facets; the stages of change; processes of change; decisional balance; and self-efficacy. Although there is much research which applies the stages of change in isolation, researchers emphasise that the adoption of all four elements is crucial to the model's effectiveness (Bridle et al., 2005; Hutchison, Breckon & Johnston, 2009). The stages of change classify individuals based on their readiness to change across five stages, namely, pre-contemplation; contemplation; preparation; action; and maintenance. Processes of change include various cognitive (experiential) and behavioural skills that are employed depending on whether an individual is already active or embarking on a program of physical activity, for instance, cognitive skills

include consciousness raising (seeking information) and environmental re-evaluation (assessing how inactivity can affect society), whilst behavioural processes include counter conditioning (substitution of physical activity for sedentary choices) and helping relationships (social support during change; Prochaska et al., 1988). Thirdly, the behavioural construct of decision making helps to predict transition between stages (Janis and Mann, 1977), and finally, self-efficacy (Bandura, 1977) reflects the level of confidence an individual has in their ability to change their physical activity behaviour and maintain this over time. The TTM is now popular as a theoretical framework to develop and guide physical activity behaviour change interventions (Kim, Hwang, & Yoo, 2004; Kirk, Mutrie, MacIntyre, & Fisher, 2004; and Woods, Mutrie, & Scott, 2002).

The behavioural process of helping relationships as outlined in the TMM has received particular attention from research. Bandura's paper on Health Promotion by Social Cognitive Means (Bandura, 2004) proposes that social support helps define the context in which health promotion takes place. He attests that without social or collective acceptance, the adoption of new behaviours cannot take place; a sense of collective efficacy is required, and social support can act as a means for stimulating interest in behavioural change, promoting recovery from relapse and providing additional motivation. In terms of physical activity, social support has been related to positive outcomes including decreases in depression and anxiety (DiLorenzo et al., 1999), increased self-esteem (Sonstroem, 1997), self-concept, vigor (DiLorenzo et al., 1999), physical self-worth, sport competence, physical condition, body attractiveness and physical strength (Lubans, Morgan & McCormack, 2011), and increases in general physical activity engagement (Biddle et al. 2005; Van der Horst et al. 2007). Although it is important to note that the context and form of social support can have varying impacts, such as whether it originates from a teacher or friends and family (Lubans et al., 2011), and whether it is structured or informal (McGale et al., 2011).

The role of self-efficacy in the TTM is conceptualised by Bandura, who proposes that self-efficacy is “the belief in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 2, Bandura, 1997). These perceptions of one’s potential abilities have the power to affect behaviour, motivation, thought patterns and emotional reactions to any given situation, as well as determining coping behaviour, effort level and adherence of behaviour in spite of obstacles and aversive experience. In this sense self-efficacy is not considered a trait, rather it is a dynamic construct (Bandura, 1977). The application of Bandura’s theories to exercise participation highlights self-efficacy as the tool to instil the confidence with which to change existing behaviours related to physical activity, as well as maintaining such behaviours across all stages of the TTM (Dishman & Buckworth, 1997). In support of this application, self-efficacy has been positively related to levels of physical activity at baseline (Dishman, Jackson & Bray, 2014) and as part of behaviour change interventions (Darker et al., 2010), as well as being named in the prediction of physical activity amongst healthy adults, (e.g. Kaewthummanukul & Brown, 2006; Rovniak, Anderson, Winett, & Stephens, 2002; Sharma & Sargent, 2005; McAuley, Wraith & Duncan, 1991; McAuley, 1993; & Wilcox & Storandt, 1996), adolescent males (De Bourdeauhuj et al., 2002) and the adoption and maintenance of physical activity (Sallis et al., 1986; Sallis, Hovell, & Hofstetter, 1992; Strachan, Woodgate, Brawley, & Tse, 2005; Calfas et al., 1997; Duncan et al., 1993; Duncan & McAuley, 1993; Fontaine & Shaw, 1995; McAuley, 1993).

Self-efficacy has been positioned by many researchers as a key predictor of behaviour, including exercise, and Weiss and Ebbeck’s (1996) model of motivation which illustrates reasons for physical activity motivation in youth suggests that self-efficacy is a determinant of physical activity over and above enjoyment. However, more recent studies have begun to refute this and highlight the importance of enjoyment as a predictor over and above self-efficacy (Crain, Martinson, Sherwood, & O’Connor, 2010; Hagberg, Lindahl,

Nyberg, & Hellenius, 2009). Lewis et al. (2016) explored the relative impacts of self-efficacy and enjoyment as predictors of physical activity on a sample of sedentary adults, and found that self-efficacy and enjoyment at baseline and six months could predict physical activity levels at one year, but enjoyment remained a predictor of physical activity once self-efficacy had tailed off. Testing of a mediation model revealed that enjoyment mediates the relationship between self-efficacy and physical activity, a finding which had not been present in previous studies. The authors propose that this outcome rejects self-efficacy theory in that enjoyment as a response to physical activity is not likely to influence one's perceived capability to perform physical activity in future. However, self-efficacy as motivation, as proposed by Williams and Rhodes (2014), posits that self-efficacy ratings are reflective of a broader concept of motivation; thus, enjoyment of physical activity motivates further engagement, with individuals becoming more likely to assert that they can engage in physical activity despite perceived barriers such as self-efficacy ratings. As Lewis et al. (2016) outline, the role of enjoyment in the adoption and maintenance of physical activity is reflective of self-determination theory (Ryan & Deci, 2000) and hedonic theory (Cabanac, 1992), in that the intrinsic reward of enjoyment motivates individuals to engage in certain behaviours.

## **9.2. Motivation**

Ryan and Deci outline motivation as a key construct in psychology which sits at the heart of biological, cognitive and social regulation, being concerned with "energy, direction, persistence and equifinality - all aspects of activation and intention" (p. 69, Ryan & Deci, 2000). In relation to sport and exercise specifically, Power et al. (2011) note that the examination of the relationship between motivation, fitness and health is crucial in maximising mental well-being.

### **9.2.1. Self-motivation**

According to Bandura (2004), self-efficacy and self-motivation are related to the intensity and persistence of individual's exercise behaviour. Self-efficacy is generally recognised and measured as a trait in studies of exercise adherence, predicting an individual's tendency to act in related settings. Self-motivation on the other hand is non-specific, and reflects a tendency to persist in long-term goals independent of reinforcement history, ability or control regarding a specific activity. High levels of either self-efficacy or self-motivation are likely to result in the development of self-regulation tactics to achieve physical activity goals (Bandura, 2004).

Early researchers believed that the constructs most strongly associated with an individual's tendency to persevere with exercise were health locus of control, social desirability and achievement tendency (Dishman & Ickes, 1981). However, these constructs have not been found to relate to self-motivation, which has been reported as the best predictor of exercise adherence or dropout when compared with such other psychological variables, accounting for nearly 50% of the variance (Dishman, Ickes & Morgan, 1980). Self-motivation has often been cited by subsequent research as being effective in predicting exercise adherence across a broad spectrum of settings (Morgan, 1997; Sonstroem, 1988; Dishman & Sallis, 1994; Steinhert & Young, 1992).

### **9.2.2. Self-determination theory**

**SDT versus TTM.** In slight contrast to the TTM and specifically Bandura's self-efficacy theory, Ryan and Deci (1985) put forward the Self-Determination Theory (SDT), proposing that internal motivation can predict behaviour regardless of self-efficacy. The main distinction between the two behavioural models is that the former applies a quantitative perspective to motivation, with higher stages of change reflecting higher levels of motivation,

whereas SDT focuses on the quality of motivation, suggesting that exercise engagement can be regulated through identification of autonomy or control. SDT advocates that any effort to mobilise an individual to act should recognise that internal motivation is likely to enhance feelings of excitement, interest and confidence, which cultivates enhanced performance, persistence and creativity, (Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997) self-esteem (Deci & Ryan, 1995), and general well-being (Ryan, Deci, & Grolnick, 1995), all regardless of self-efficacy for the behaviour.

According to Chatzisarantis, Biddle and Meek (1997), cognitive theories such as the TTM analyse behaviours in terms of cognitive representations of desired outcomes, however, the conditions within which these desires are formed has a significant impact on the strength of intentions, which purely cognitive theories fail to address. Through the development of SDT, Deci & Ryan (1985a) identify three psychological needs that influence the strength of intentions when behavioural desires are formed. Ryan and Deci employed inductive methods to identify three innate psychological needs that form the basis for self-motivation and personality integration; the need for competence (Harter, 1978; White, 1963); relatedness (Baumeister & Leary, 1995; Reis, 1994), and autonomy (deCharms, 1968; Deci, 1975). They advise that satisfaction of these needs is a requirement for integration of individual and collective cognitions, emotions and experiences into the personality, leading to psychological maturity, constructive social development and overall personal well-being. Additionally, SDT proposes that factors which undermine self-motivation, social functioning and personal well-being can be roughly identified as any factor which antagonises these three psychological needs, and small fluctuations in these needs predict fluctuations in well-being (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Psychological needs can account for the inconsistencies between measures of behaviour and intention by identifying the relevant level of autonomy associated with the behaviour. For example, intentions to exercise may be high, but if these

intentions are a result of controlled behaviours then their internalisation is likely to be introjected, and therefore exercise adherence is likely to be low. The process of internalisation is explored in greater depth in the context of extrinsic motivation later in this review.

**Choice and control.** Much of the existing literature on exercise and affect has focused on cycle ergometry (Dishman, Farquhar & Cureton, 1994; Eston, Parfitt, & Tucker, 1998) or running therapy (Rueter, Mutrie & Harris, 1982; Kraemer et al., 1990; McGowan et al., 1993; Wildmann et al., 1986; Kerr & Kuk, 2001; O'Connor et al., 1991; Byrne & Byrne, 2003). However, by controlling behaviours and omitting the experience of choice which exists during every day exercise settings, experiments are missing the different responses which these choices have on the affective responses, and as Biddle, Fox, Boutcher, and Faulkner (2000) argue, exercise programmes should provide “an element of choice” (p. 168). Daley & Maynard’s (2003) experiment looking at preferred exercise modes and affective responses found participants who were given a choice for their mode of exercise recorded significantly lower negative affect responses than those who were given no choice and those in the control group. Likewise, Karoly (1993) found that pleasant emotions decrease following exercise when it is predetermined, suggesting that this is related to successful or unsuccessful pursuit of goals leading to positive or negative affect, respectively, as a result of not being able to set one’s own goals. The authors propose that to promote positive affect, it may be important to allow individuals to choose their own exercise goals, plans and strategies, including intensity, distance and speed. Furthermore, it has been demonstrated that men specifically value autonomy in relation to healthy practices, as a means for retaining masculinity of a predominantly feminine behaviour (Sloan, Gough & Conner, 2010). Although whether an individuals' choice of exercise meets necessary levels for increased

physiological fitness may still need to be taken into consideration, depending on individual needs.

Outside the restrictions of experiments and exercise prescriptions, the duration, mode and frequency of exercise are mostly within the individual's control, and perceptions of control are identified as an important feature in the Theory of Planned Behaviour (Ajzen, 1991) in relation to health behaviour modification. Scully et al. (1998) note the importance of control as a mental benefit of sport and exercise; a salient point in respect of prisoners' perceived lack of control as expressed through hopelessness, which is negatively correlated with exercise in prison (Cashin, Potter & Butler, 2008). This perception of control over behaviour is described by Deci and Ryan (1985) as self-determination, and is also linked to control over one's own emotions.

As Woodall, Dixey and South (2014) highlight, choice, control and empowerment play a key part in the discourses for "health-promoting prisons", and they note that, despite the obvious structural barriers to autonomy in prisons, they could exert personal choice through self-determination. In fact, whilst in prison, many of the environmental factors which have been detrimental to previous attempts to make healthy choices are absent, thus, making positive choices with regards to health behaviours may be easier for prisoners in some instances.

**Intrinsic motivation.** Central to SDT is the construct of intrinsic motivation, described by Ryan and Deci as "a natural inclination toward assimilation, mastery, spontaneous interest, and exploration that is so essential to cognitive and social development and that represents a principle source of enjoyment and vitality throughout life" (p. 70, Ryan & Deci, 2000). Because intrinsic motivation is an innate tendency, it is understood in the context of the socio-environmental factors that cause it to either flourish or diminish, rather

than by way of causality. A sub-theory of SDT is Cognitive Evaluation Theory (CET; Deci and Ryan, 1985), which explains the variability in intrinsic motivation, and does so by focusing on the two fundamental needs of competence and autonomy. The theory proposes that for intrinsic motivation to be enhanced, feelings of competence must be supported, and this can be done through several social-contextual events such as feedback, communications, optimal challenges, and freedom from demeaning evaluations, whilst negative feedback performance will diminish intrinsic motivation (Deci, 1975). The role of autonomy in CET is to accompany such feelings of competence, by ensuring that action is driven by an internal perceived locus of causality (self-determined behaviour; deCharms, 1968). If an action is driven by an external perceived locus of causality, such as a tangible extrinsic reward, or threats, deadlines and imposed goals, then it is not experienced autonomously and thus intrinsic motivation is undermined (Deci, Koestner, & Ryan, 1999). Although it should be noted that research outside of the physical activity domain has suggested that *appropriate* extrinsic rewards do not diminish task attractiveness (Vredenburgh, McLeod & Nebeker, 1999). It is important to note here that satisfaction of the psychological need for autonomy is not the same as autonomous behaviour. The basic need of autonomy can be satisfied through feelings of choice and control in relation to engaging in a behaviour, but if this need is satisfied in isolation it may not result in the enhancement of intrinsic motivation. Autonomous or self-determined behaviour is a result of successful enhancement of intrinsic motivation through satisfaction of competence and relatedness for a behaviour which is experienced with an internal perceived locus of causality.

Thus, the two needs of competence and autonomy must operate simultaneously for the enhancement of intrinsic motivation (Fisher, 1978; Ryan, 1982), and the presence of these needs may either be in the immediate environment, or a result of inner resources which are likely to have arisen from previous developmental supports for perceived autonomy and

competence (Reeve, 1996). This same process is reflected in Skinner's operant conditioning theory (1948) of externally regulated behaviours with low autonomy which, according to CET, would be experienced as controlled or alienated (deCharms, 1968). To enhance intrinsic motivation then, CET advocates the use of actions which instil greater autonomy such as choice, acknowledgement of feelings, and opportunities for self-direction (Deci & Ryan, 1985a). The importance of autonomy support is noted in education, with students presenting greater intrinsic motivation, curiosity and a desire for challenge when their teacher is autonomy supportive (Deci, Nezlek, & Sheinman, 1981; Flink, Boggiano, & Barrett, 1990; Ryan & Grolnick, 1986), and research in the domain of sport specifically has shown that intrinsic motivation is fostered by supports for autonomy and competence (Frederick & Ryan, 1995).

In addition to competence and autonomy, the importance of relatedness is also noted in CET, where a secure relational base will allow for enhanced intrinsic motivation irrespective of proximity; much in the same way that a secure maternal relationship fosters exploratory behaviour in Bowlby's theory of attachment (Bowlby, 1979). For intrinsic motivation to flourish an activity must hold intrinsic interest for an individual, either through aesthetics, novelty or challenge. As people leave childhood and social pressures and new responsibilities become more abundant, the freedom to choose activities based purely on intrinsic motivation becomes more of a luxury than the norm, forcing extrinsic motivation to become more prevalent in the adoption of actions (Ryan & Deci, 2000). CET accounts for behaviours related to activities of intrinsic importance, such as those which are of interest, or have the appeal of novelty, challenge or aesthetic value. For an explanation of how individuals experience behaviours which are extrinsically motivated one must turn to a further sub-theory of SDT, organismic integration theory (OIT; Deci and Ryan, 1985).

## **Extrinsic motivation and internalisation**

*Organismic integration theory.* Initial theories introducing the concept of a perceived locus of causality (PLOC) suggested that intentional behaviours are either experienced with an internal PLOC, in which the actor is the origin of the behaviour, or an external PLOC, in which the actor is a ‘pawn’ to external factors (DeCharms, 1968). Ryan & Connell (1989) expand on this idea by identifying the role of intrapersonal pressures on the extent to which a behaviour is experienced as autonomous, expanding the theory to include a “gradient of autonomy” (p. 759, Ryan & Connell, 1989). This was an important progression in the area of motivation, as it facilitated the development of assessment tools to measure an actor’s reasons for behaviour, using personal reasons as a means to understand how autonomous a behaviour may be. This development led to organismic integration theory describes the different forms of extrinsic motivation and how these are hindered or promoted through contextual factors, forming a self-determination continuum. The continuum reflects the impact of autonomy on motivation, ranging from amotivation - the state of not acting at all or acting without intent, through to intrinsic motivation - highly autonomous behaviours carried out for their inherent satisfactions. Amotivation is reflective of a lack of values (Ryan, 1995), competence (Bandura, 1986) and desired outcomes (Seligman, 1975) associated with an activity. In relation to exercise, those who strongly value exercise, have high levels of perceived control over health outcomes and expect these to be positive, are much more likely to engage in exercise (Dishman, 1982).

Extrinsic motivation is reflected by four classifications ranging from external to internal; external regulation (external; “I exercise because somebody told me to”); introjected regulation (somewhat external; “I exercise because I want others to think I am good at exercising”); identified regulation (somewhat internal; “I exercise because I know it is good for me”); and integrated regulation (internal; “I exercise because it is part of who I am”).

Introjected regulation is still reflective of an external perceived locus of causality, and is characterised by behaviours to 'save face' or maintain feelings of worth, avoid feelings of guilt and anxiety and increase pride. Although these actions are internally driven, they are still a reflection of external pressures and thus are not truly experienced as part of the self. Regulation through identification describes behaviours to which personal importance or values are attributed, and the most autonomous form of extrinsic motivation occurs when an action is brought in line with one's own values and needs, known as integrated regulation. In this sense, autonomous and self-regulated behaviours are not always intrinsically motivated. A behaviour may initially be extrinsically motivated, stemming from expectations imposed by culture or community, but over time, environmental factors can facilitate the integration of these behaviours across the self-determination continuum, gradually aligning them with an individual's own values. In theory, an individual will eventually be intrinsically motivated to perform these behaviours in order to reach their self-defined goals. It should be noted that an individual does not have to move through these regulatory processes by experiencing the same stages of internalisation with every behaviour however, and depending on previous experience and current situational factors it is possible to readily internalise a new form of behavioural regulation at any point on the continuum (Ryan, 1995). In fact, it has been shown that children can begin to adopt a generally more internalised form of regulation over time (Chandler & Connell, 1987). It is the principle of reaching self-defined goals which separate integrated regulation (and the principles of OIT) from pure intrinsic motivation (and the principles of CET), in that integrated regulatory behaviours are performed to obtain outcomes other than enjoyment. Another important distinction between OIT and CET is the emphasis on the need of relatedness in OIT, which is central to internalisation and arguably the primary reason why individuals engage in extrinsically motivated behaviours in the first place,

because it is valued by a significant other. The principle of relatedness will be explored later in the context of autonomous and internalised regulation.

Finally, it is important to note the difference between situation-specific and trait-like integration, that is, the extent to which one internalises their motivations. Ryan (1995) argues that integration can either be viewed as a global individual difference, or something that varies from domain to domain, or situation to situation. He outlines a generalised, innate tendency in terms of how one integrates or internalises one's motives for behaviour, which is thought to be determined in early life as one's experiences of support for the basic psychological needs affects the degree of self-actualisation. With a lack of support for autonomy, competence and relatedness, young children may develop a general orientation towards the regulation of behaviour as being uncontrollable and unpredictable, but if these needs are supported, they will develop a propensity to experience the regulation of behaviour as autonomous (Deci & Ryan, 1985b). This so-called integrative tendency, or causality orientation, can also be affected by one's global contextual supports, so, the extent to which one feels that their psychological needs are being met in a general sense. However, Ryan emphasises that no matter what this integrative tendency, integration will vary differentially across contexts dependent on situational motives and supports. Further research has shown that daily experiences of autonomy and competence predict daily variations in personal well-being (Sheldon, Ryan & Reis, 1996), thus, different social contexts have a marked effect on one's experience of psychological needs, supports, and resultant internalisation. This is crucial for overall well-being, as the advantages of greater internalisation include enhanced behavioural effectiveness, persistence, enhanced subjective well-being and an increased sense of belonging to one's social group (Ryan and Deci, 2000). In terms of exercise then, individuals move through this continuum of self-determination through the process of integration, in which their motivation for exercising becomes less controlled and more

autonomous over time, with more internalised regulation associated with increased physical exercise (Chatzisarantis, Biddle, & Meek, 1997).

It is important to note that this continuum of self-determination is reflective of *reasons* for actions, rather than the underlying *causes* for such actions, thus it is a subjective measure of motivation. As highlighted by Buss (1978), actors typically provide reasons for their actions, rather than causes behind them, whilst it is observers that can recognise the relationship between a person and their environment and thus infer causal attributions as well as reasons for action. Thus, SDT refers to a *perceived* locus of causality, as well as perceived autonomy and perceived competence, focusing on how an individual describes their own purposes for acting. As Peters (1958) emphasises, it is vital to note the distinction between the reasons an actor attributes to their actions, and the *actual* causes for these actions, which, in the context of SDT, can be partially explained by the extent to which an individual's basic psychological needs are satisfied.

***Autonomous and internalised regulation.*** According to Ryan and Deci (2000) and as supported by research (Biddle et al., 1998; Power et al., 2011), enhanced mental well-being through physical activity may lie in the promotion of autonomous regulation towards sport and exercise as extrinsically motivated behaviours, pertaining to the three psychological needs. Firstly, relatedness - it is important for an individual to feel or want to feel a sense of connectedness to a significant another. This person may be prompting the exercise, as in the role of a coach, they may hold strong values towards exercise, such as a parent who advocates exercise as means of staying healthy, or they may exhibit behaviours related to exercise which are sought to be modelled, in the case of an athlete. Secondly, self-efficacy - for extrinsic motivation to be internalised there must be a sense of perceived competence for the behaviour, therefore appropriate support around an individual's competence to participate in physical activity is crucial, along with participation and conquering of challenges which

are optimal for an individual's capabilities. Finally, and most importantly for increased internalisation, autonomy - the individual must feel a sense of autonomy in relation to physical activity participation. More specifically, the individual must fully understand the benefits of sport and exercise for them personally, and align this with their other goals and values. Their decision to exercise must be entirely their choice, free from excessive external pressure to exercise or think about exercise positively. Arguably, the psychological need which has received the least attention from research in relation to PA behaviours is relatedness. Evaluation of the Physical Self-Perception Profile (PSPP; Fox & Corbin, 1989) demonstrated a positive relationship between perceived social support from teachers in relation to sport and scores on all four sub-domains of physical self-concept (Lubans et al., 2011), and there is a strong relation between the subdomains of the PSPP and predictability of future physical activity participation (Marsh & Redmayne, 1994). Generally speaking however, relatedness is rarely identified as a measure in itself, and its definition in future research would benefit from greater focus.

Autonomous regulations are associated with positive motivational consequences including behavioural persistence, enhanced psychological well-being and quality of life, conversely, trying to control an individual into participating in physical activity is likely to result in introjected internalisation, as they aim to avoid the anxiety or guilt associated with non-compliance. Autonomous motivations have also been linked with Interest (Deci & Ryan, 1985; Reye, 1982), whilst controlled motivations such as introjection have been associated with feelings of tension and pressure (Ryan, 1982). There is also evidence to suggest that presenting a job as task-involved, by concentrating on the individual's performance on the task, produces interest, whilst presenting a job as ego-involved, by concentrating on outcomes in comparison to others, produces pressure and tension, despite both approaches generating persistence (Ryan, Koestner & Deci, 1991).

An overwhelming body of empirical literature has shown the benefits of autonomous and internalised regulations in relation to physical activity, demonstrating that autonomous exercise induces positive affect both during and after exercise compared with controlled exercise conditions (Daley and Maynard, 2003), exercise intensity work rate is likely to be higher during preferred intensity conditions in comparison to a prescribed intensity (Parfitt, Rose and Markland, 2000), and internalised regulations are positively related to future intentions to exercise, current exercise behaviour and physical fitness across both leisure and exercise contexts (Chatzisarantis & Biddle, 1998; Edmunds, Ntoumanis, & Duda, 2006; Landry & Solmon, 2004; Mullan & Markland, 1997; Rose, Parfitt, & Williams, 2005; Wilson & Rodgers, 2004; Wilson et al., 2003). Therefore, it is crucial to distinguish between these differing regulations (Reinboth, Duda, & Ntoumanis, 2004; Ryan & Deci, 2000; Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002; Vallerand, Fortier, & Guay, 1997).

Research has highlighted methods which can be employed to nurture autonomy as needed for greater internalisation of extrinsically motivated behaviours, such as the provision of meaningful rationales for behaviour in order to align them to one's own values (Deci, Eghrari, Patrick, and Leone, 1994). When considering the process of internalisation, it is important to note that autonomy does not refer to independence as would be known in an individualist culture, rather, greater autonomy is reflective of volition and has a stronger relation to collectivist cultures (Kim, Butzel, & Ryan, 1998), as well as being strongly associated with increased relatedness between parents and teenagers (Ryan & Lynch, 1989). Research in school settings has demonstrated the importance of volition in increasing self-determined physical activity behaviours, revealing that increasing the amount of physical activity on the curriculum does not increase patterns of leisure physical activity outside of school (Sallis, Hovell & Hofstetter, 1992). Chatzisarantis et al. (1997) also suggest that children should be given the opportunity to choose their behavioural options to allow

autonomous intentions to flourish. This availability of choice allows them to try different options and manipulate behavioural choices to align with their own inclinations and roles. In terms of applying this logic to physical activity, an element of flexibility should be applied to the definition of this behaviour allowing for increased motivation across individuals of differing levels of ability as they apply their own ideas as to what physical activity looks like to them. In the long-term, SDT has the potential to aid understanding of how different regulatory styles such as those outlined here can impact on exercise (Wilson, Rodgers, Blanchard, & Gessell, 2003).

Daley & Duda (2006) looked at the relationship between self-determination and stage of readiness to change in exercise and frequency of physical activity across 409 university students in the UK using a cross-sectional design. Measures of motivational regulations in exercise were taken using the 19-item Behavioural Regulations in Exercise Questionnaire-2 (BREQ-2), which assesses exercise participation in line with SDT by asking questions reflective of external, introjected, identified, intrinsic and amotivated regulations. Although the BREQ-2 does not include a measure of integrated regulation, its characteristics are reflected in measures of identified regulation in which outcomes are also related to personal values, albeit to a lesser extent of internalisation. The stage of change ladder (Beiner & Abrams, 1991) assessed participants' readiness to change based on the five stages in the TTM. And finally, measures of actual physical activity participation as an average per week were taken. It is worth noting that measures of physical activity in studies of self-determination theory are often gathered using self-report methods through cross-sectional designs such as this. These approaches have their limitations in that subjective measures of physical activity are prone to influence from confounding factors, and long-term effects cannot be determined. Despite the cross-sectional design however, efforts can be made to employ more stringent measures of physical activity such as perceived exertion (RPE) and

duration, rather than frequency alone, which would reveal any relationship between motivational regulation and relative effort when exercising.

Results from Daley & Duda's (2006) study revealed that those who showed more self-determined regulations were likely to be in the later stages of change and participate in more physical activity per week. Notably, the study also found that identified regulation, reflective of personal importance and conscious valuing, held greater power when discriminating between active and inactive participants than intrinsic motivation. The authors suggest that exercise is not a behaviour adopted purely for inherent enjoyment as intrinsically motivated behaviours would need to be, but rather people engage in exercise to achieve an outcome of personal importance and value, which reflects both identified and integrated forms of regulation. This finding has huge implications for determining which self-determined regulations are most effective in the promotion of exercise adoption and adherence. Exercise in itself is not often intrinsically interesting (Ryan, Frederick, Lepes, Rubio, & Sheldon, 1997) and the benefits of exercise are often positioned from a health and social perspective such as losing weight, physical functioning and meeting people, rather than the intrinsic values of exercise being fun. Therefore, identified regulations may play an important role in the promotion of physical activity, but the extent of this role needs further investigation, especially in relation to intrinsic regulation.

***Contingent and non-contingent self-esteem.*** Although many researchers would argue that self-esteem is a need alongside autonomy, self-efficacy and relatedness (Anderson, Chen, & Carter, 2000; Maslow, 1943; and Pyzczynski, Greenberg, & Solomon, 2000), SDT posits that self-esteem is a need *deficit*. This idea of self-esteem as a deficit sets SDT apart from Maslow's classic and often cited hierarchal theory of motivation (Maslow, 1943), which suggests that esteem needs must be satisfied before an individual can experience self-actualisation. Maslow divides esteem into two categories, the latter of which being a desire

for reputation or respect from others. Self-determination theorists would refute this as a need, arguing that if one seeks respect then this suggests poor self-worth as created through an absence of need satisfaction. Ryan and Brown (2003) propose that the search for self-esteem often leads to the engagement in activities which individuals do not endorse or value, but instead foster a vulnerability to conformity. They also believe that if we are relying on contingent regard from significant others, which plays a pivotal role in self-esteem, then we are prone to introjection, with our desires founded in self or others' approval. Thus, individuals are likely to pursue unfulfilling goals and are vulnerable to exogenous social pressure. In further acknowledgement of the premise that self-esteem is not a basic need, Deci and Ryan (1995) have shown that support of autonomy, relatedness and self-efficacy will result in high self-esteem, positioning it instead as a by-product of the three needs.

Ryan and Brown go on to frame self-esteem according to SDT, proposing that contingent self-esteem is a result of deprivation in one or more of the basic needs, either one is missing a sense of love, authenticity, or effectiveness, and as a result an individual's self-worth is based on achieving goals or appearing certain ways, and is strongly motivated by a desire to appear worthy. Noncontingent self-esteem on the other hand, reflects positive mental wellbeing, and is characterised by a fundamental feeling of self-worth in regard to love and esteem. Importantly for physical activity participation, self-worth is not determined by successes or failures, even if a re-evaluation of action and effort is required. Those whose basic needs have been met and therefore do not seek approval of their self-worth through self-esteem can still experience disappointment, sadness and loss if failures or rejections occur, but they do not question their self-worth as a result. Similarly, succeeding does not require an inflated ego, but instead is met with feelings of pleasure and excitement, and genuine interest in one's own achievements, their effect and what these mean. This idea of non-contingent self-esteem is related to the concept of mindfulness (Brown & Ryan, 2003;

Hodgins & Knee, 2002) proposing that there is no fixed concept of self which one must protect. Kernis (2003) attests that the true basis for well-being is to step outside of the self-concept altogether, whilst fellow researchers conclude that “a person who is acting in an integrated, mindful way seeks not self-esteem, but rather, right action, all things considered” (p. 75, Ryan & Brown, 2003).

From a SDT perspective then, to ensure optimal mental wellbeing and integration in relation to physical activity, an individual's three basic psychological needs of autonomy, self-efficacy and relatedness need to be satisfied prior to them forming the intention to exercise. Thus, intentions to exercise will not reflect introjected regulation of behaviours motivated by a need to increase one's self-esteem, but rather they will be internally motivated in line with one's own true values and no one else's, and any resulting successes or failures will be viewed in terms of one's thoughts towards them, rather than as permanent representations of the self. Realistically however, prisoners' basic psychological needs are very unlikely to have been met simultaneously, and therefore it is reasonable to assume, based on the principles of SDT, that their reasons for participating in sport and exercise reflect contingent self-esteem, perhaps centred around a need to appear masculine or socially accepted. Therefore, although non-contingent self-esteem is best for mental well-being, establishing this way of thinking may be a giant leap in terms of prisoners' ideas of their own self-worth. Although it may be worth exploring the extent to which prisoners seek to promote their own self-esteem through exercise, it is debateable whether this would need to happen by measuring self-esteem directly. Research has begun to confirm that those who exercise for more identified or intrinsic reasons report higher physical self-esteem, and those who exercise for external reasons reflect lower physical self-esteem (Wilson & Rodgers, 2002). Thus, if self-esteem is a by-product of satisfying the basic needs, it is arguable that identifying the extent to which the basic needs have been met, alongside individual motives

for exercise, is sufficient for understanding whether an individual's self-esteem relies on the contingent regard of others, and what is influencing this process. Then, the approach to improving well-being should be based on challenging any introjected motives for exercise and supporting the basic needs that are deficient.

***Intrinsic motivation and physical activity.*** Although Daley and Duda's study (2006) placed identified regulation as being *most* in line with physical activity this does not exclude the role of intrinsic motivation altogether, in fact, the study still observed high means for intrinsic motivation. Similarly, longitudinal exercise studies identify intrinsic motivation as a key predictor of persistence (Sarrazin et al., 2002), and both intrinsic and identified motivation have been positively associated with self-reported participation in physical activity (Chatzisarantis et al., 2002; Ullrich-French & Cox, 2009; Wang et al., 2002). Teixeira et al.'s (2012) systematic review of 66 studies on the relationship between SDT and exercise behaviours distinguish between the two forms of regulation by finding that identified regulation was a stronger predictor of initial or short-term adoption, whilst intrinsic regulation was a stronger predictor of more long-term exercise adherence. Introjected motivation is often associated with physical activity as well but, in line with SDT, this relationship diminishes in the case of self-reported physical activity (Power et al., 2011), suggesting that individuals lack motivation to engage in physical activity when they are alone and the external pressure to participate disappears.

Despite the identified relationship between exercise and intrinsic motivation in adults, this recognition may not be particularly helpful in the pursuit of methods for increasing participation. External motivations can be internalised through various approaches to increase autonomy, competence or relatedness, but intrinsic motivation does not rely on these factors and is reflective of a natural inclination for an enjoyable behaviour, something which cannot be taught or easily fostered. An example of this predicament is the finding from Lewis et al.

(2016) that enjoyment is a better predictor of physical activity than self-efficacy. Although the authors suggest that practitioners should focus on enjoyment of physical activity before considering perceived capability, the potentially intrinsic nature of enjoyment may impose a barrier on this approach, as it is likely to be particularly difficult to change an individual's perceptions of whether or not physical activity is enjoyable. In order to encourage or maximise the potential for intrinsic motivation there is a need for researchers and practitioners to be creative in their development and delivery of interventions to ensure enjoyment is given full consideration, perhaps through a variety of activities, increasing the element of choice, or suggesting that individuals monitor their enjoyment levels and not just their fitness. It is also worth noting McAuley, Wraith and Duncan's (1991) point that although an individual may embark on exercise for external reasons, such as health or appearance, as their physical condition and skills improve, intrinsic reasons may become more salient, thus, motivations can change over time with engagement in physical activity and promoting intrinsic motivation can become easier.

A growing body of research suggests that motivations for physical activity amongst adolescents are primarily intrinsic, rather than identified. In fact, correlations between intrinsic and identified motivation in relation to increased levels of physical activity amongst adolescents are so high that studies often combine the two (Hagger et al., 2002). Power et al. (2011) found intrinsic motivation to be higher for non-obese adolescents with higher cardiovascular fitness than their obese and relatively unfit counterparts, but were unable to find any association between these measures and identified, introjected or external motivation. They suggest that it is not likely that adolescents exercise to reach a personal goal of being fit, instead, they probably exercise for intrinsic reasons such as having fun. A steep decline in physical activity has been found in young people over time (Sallis, Prochaska and Taylor, 2000; Sallis, 2000), with an exception for the most active 10% of the population

(Kemper, 1994). This decline is often attributed to major transitions such as leaving school, entering the workforce, having children etc. (Calfas et al., 1994), but literature is yet to adequately consider variables in the decline of intrinsic motivation for physical activity amongst adolescents, despite this being recognised in relation to academia (Froiland et al., 2012). Limited evidence demonstrates that inappropriate extrinsic rewards such as money, although shown to significantly increase participants' exercise levels over short time frames (Irons et al., 2013), can reduce intrinsic motivation overall (Deci, 1971). Research would do well to explore further reasons behind declining intrinsic motivation for physical activity amongst young people in a bid to ensure that such damaging factors are avoided, and physical activity remains to be seen as an attractive behaviour in later life.

As well as the satisfaction of basic psychological needs, Deci and Ryan (2000) also consider the negative effect that need *thwarting* can have on well-being and development, which is the active process of one's needs being diminished, such as being rejected by teammates or receiving high criticism from a coach. They propose that need thwarting, which is conceptually distinct from low need satisfaction, can lead to adaptations that have substantial negative costs for health and well-being, such as compensating for a lack of relatedness in childhood by trying to gain a sense of worth in later life through image-orientated outcomes. There is also an emerging body of research exploring the impact of need thwarting on physical activity, with Bartholomew, Ntoumanis, Ryan and Thøgersen-Ntoumani (2011) creating a new multidimensional psychological need thwarting scale (PNTS) for sport, which was later modified by Gunnell, Crocker, Wilson, Mack and Zumbo (2013) to cover a broader definition of physical activity, both created for application to athletes. These studies have interesting implications for application to the field of exercise motivation, with Bartholomew et al. proposing that need thwarting can predict a larger amount of variance when focusing on ill-being and other maladaptive outcomes, particularly

those associated with competitive sport such as contingent self-esteem, anxiety and depression. They also recognise a corresponding relationship between need thwarting and satisfaction in sport, with higher autonomy need satisfaction minimising the impact of need thwarting on exhaustion, and vitality being highest when need satisfaction for competence is high, and any thwarting is curtailed. Overall, these findings call for further research into the so-called “darker side” of sport, and the potential negative impact of need thwarting on well-being and development, which can co-occur alongside need satisfaction.

***Self-determination and revitalisation.*** According to Nix, Ryan, Manly & Deci (1999) the outcomes of controlled versus autonomous behaviours go beyond their relative impact on self-motivation and personal well-being, and can affect one’s subjective vitality, or “the positive feeling of having energy available to the self” (p. 266, Nix et al., 1999). The authors distinguish outcomes between the two behaviours by proposing that if an individual is successful at a behaviour that is intrinsically or autonomously motivated, then subjective energy will be maintained or even enhanced. Conversely, if an individual successfully performs a behaviour that is experienced as controlling, then they will not experience the same effect on their personal energy, and may even find their efforts draining. Furthermore, they note an important difference between vitality and happiness, as happiness may be a product of successful engagement in either autonomous or controlled behaviours, but vitality will not be enhanced through engagement with the latter. This finding can play an important role in terms of psychometric research, as this concept of personal energy is identified as being “a salient and phenomenally accessible attribute and an important indicator of wellness” (p. 268, Nix et al., 1999).

The authors go on to highlight four mood states that reflect this idea of energy, as distinguished by Thayer (1987, 1996), namely, calm energy and tense energy (energised states), and calm tiredness tense tiredness (low energy states). They identify calm energy as

reflective of their concept of vitality, referred to as the “relaxed possession of liveliness and vigor” (p. 268, Nix et al., 1999). There are several variables which appear to have an impact on so-called calm energy. Firstly, if the three basic psychological needs are satisfied, then subjective vitality should be maintained or enhanced (Ryan & Frederick, 1997). Further psychological variables that are associated with higher vitality are personal autonomy and perceptions of autonomy support (Kasser & Ryan, 2006), feelings of love and intimacy (Reis et al., 2000), contact with nature (Kaplan & Kaplan, 1989), and feelings of competence (Sheldon, Ryan & Reis, 1996). Whilst tension is described as a key antagonist for vitality, diminishing subjective energy when experienced at moderate to high levels (Thayer, 1987). In relation to sport, those who exercise for more autonomous reasons have been found to be more refreshed and revitalised post-workout, compared with individuals who exercised for more introjected reasons (Rovniak, Blanchard & Koestner, 1998). Overall, Nix et al. conclude that vitality is better maintained or enhanced by autonomous or self-determined behaviours than controlled behaviours, even when competence or goal success are controlled for.

Across prison research, energy is often referred to in terms of something negative which needs to be released, a kind of pent up energy, which would correspond with the tense energy that Thayer describes. For example, Andrews and Andrews (2003) discuss prisoners’ energy alongside an “appetite for excitement/danger” (p. 534, Andrews & Andrews, 2003), or in a quote from a member of staff caring for young prisoners “The kids just need to let off aggression, nervous and physical energy” (p. 541, Andrews & Andrews, 2003). Johnsen (2001) refers to prisoners’ energy in terms of a need to release aggression or frustration. Whilst two studies use subjective health measures to report on prisoners’ energy levels, one as a positive impact of physical activity on prisoners (Nelson, Specian, Campbell and DeMello, 2006) and the second as a general health outcome for female prisoners (Plugge &

Fitzpatrick, 2005), but neither expand any further on the impact that changes in vitality have on prisoners' lives or health.

Outside of the prison context, it is arguable that the term "personal energy" would tend to be used in the same positive manner as vitality, referring to boosting one's energy, and in relation to playfulness. It appears that prison research fails to identify the lack of calm energy which prisoners experience, instead focusing on the possession of tense energy. This is perhaps understandable if one considers the variables that promote vitality, such as autonomy, contact with nature, feelings of love and intimacy, and feelings of competence, which are all severely lacking in the prison context, alongside high levels of tension, which diminish calm energy further. Thus, prisoners have very little opportunity to enhance vitality, except perhaps, through sport and exercise. It is possible that research could gain greater insight into prisoners' mood and well-being by adopting this so-called accessible term of "energy" and understanding the contexts in which prisoners' vitality is supported or diminished as an important indicator of wellness.

*Application of SDT in the prison context.* If research is to have a real-world impact then it must be used to inform policy and practice, in the present context, SDT is applied to understand what can be done to maximise prisoners' well-being through exercise. Although there is an ever-growing body of research which applies SDT to the domain of exercise motivation, it is crucial that research considers the nuances that arise when applying the principles of the theory to explain prisoners' motivation to exercise specifically, both within and between prisons. As Ryan attests, "Domain research is critical because of its applied significance. The point of psychological theory is not merely to account for variance, it is to inform social practice. Domain-specific studies offer a better understanding of the extent to which some general principle 'works' in a specific sphere where there are special influences in operation" (p. 412, Ryan, 1995).

In their development of Self-Determination Theory, Ryan and Deci (2000) acknowledge the tendency for most human beings to be proactive in their lives, applying considerable effort and commitment to learn, master new skills and apply their talents. This picture of humanity at its best allows the theory to identify those who fall outside of the norm; apathetic, alienated and irresponsible individuals who lack the positive and persistent tendencies so apparent in others. They propose that these within-and-between-person differences in motivation are catalysed by social contexts, with individual levels of integration, energy and self-motivation changing between situation, domain and culture. SDT is concerned with addressing the factors which influence human potential, with a view to optimising social environments to nurture people's development, performance and well-being. Applying SDT in the context of prisoners allows for identification of reasons behind decisions for engaging in healthy behaviours such as exercise, along with appropriate adoption of approaches to change such behaviours through internalisation of motivation. Where a prisoner's wellbeing may benefit from engaging in sport and exercise but they are experiencing amotivation, the social contexts and developmental environments should be addressed, with demands, obstacles and affordances taken into consideration. This includes recognition of the lived experience of prisons as described by criminologists, and how support for the basic needs may help to mitigate so-called pains of imprisonment, such as promoting perceptions of relatedness to combat the deprivation of liberty, and creating an autonomy supportive environment where possible to combat the deprivation of autonomy. The role of masculinity in the prison environment should also be considered along with the barriers or incentives this produces such as the accessibility of PA facilities, social influences, or the approach to promotion of sport and exercise within the prison. Further support for the application of SDT to prisoner motivation are provided through the parallels between SDT and theories of desistance, as Maruna & Toch (2005) observe, agency and communion are the

two key common features of desistance theories, which are reflective of the basic psychological needs. Specifically, desistance theories highlight factors that are crucial in the process of desisting from crime as being achievement of success and autonomy in the social world (competence and autonomy), and intimate interpersonal bonds (relatedness).

Interestingly, De Bourdeauhuij, Sallis & Vandelanotte (2002) suggest that it is cognitions towards barriers, rather than the barriers themselves, which impact on physical activity participation. This is demonstrated through the stability of self-efficacy, social variables, perceived benefits and perceived barriers in relation to physical activity across a 7-year period regardless of changing environmental factors. Iso-Ahola & St. Clair's (2000) theoretical model of exercise motivation supports this view by positing that attitudes and knowledge towards exercise have a negative relationship with constraints, which in turn have a direct impact on motivation. There is evidence that cognitive processes may mediate the impact of barriers on prisoners' engagement with behaviours through an internal versus external locus of control. Prison research has shown that prisoners with an internal locus of control exhibit lower levels of psychological distress (MacKenzie et al., 1987; Zamble & Porporino, 1988; Reitzel & Harju, 2000; and Harvey, 2007), which is in line with SDT's premise that an internal perceived locus of causality is reflective of need satisfaction and therefore higher levels of personal well-being. Harvey (2007) notes that although prison is a controlling environment with many perceived barriers to autonomous behaviour, prisoners with an internal locus of control may be able to find ways to exert more control by seeking out resources when they need them most, in turn minimising feelings of distress. Whilst those with an external locus of control will experience prison as a more controlling environment and may fail to recognise how they can adapt to feel more in control, resulting in greater distress. Many prisoners do face tangible and objective barriers to sport and exercise in the prison gym due to the structured manner of the daily routine, and it would not matter what

their motivation, values and beliefs towards physical activity were, these barriers cannot be directly overcome. However, there are ways in which prisoners can participate in exercise outside of the time afforded by the regime such as exercising in their cell, and there will still be many subjective barriers to sport and exercise that exist amongst prisoners who could engage in sport and exercise if they were motivated to, whilst barriers to other health-related behaviours such as smoking cessation are arguably always subjective. Thus, positive attitudes, means to engage in autonomous PA and better knowledge about the positives of exercise in relation to daily life in prison and the adoption of further healthy behaviours may be able to temper the strong negative impact of perceived constraints to such changes in behaviour. This approach is echoed by smoking cessation research which indicates that engagement in a PA intervention increases if the outcome efficacy of the intervention to aid cessation is highlighted and enforced (Taylor & Thompson, 2014).

As well as challenging prisoners' perceptions, a comprehensive approach to behavioural change must recognise inherent individual values, which cannot be easily altered, and the impact these can have on the salience of the three psychological needs of autonomy, competence and relatedness. As Morgan concludes, "it is extremely important to identify unique circumstances and attributes that influence the adoption and maintenance of physical activity among population minorities that have different cultural values towards being active or special barriers to activity" (p. 79, Morgan, 1997). Morgan also acknowledges that "demographics such as gender, age and race are not synonymous with ethnic or cultural values" and calls for more studies to focus on "the interaction of personal values with such demographics within the context of physical and social environment." Values play a key role in the development of appropriate and effective exercise training programmes, as recognised by Rejeski and Mihalko (2001) who believe that it is important to target domains of health which are valued by participants, referring to the health-related quality of life (HRQL) to

measure health domains in terms of physical, mental, emotional and social functioning, and the impact these have on one's quality of life. SDT as a framework for understanding prisoners' exercise motivations takes individual values into account and recognises the importance of these for autonomous behaviour and therefore long-term behavioural change.

SDT is not the only theoretical framework that can be applied to develop an understanding of motivation, and is not the only theory that has been applied to exercise motivation, specifically. However, it is a sound framework for understanding prisoners' motivations for exercise and other healthy behaviours, particularly through its consideration of socio-environmental factors and the differing impact external and controlling motivators, which are of salience in the context of prisons. So, for the reasons outlined in this section, SDT provides the main theoretical framework for the present research on prisoners' motivations to exercise and engage in further healthy behaviours. Nevertheless, as highlighted by Woods, Breslin & Hassan's (2017b) research into how sport-based interventions can impact on prisoners' psychological well-being, one theory alone cannot account for the complexities of designing a prison-based intervention to maximise well-being. Consequently, in addition to SDT, other related theories of motivation are brought in to provide additional support and explanations for findings where appropriate, including TTM.

### **9.3. Research questions & hypotheses**

1. *Research question* - Is there a relationship between prisoners' basic psychological needs (BPNs) in relation to exercise, self-motivation to exercise and psychological well-being?

*Hypothesis* - There will be a positive relationship between the extent to which prisoners' BPNs in relation to exercise have been met, the extent to which their motivations to exercise have been internalised and their psychological well-being.

2. *Research question* - What are prisoners' perceived motives for exercise, and what are the individual factors that influence these?

*Hypothesis* – The factors underlying prisoners' motivations to engage in exercise will differ in structure from those presented in existing measures, and the relationships between these factors and psychological measures will highlight key phenomena with regards to prisoners' exercise motives.

#### **9.4. Rationale**

Although a comprehensive review of the literature on motivation theories underpins the decision to adopt SDT as the theoretical framework of the present research, it is still a practical and worthwhile procedure to test the main premises of SDT on the proposed population. Therefore, in response to the first research question the present study will explore the relationship between prisoners' BPNs for exercise, well-being and self-motivation, testing for the presence of a continuum of self-determination, and determining the impact of perceived support for autonomy and competence on intrinsic motivation enhancement.

According to SDT, before prisoners can fully realise the personal benefits of exercise, their exercise behaviours must be autonomous. To promote this autonomous behaviour, the factors that regulate prisoners' exercise motivations and allow them to become more internalised must be understood. Part of developing this understanding is to identify the reasons that prisoners have for engaging or not engaging in exercise, which can be achieved through a measure of exercise motivation. The life of a prisoner differs dramatically from those on the 'outside'; the socio-environmental factors which influence motivation to exercise are likely to be markedly different from those experienced in the general population. Therefore, psychological or behaviour measures which are appropriate for the general

population, or even the clinical population, may not be suitable for those in prison and it is important to consider the construct validity of any measure being used on prisoners. In recognition of this, and in response to the second research question, the present study gathered male prisoners' responses to three existing measures of exercise motivation to develop a revised measure of prisoners' exercise motivations, known as the Male Prisoner Exercise Motivation Measure (MPEMM).

The development of the MPEMM provides a psychometric contribution to the field of exercise motivation through the establishment of the main dimensions of prisoners' motivation to exercise, and the development of an efficient psychological test loading these factors. The MPEMM is meant as a means for identifying male prisoners' motives for exercising, thus understanding the functional significance of such exercise motives from the perspective of SDT. The MPEMM can be applied to future research and practice on issues such as how exercise motives affect exercise participation and adherence, the choice of exercise activity adopted and the affective experience of exercise. It is also of relevance to understand how engagement in exercise may impact on motives, thus revealing more about internalisation of motivation and long-term behavioural change.

In summary, Study I will aim to test whether SDT is an appropriate lens through which to explore prisoners' exercise motivations, and will create a revised measure of male prisoners' exercise motivations based on the principles of a continuum of self-determination as outlined in SDT.

## **9.5. Study I Methodology**

### **9.5.1. Design**

This study adopts a quantitative approach to test the key premise of SDT on male prisoners' exercise motivations through an analysis of prisoners' responses on measures of

BPNs for exercise, motivations to exercise, and well-being, through a repeated-measures, correlational design. Furthermore, a standardised measure of exercise motivation for use on the male prisoner population is developed through a factor analytical approach using three existing measures of exercise motivation which were selected following a comprehensive review. The new proposed measure is referred to as the Male Prisoners' Exercise Motivation Measure (MPEMM).

### **9.5.2. Participants**

Participants consisted of 89 prisoners aged 18-62 ( $M = 34.86$ ) who participated in the Cell Workout Workshops at HMP Wandsworth; a two-week physical activity based intervention. These prisoners are located across all wings in the prison and include those on remand, due for release, serving long-term sentences, employed and unemployed, as well as individuals from all three levels of the Incentives and Earned Privileges (IEP)<sup>3</sup> scheme<sup>4</sup>.

### **9.5.3. Materials**

All measures used in the present study were reviewed for suitability on the prison population, questions were rephrased if possible, or removed if they were deemed entirely unsuitable. For example, references to “my doctor” were amended to “a member of healthcare staff”, and the term “invigorating” was amended to “gives me energy”. Health questions that referred to activities not common in prison were amended, for example, questions about mobility amended references to bowling or playing golf to moving a table or mopping a floor. More information about items that were removed entirely is provided in the relevant sections below.

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<sup>3</sup> The IEP scheme currently running in prisons across England and Wales operates three privilege levels; basic, standard and enhanced. Prisoners must display good behaviour and work towards their own rehabilitation if they are to earn privileges and gain enhanced level status.

<sup>4</sup> For more detail on the participants' demographics please see the *Participants* section in Study III

The final questionnaire included measures of health and well-being, motives and readiness for exercise, and BPNs for exercise. This questionnaire was compiled into four versions of a complete survey, each version with a different order of questions to minimise the effect of any fatigue during completion. One of the final versions can be found in [Appendix A](#).

***Health-related quality of life (HRQL).*** Participants' well-being was measured in terms of their health-related quality of life (HRQL) using an adapted version of the RAND 36-Item Health Survey (Ware and Sherbourne, 1992), which has shown to be a reliable and valid criterion measure of HRQL in numerous populations (Acree et al. 2006; Marsh et al. 2009). The original RAND 36-Item Health Survey spans eight health concepts: physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, vitality, and general health perceptions, as well as a single item that measures perceived health changes over the past year. A review of the survey for suitability on the general prison population resulted in the removal of three domains, and a further seven items.

The domains of emotional well-being and vitality were not altered and showed an acceptable ( $\alpha = .75$ ) and questionable ( $\alpha = .64$ ) internal reliability, respectively. Although the domain of vitality had questionable reliability, this would not have increased with the removal of any of the four items, and the relatively small number of items may have affected its reliability. Therefore, it was deemed acceptable to continue with this domain as a measure of vitality.

The two domains of role limitations were removed as these asked questions regarding their ability to perform daily activities, which, given the high number of participants who had no access to purposeful activity and were locked in their cell for much of the day, was

deemed unsuitable. The domain of bodily pain was also removed as this was not deemed to be as relevant for the present research which is focused on psychological well-being and physical fitness, although this decision is reviewed with hindsight in the discussion.

Three items were removed from the physical domain for non-suitability. Firstly “climbing several flights of stairs” was removed, as this would not be feasible in most prisons. Secondly “walking more than a mile”, as it is unlikely there would be much opportunity for this outside of the treadmill in the gym. And thirdly, “bathing or dressing yourself”, as the subjects for the present study would not have access to a bath, and it was assumed given the style of prison that they were capable of dressing themselves without support. Internal consistency of the amended physical health domain was excellent ( $\alpha = .91$ ).

One of the items from the social functioning domain was removed as it asked about social activities like visiting with friends and relatives, which is not possible outside of the formal visits in prison and was therefore deemed unsuitable. As this left the social functioning domain with just one item it was not possible to ascertain internal consistency.

Finally, three of the items from the general health domain were removed for being too general and unrelated to current health, which was the focus of the surveys, however, this decision is also reviewed with hindsight in the discussion. As there were only two items remaining that asked about participants’ general health at present and compared to twelve months ago, it was not possible to test internal consistency.

Previous research has highlighted the importance of clearly defining what is meant by ‘well-being’ when reviewing sport-based interventions in prison (Woods et al., 2017a), whilst Pollard and Lee (2003) emphasise the importance of assessing more than one domain of well-being. Additionally, research has recognised the importance of identifying values in the development of appropriate and effective exercise training programmes. Rejeski and Mihalko

(2001) stress the importance of targeting health domains which are valued by participants, referring to the HRQL directly as an effective means of categorising health into sub-types that reflect an individual's values. Further justification for the use of the RAND 36-Item Health Survey specifically comes from a growing body of researchers who recognise that, since World War II, psychology has focused almost exclusively on pathology, agreeing that the discipline would benefit from a greater emphasis on positive phenomena (Seligman, 1998; Wood et al., 2017). An example of this negative focus is the use of measures of well-being which emphasise ill-being, such as the Beck Depression Inventory, Perceived Stress Scale and State Trait Anxiety Inventory, which were selected much more frequently than measures of well-being across reviews of sport-based interventions in prisons (Woods et al., 2017). This observation provides further support for the use of the HRQL, which focuses on well-being with questions such as "*How much time during the past four weeks have you felt calm and peaceful?*", and "*How much time during the past four weeks did you have a lot of energy?*" whilst also measuring ill-being with questions such as "*How much time during the past four weeks have you been very nervous?*"

***Basic Psychological Needs for Exercise (BPNES)***. The three basic psychological needs were assessed using a scale adapted for use in relation to exercise (Basic Psychological Needs in Exercise Scale; BPNES; Vlachopoulos & Michailidou, 2006). The scale uses four items for the sub scales of autonomy, competence, and relatedness on a 5-point Likert Scale ranging from "I don't agree at all" to "I completely agree". One of the items measuring relatedness, namely "I feel comfortable with the people I exercise with," was removed as part of a psychometric evaluation by Vlachopoulos, Ntoumanis & Smith (2010) on a sample of British exercise participants, given its strong cross-loading on the competence factor. Otherwise, the scale showed satisfactory internal reliability coefficients. The subscales all returned excellent internal reliability in the present study, namely; autonomy ( $\alpha = .90$ ),

competence ( $\alpha = .92$ ) and relatedness ( $\alpha = .95$ ). Thus, for the present research all four relatedness items were retained and factor analyses were conducted to explore the suitability of the items for the present population.

***Exercise motivation.*** It is important to consider that affective judgements of physical activity (PA) such as motivation are prone to influence from an array of variables, and the nature of existing measures in this field means that many of these factors are not considered. This omission may be partly responsible for the high measurement error which has been reported across a selection of the most commonly used scales for measuring affective judgement of physical activity (Chmielewski et al., 2016), including the Behavioural Regulation in Exercise Questionnaire (BREQ-2; Markland & Tobin, 2004), Motives for Physical Activity Measure – Revised (MPAM-R; Ryan, Frederick, Leps, Rubio & Sheldon, 1997), and in particular the Modified Reasons for Exercise Inventory (mREI; Siberstein, Stiegel-Moore, Timko & Rodin, 1988) and Physical Activity Enjoyment Scale (PACES; Kendzierski & DeCarlo, 1991).

Plonczynski's (2000) review of twenty-two studies that measure exercise motivation concluded that there was a distinct lack of reliability and validity reporting concerning the measures used, with predictive validity only reported twice across all the studies, and internal consistency being the most frequently reported of all, with fifteen instances. Arguably, without tests of validity for the measures being used, the applicability of any findings is in question, particularly without sufficient prior evidence that such measures have been consistently applied in previous studies with the same population. Claims for the efficacy of physical activity interventions depends on the measures used, and due to this lack of robust and tested measures any results are likely to be unclear, hard to replicate, and lack predictive power. Accordingly, the current study has given careful consideration regarding which measures are appropriate, and justification for each is provided. Additionally, construct

validity will be a strong consideration in the application of such measures, with a view to refine scales where applicable, and clearly identify potential experiences and outcomes which are underlying affective judgements towards PA to better inform the development of psychometrically sound measures. Furthermore, Plonczynski notes that exercise motivation research often fails to link psychometrics to the concepts of the theoretical framework, in recognition of this, the present study will apply the newly developed measure to the framework of the self-determination continuum.

A review of eight existing exercise motivation measures was conducted for the present study, including the 7-Day Physical Activity Recall (PAR), Behavioural Regulation in Exercise Questionnaire 2 and 3 (BREQ2 and BREQ3; Markland & Tobin, 2004, and Wilson et al., 2006), mREI, and PACES<sup>5</sup>. The three measures chosen for the present research were Exercise Motives Inventory-II (EMI-II; Markland and Ingledew 1997), Motives for Physical Activity Measure (MPAM-R; Ryan, Frederick, Lepas, Rubio & Sheldon, 1997), and The Sport Motivation Scale (SMS-28; Pelletier, Fortier, Vallerand, Tuson, Briere & Blais, 1995). These measures were chosen because they are each developed with SDT in mind, they have been shown to demonstrate relatively good reliability, and they are diverse with respect to one another, with each measure reflecting a different structure in terms of subscales and item phrasing. This diversity increases the probability that all possible underlying factors influencing prisoners' exercise motivations will be identified.

The EMI-II has been shown to be a reliable and valid measure of motives for exercising in a range of population samples (Dacey, Baltzell & Zaichkowsky, 2008). The inventory has 51 questions examining exercise motives across 14 subscales: Affiliation, Appearance, Challenge, Competition, Enjoyment, Health Pressures, Ill-Health Avoidance,

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<sup>5</sup> For full details of this review, along with a review of measures for physical activity behaviours, smoking behaviours and other measures related to the concepts of SDT please see [Appendix B](#).

Nimbleness, Positive Health, Revitalisation, Social Recognition, Strength and Endurance, Stress Management and Weight Management. Each subscale comprises of three or four items. It should be noted that reports on the internal consistency of the 12 subscales vary greatly, with Cronbach's alpha scores ranging from 0.63 - 0.90); although Wilson's (2002) review of exercise motivation measures posits that it is only the health pressures ( $\alpha = .69$ ; Ingledew et al., 1998) and revitalisation ( $\alpha = .56$ ; Markland & Ingledew, 1997) subscales which consistently return lower reliability estimates. According to research by the publishers the EMI-II is able to differentially predict perceptions of autonomy and interest-enjoyment, (Markland, 1999), as well as being appropriate for both exercisers and non-exercisers (Markland & Ingledew, 1997). Furthermore, the EMI-II is able to predict changes in individuals' readiness to exercise across a three-month period (Ingledew, Markland and Medley, 1998).

The second exercise motivation measure is the MPAM-R, which has more recently been validated by Chmielewski et al. (2016), concluding that it is more reliable than the BFI, Modified Reasons for Exercise Inventory (mREI) and Physical Activity Enjoyment Scale (PACES), stating that the interest/enjoyment subscale may be the best measure of 'common affective judgement' that currently exists. The Interest/Enjoyment subscale of the MPAM-R correlates so highly with the intrinsic subscale of the BREQ-2 that they could be used interchangeably, which provides further justification for not including the BREQ-2 in this evaluation. A common issue facing research around physical activity and related affect is the inability to distinguish between enjoyment as an intrinsic motivator, and competence, also referred to as self-efficacy; the MPAM-R is a good example of this. Chmielewski et al.'s (2016) examination of the MPAM-R's construct validity revealed that the Interest/Enjoyment and Competence subscales correlate just as highly with one another as they do with themselves. To address this problem, they suggest that the two subscales are combined as

one, and any redundant items can be removed. Therefore, the full scale will be administered to an initial cohort of respondents, then analysis of this data will enable any redundant items will be removed before use on later cohorts.

The third and final exercise motivation scale is the SMS-28, which has a focus on engagement in sport rather than exercise generally. Rather than providing a single measure of intrinsic motivation (as with the alternative Behavioural Regulation in Exercise Questionnaire (BREQ)), the SMS-28 divides intrinsic motivation into three categories; to know, to accomplish, and to experience stimulation. This ability to distinguish between different forms of intrinsic motivation makes the SMS-28 a favourable option, as promoting intrinsic motivation is key to long-term engagement. However, it should be noted that the SMS has received some criticism in terms of its factorial validity (Martens & Webber, 2002; Riemer, Fink & Fitzgerald, 2002), and internal consistency (Pelletier et al., 1995; Raedeke & Smith, 2001; Martin & Cutler, 2002; and Vlachopoulos, Karageorghis & Terry, 2000), particularly with respect to the identified subscale which returned a questionable internal consistency of .63 in the scale's initial development. Mallett et al.'s (2006) review of the revised SMS found reliability scores above .9 for the subscales of enjoyment and appearance, above .8 for social and competence/challenge, and .7 for fitness/health. A key defining feature of the SMS-28 is the inclusion of a subscale which measures integrated regulation, which was absent from the original SMS, and is also absent from the EMI-II and the MPAM.

Although researchers tend to group all forms of physical activity under the term "sport", in the general population sport is likely to be thought of in the traditional sense, which involves competition. The present research is interested in all forms of physical activity, therefore, to avoid ambiguity, the surveys provided a clear definition of exercise at the outset, stating that *"For the purpose of this questionnaire, exercise includes any physical activity which increases your heart rate and causes you to break into a sweat, this may*

*include team sports (e.g. football or basketball), individual sports (e.g. tennis), aerobic exercise (e.g. jogging, cycling or swimming) or any form of resistance training (e.g. weight lifting, push ups, squats).*” All items were scored on a Likert scale of 0-5 with a score of 0 indicating “Not true for me at all” and 5 indicating “Very true for me.” Publishers of all three scales were happy for them to be used without express permission, providing they were referenced in full.

#### **9.5.4. Procedure**

Participants completed three questionnaires at separate time points; two days before starting the intervention (T1); on the final day of the intervention (T2); and between 2-6 months following the intervention (T3). The present study will focus on responses from T1 questionnaires, as these were completed by all participants regardless of whether they completed the workshop or not. Responses from the end surveys will be considered as a measure of test-retest validity. Follow-up responses did not include measures of exercise motivation and will not be considered in the present study.

*Calculated totals for motivation scales and HRQL.* The three exercise motivation measures comprised several subscales, each measuring a sub-type of motivation, and the RAND 36-Item Health Survey comprised five subscales, measuring domains of health. The exercise motivation measures were published along with guidance on how the items should be scored, and this information was used to calculate mean scores for the sub-types of motivation across each measure, whilst the scoring for the RAND 36-Item Health Survey was obtained online.<sup>6</sup>

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<sup>6</sup> Calculations for the RAND 36-Item Health Survey were taken from [https://www.rand.org/health/surveys\\_tools/mos/36-item-short-form/scoring.html](https://www.rand.org/health/surveys_tools/mos/36-item-short-form/scoring.html)

Participants were handed the questionnaires by the Cell Workout trainer on the Friday before beginning the workshop, they had the entire weekend to complete the questionnaires before handing them in to the trainer in their first workshop session on the Monday.

Participants were advised that if they needed support in completing the surveys then they could complete them in their one to one session with the trainer on the Monday. None of the participants requested this support and all surveys were completed satisfactorily.

### **9.5.5. Analysis**

To answer both research questions a regression analysis was conducted on the quantitative data collected from prisoners' survey responses.<sup>7</sup> This allowed for identification of the key factors that motivate the prisoners to engage in exercise, as well as any emerging relationship between the three BPNs and level of motivation or psychological well-being. There is only one available measure of BPNs in relation to exercise which was developed for use on the general population, so validation of the measure for use on the prison population was needed to ensure the wording and structure of the items is appropriate. Therefore, interviewees from the second study were also asked about their opinion regarding the suitability of the questions in the BPNE scale.

Data across measures of exercise motivation, HRQL and the readiness to exercise ladder were cleansed prior to analysis. This included consideration of extreme scores and missing data, to ascertain whether these followed a pattern that may indicate whether there were any issues that arose through data collection. Little's MCAR test revealed that missing data from the complete start surveys did not follow a pattern ( $\chi^2(4290) = 2870.153, p = 1.00$ ), and the same was found when looking at the exercise motivation measures alone ( $\chi^2(1416) =$

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<sup>7</sup> All statistical procedures in the present study were performed using the statistical analysis software package, SPSS. IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.

1146.662,  $p = 1.00$ ), and the complete end surveys ( $\chi^2(4645) = 2101.744$ ,  $p = 1.00$ ).

Therefore, a method of imputation known as hot-deck imputation was carried out, which involves the replacement of missing values taken from other participants that have been identified as similar in terms of data observed. For more information on the missing value analysis, specific items with more than 10% of data missing and justification for the methods applied, please see [Technical Appendix A](#).

### **9.5.6. Development of the MPEMM: Methodology**

To test the hypothesis that the individual factors which influence prisoners' motivation to exercise will differ from those proposed in existing exercise motivation measures, the structures of the existing three exercise motivation measures were tested for suitable application to the present population. There were two approaches taken to test the suitability of the existing exercise motivation measures; measures of internal consistency for each subscale, and review of the subscales' structure using Principle Components Analysis (PCA).

Due to the disproportionate ratio of participants to variables<sup>8</sup> (91 complete responses across 106 items) it was also deemed necessary to reduce the set of variables prior to performing the common factor analysis, therefore, the tests of internal consistency and PCA were also used to reduce the original item set down to a more parsimonious set of items before conducting Factor Analysis. This process was also necessary because the original set of 106 items were derived from three separate exercise motivation measures, which differed in phrasing and content, and could therefore have differed markedly in terms of their applicability to the present sample in terms of error variance (internal consistency), and specific variance. Because the purpose of the final common factor analysis was to identify the

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<sup>8</sup> The terms "variable" and "item" are used interchangeably throughout this analysis section, but refer to the same concept

common variance accounted for by the remaining variables, it was deemed necessary to identify those variables that produced the most amount of unique variance and minimise the effect of this on the final model. Thus, tests of internal consistency and factor structure helped to identify and reduce unique variance.

Internal consistency reliability was measured using coefficient alpha, which is the most important index of test reliability according to Nunnally (1978) and Cronbach (1976)<sup>9</sup>. Based on Cronbach's statistical rationale of alpha (Cronbach, 1951), only subscales that were at least 0.8, and therefore considered "good" in terms of internal consistency, were retained. Although a score of 0.7 or above is considered acceptable, the subscales within the present study must be *highly* reliable in the context of the present sample to justify retaining them in the development of a new scale. The remaining subscales were then reviewed, and items were removed if this would improve the overall internal consistency of the subscale. Table 2.1 displays the alpha scores of all subscales, indicating which were retained and which were removed, a more detailed description of which items were removed to improve reliability is provided in [Technical Appendix C](#). Overall, the EMI-II had considerably higher internal consistency than either the MPAM-R or SMS, and possible reasons for this in relation to sentence structure and item phrasing are presented in the discussion.

The next analytical step was to minimise specific variance, which was quantified as any item that did load highly on any *one* factor within the individual exercise measures, but instead revealed moderate to high cross-loadings with other factors, and therefore is likely to be measuring more than one construct within the overall measure. Because the aim of this stage of item reduction was to identify specific variance, without regard for any underlying

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<sup>9</sup> The term "reliability" will be used to refer to the internal consistency of scales herein.

factors or common variance, a series of principle components analyses (PCA) were conducted.

PCA reduces the variables on a measure down into a smaller set of variables that can explain as much variation in the *observed* variables as possible, excluding any common variance. PCA is performed on an ordinary correlation matrix computing all correlations, including the correlations of each variable with itself, to identify which variables should be retained based on the amount of variance within the model that they account for (Leech, Barrett & Morgan, 2015). Performing PCA on the individual exercise motivation measures enabled the researcher to identify which variables could be made redundant whilst retaining as much of the measures' explanatory power as possible. To inform this process, the structure matrices provided by the outputs of the PCAs were reviewed. The structure matrix displays correlations of the original variables with the rotated factors, which will determine pure factor loadings, whilst the pattern matrix represents weights which are useful for determining an individual's relative standing on a factor, otherwise known as factor scores. The objective of all steps in this analytical process is to identify those items that most clearly represent the content domain of the underlying construct, therefore, the structure matrix was identified as the most appropriate source for review at all stages of the analysis, from the PCA to the EFA.

Table 2.1

*Internal reliability scores of subscales across original exercise motivation measures*

Exercise Measure	Internal reliability (Cronbach's Alpha)
Revised Motivation for Physical Activity Measure	
Appearance*	.763
Social*	.76
<b>Fitness**</b>	.891
<b>Competence</b>	.901
<b>Interest</b>	.841
Sport Motivation Scale	
Intrinsic: to accomplish*	.793
Extrinsic: external*	.644
Extrinsic: identified*	.695
Extrinsic: introjected*	.706
<b>Amotivation**</b>	.835
<b>Intrinsic: stimulation</b>	.836
<b>Intrinsic: knowledge</b>	.849
Exercise Motivation Inventory II	
Ill health avoidance*	.711
Health pressures*	.518
<b>Affiliation***</b>	.795
<b>Challenge***</b>	.799
<b>Appearance**</b>	.835
<b>Revitalisation**</b>	.830
<b>Weight</b>	.896
<b>Positive health</b>	.807
<b>Nimbleness</b>	.808
<b>Strength</b>	.838
<b>Social recognition</b>	.809
<b>Competition</b>	.836
<b>Stress management</b>	.804
<b>Enjoyment</b>	.866

\*Subscales were removed

\*\*Alpha after removal of item to increase score

\*\*\*Retained despite alpha < .8 due to importance of subscale in final item set

The following steps and criterion were adopted when reviewing the outputs of the analytical tests at all stages of PCA and EFA,<sup>10</sup>

1. The assumption of linearity was tested using matrix scatterplots, with visual representations of the variables to confirm a linear relationship.<sup>11</sup>
2. The number of factors to extract for the PCAs were based on eigenvalues exceeding 1.0, along with inspection of the Scree plot to determine if this result appeared reasonable. The number of factors to extract for the EFAs were based on Velicer's MAP test, along with inspection of the Scree plot to determine if this result appeared reasonable.
3. An oblique rotation was adopted to allow for some correlation between factors, as is expected when all items are measuring the underlying concept of exercise motivation.
4. The total variance explained by the model was reviewed against the minimum accepted criteria for the social sciences of 60% (Hair, Black, Babin, Anderson & Tatham, 2006).
5. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was reviewed against the suggested minimum of .7 proposed by Leech, Barrett & Morgan (2014), which suggests that there are enough items predicted by each factor.

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<sup>10</sup> Outcomes for each test are reported individually, and where steps 8 and 9 are not reported, the proposed structure of the model is confirmed by the relative matrices.

<sup>11</sup> Because a factor is a linear combination of variables, pairs of data must be related to each other in a linear fashion, this is known as the assumption of linearity.

6. Bartlett's test of sphericity was used to ensure that the variables were correlated at a moderate level with some of the other variables, with a significant result rejecting the null hypothesis that the variables are uncorrelated.
7. The structure matrix was reviewed and all variables that loaded higher than 0.5 on a component/factor, and had a difference of greater than 0.2 on other components/factors, were retained. If an item loaded higher than 0.5 on more than one component/factor, and did not have a difference of more than 0.2 between the highest and second highest component/factor loading, then it was considered for deletion, this is a method adopted and supported by previous research (Labarere, Francois, Bertrand, Peyrin, Robert & Fourny, 1999; Westaway, Rheeder, van Zyl & Seager, 2003).
8. Items that were retained after the first step were then cross-checked on the pattern matrix to determine whether they were loaded by the same component/factor, and no others.
9. Finally, the communality matrix was reviewed to determine the proportion of common variance which can be explained by the items, ensuring that items with higher communalities were retained.

The analytical steps taken to minimise the specific variance in each individual exercise motivation measure are now explained in turn.

**MPAM-R.** A principle components analysis of the MPAM-R returned three factors which explained 65.86% of the total variance in the model, this is above the minimum acceptable target of 60%. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.882. Bartlett's test of sphericity was significant ( $p < 0.001$ ) which indicated the variables were not uncorrelated.

The structure matrix was reviewed based on the specified criterion. Ten of the items had a clear high loading on one component, with at least 0.2 between the highest loading and the second highest loading. The final three- component structure is broadly categorised as follows; component 1 – enjoyment & challenge; component 2 – fitness; and component 3 - interest and novelty.

Table 2.2

*Items and loadings for refined version of the Revised Motivation for Physical Activity Measure obtained using Principle Components Analysis*

<u>Item</u>	<u>Component 1</u>	<u>Component 2</u>	<u>Component 3</u>
Interest - Because I believe I will find this activity interesting	.481	-.539	<b>.754</b>
Interest - I like the excitement of participation	<b>.809</b>		
Fitness - I want to be physically fit	.404	<b>-.888</b>	.417
Interest - It might be fun	.434		<b>.759</b>
Competence - I want to learn new skills	.576	-.410	<b>.788</b>
Interest - I like the sound of this activity	<b>.686</b>	-.353	.481
Competence - I like the challenge	<b>.815</b>	-.460	.507
Fitness - To improve cardio fitness	.551	<b>-.863</b>	.428
Interest - I think it will be interesting	.503	-.561	<b>.831</b>
Fitness - To maintain physical strength to lead a healthy life	.447	<b>-.880</b>	.504

*Note: the items' prefixes are used to identify their subscale within the MPA and were not used in the original surveys*

There were six items that did not load independently enough with any one component, detailed justification for why these were removed is provided in [Technical Appendix D](#).

**SMS.** The PCA of the SMS returned two components which explained 65.74% of the total variance in the model. The KMO measure of sampling adequacy was good at 0.857 and Bartlett's test of sphericity was significant ( $p < 0.001$ ), indicating that the variables were not uncorrelated. The structure matrix was reviewed and items were validated based on loading higher than 0.5 on a component, with a difference of at least 0.2 between that and its next highest component loading. All twelve of the items had a clear high loading on one component, with at least 0.2 between the highest loading and the second highest loading. The final two- component structure is broadly categorised as follows; component 1 - intrinsic; component 2 – amotivation.

Table 2.3

<i>Items and loadings for refined Sport Motivation Scale obtained using Principle Components Analysis</i>		
<u>Item</u>	<u>Component 1</u>	<u>Component 2</u>
Intrinsic/stimulation - For pleasure in living exciting experiences	<b>0.667</b>	
Intrinsic/knowledge - For pleasure to know more about this type of exercise	<b>0.785</b>	
Amotivation - Did have good reasons now asking self whether to continue		<b>0.85</b>
Intrinsic/knowledge - For pleasure discovering new training techniques	<b>0.73</b>	-0.488
Amotivation - May not be able to succeed		<b>0.877</b>
Intrinsic/stimulation - Pleasure in improving weak points	<b>0.839</b>	
Intrinsic/stimulation - Excitement when really involved in activity	<b>0.787</b>	
Intrinsic/stimulation - Intense emotions doing exercise I like	<b>0.774</b>	
Amotivation - I don't really think my place is in exercise		<b>0.833</b>
SMS - Intrinsic/to know - Pleasure learning techniques never tried before	<b>0.757</b>	-0.385
Intrinsic/stimulation - Like feeling of being completely immersed in activity	<b>0.741</b>	
Intrinsic/knowledge - Pleasure discovering new ways of exercising	<b>0.826</b>	

*Note: the items' prefixes are used to identify their subscale within the SMS and were not used in the original surveys*

Because all items loaded strongly and clearly onto one factor they were all retained for the final factor analysis.

*EMI-II.* PCAs were conducted on the twelve remaining subscales of the EMI-II. Firstly, the structure matrix was reviewed, and items that did not fit the criteria specified previously were removed, then the PCA was performed again. Four PCAs were performed in total, with 24 items retained in the final seven-component structure which explained 77.14% of the total variance in the model. The KMO measure of sampling adequacy was good at 0.815, and Bartlett's test of sphericity was significant ( $p < 0.001$ ).

The final seven-component structure as shown in table 3 is broadly categorised as follows; component 1 – health and strength, 5 items; component 2 – weight, 3 items; component 3 – social and affiliation, 4 items; component 4 – competition and challenge, 4 items; component 5 – appearance, 3 items; component 6 – stress management, 2 items; and component 7 – revitalisation, 2 items.

Table 2.4

*Items and loadings for refined Exercise Motivation Inventory II obtained using Principle Components Analysis*

<u>Items</u>	<u>Component 1</u>	<u>Component 2</u>	<u>Component 3</u>	<u>Component 4</u>	<u>Component 5</u>	<u>Component 6</u>	<u>Component 7</u>
Strength - To build up strength	<b>0.74</b>			0.392	0.347		
Affiliation - Spent time with friends			<b>0.769</b>				-0.392
Weight - To lose weight		<b>0.918</b>					
Revitalisation - Exercise gives me energy	0.544		0.339	0.411			<b>-0.831</b>
Appearance - To have a good body	0.415			0.432	<b>0.821</b>		-0.469
Social recognition - Compare my abilities with others			<b>0.683</b>	0.419	0.363		
Stress mgmt - Helps reduce tension	0.467	0.406		0.397	0.447	<b>-0.723</b>	-0.338
Positive health - Want to maintain good health	<b>0.87</b>	0.3		0.42	0.433	-0.328	-0.348
Strength - To increase endurance	<b>0.863</b>			0.413			
Competition - Enjoy competing	0.404			<b>0.818</b>			-0.321
Weight - To control my weight		<b>0.957</b>					
Revitalisation - Recharge batteries	0.415	0.439			0.325		<b>-0.879</b>
Appearance - Improve appearance	0.466	0.302		0.366	<b>0.881</b>		
Stress mgmt - Helps manage stress	0.485	0.364			0.327	<b>-0.834</b>	
Positive health - Feel more healthy	<b>0.878</b>			0.335	0.372		-0.387
Strength - To get stronger	<b>0.885</b>			0.439	0.489		
Affiliation - Being with active people	0.49	0.375	<b>0.744</b>	0.329			
Competition - Enjoy physical competing	0.382			<b>0.85</b>			
Challenge - Develop personal skills	0.356			<b>0.653</b>			
Weight - Exercise helps burn calories	0.371	<b>0.886</b>			0.309		
Appearance - To look more attractive		0.379			<b>0.859</b>		
Affiliation - to make new friends			<b>0.808</b>				
Competition - Find PA fun especially when competition involved				<b>0.804</b>		-0.437	
Challenge - Measure myself against personal standards	0.482			<b>0.87</b>	0.326		

*Note: the items' prefixes are used to identify their subscale within the EMI-II and were not used in the original surveys*

There were thirteen items that did not load independently enough with any one component, these are discussed in-depth with justification for their removal in [Technical Appendix D](#).

The overall aim of the present study was to identify the latent variables that influence prisoners' exercise motivation, therefore, a common factor analysis approach is favoured over components analysis for this purpose. For a more detailed overview of the chosen analytical approach please see [Technical Appendix B](#).

**PCA on combined scales.** A final PCA was conducted on the 46 items that remained across the three refined measures of exercise motivation, retaining components with a minimum eigenvalue of 1.0, which returned nine components explaining 74.08% of the variance in the model. The KMO measure of sampling adequacy was 0.841, indicating that enough items were predicted by each factor, and Bartlett's test of sphericity was significant ( $p < 0.001$ ), indicating that the variables were not uncorrelated.

A total of 15 items were removed following review of the structure matrix in the first PCA as they did not fit the criteria. Five of these were from the SMS, three from the EMI-II and seven from the MPAM-R, the items from the SMS will be considered first.

Two of the five items from the SMS which were removed began with “For pleasure”, namely “For pleasure discovering new training techniques”, and “For pleasure in improving weak points”. Both these items loaded highly on the interest and excitement subscales, as well as one further subscale. The item “For pleasure in improving weak points”, also loaded highly on the *health and strength* subscale (.65), which perhaps is a result of the sample identifying with the term “weak points” in a quite literal manner, as associated with building strength. The item measuring the discovery of training techniques had a moderately high negative loading with amotivation (.431). A possible reason behind the close loading with amotivation is that, to identify with the item, an individual must have got to a level where they have been able to exhaust their existing training techniques and actively searched for more, and therefore is likely to be highly engaged with exercise, which is the opposite of amotivation for exercise. Furthermore, the term “training technique” is very specialised and suggests a formal approach to exercise. There is another item which is worded similarly “For pleasure learning techniques never tried before”, but the “learning” aspect of the item suggests that the individual enjoys being shown new techniques, but has not necessarily got to the point of actively trying to find new ones, which arguably requires a greater level of motivation and long-term engagement with the behaviour. Thus, the original item “For pleasure discovering new training techniques”, may be measuring interest and excitement, as well as identifying individuals who are exceptionally motivated in the context of the present sample, and this cross-loading between the two constructs justifies its removal.

The final item from the SMS which was removed is “I like feeling of being completely immersed in activity”, which loaded higher than .3 on seven of the nine

components, but no higher than .558 on any one component (*excitement*). This suggests that the item is not nearly specific enough to reflect a single component and therefore creates a substantial amount of specific variance, which justifies its removal.

***Confirmation of item reduction.*** Prior to conducting the factor analysis, the inter-item correlations among all individual variables was also examined using a matrix of Spearman's correlation coefficients. Firstly, the matrix was examined to identify any items which exhibited extreme multicollinearity of above .9, as suggested by Field (2009), but no items fit this criterion. Secondly, the matrix was reviewed to identify any items that had been removed in the initial stage of item reduction but displayed particularly high correlations with other items, and therefore may warrant re-introduction to the data set. And finally, any variable that correlated at less than .4 with all other variables was highlighted to ensure they had not been included in the final data set, as such low correlations are likely to indicate that these items are producing error and unreliability (Churchill, 1979).

There were no items with high (above .7) inter-item correlations that were not included in the final set of items. Six items did not correlate higher than 0.4 with any other item, none of which were included in the final set of refined items. Namely "SMS - Would feel bad if not taking the time", "EMI-II – A member of healthcare staff advised me to", "SMS - Extrinsic/external - People around me think it's important to be in shape", "EMI-II - health pressures - Prevent an illness that runs in family", "EMI-II - Social recognition - Gain recognition for my achievements", and "EMI-II - health pressures - Recover from an illness/injury".

***Scale development approach.*** Two types of common factor analysis were considered for the present study; confirmatory and exploratory. It was important that the chosen analytical approach allowed for cross-loadings between factors, which would be expected

given that all items are measuring motivation, and some factors are conceptually adjacent (e.g. reflecting the same regulation type or one that sits closely on the continuum). Therefore, confirmatory factor analysis (CFA) was rejected as an initial method of analysis because this is a more rigid approach that does not allow for cross-loading. Based on these considerations, exploratory factor analysis (EFA) was decided to be the most appropriate analytical method as it is directed at understanding relationships among variables thus identifying the latent structures which lie beneath them, whilst allowing for the fact that the items will not be perfect indicators of their factors and will therefore produce some systematic measurement error, which is accounted for through identification of cross-loadings.

Given that the researcher was aware of the structure behind the existing exercise motivation measures it is arguable that an entirely inductive approach was not possible, as this knowledge may have influenced the researchers' interpretation of the EFA's results. To minimise any bias from knowledge of existing concepts, the construct validity of the proposed factors was tested in numerous ways to support their structure, including;

- Testing the internal consistency reliability of the proposed factors
- Identifying the test-retest correlation of the new proposed measure based on responses to exercise motivation items on the end surveys
- Testing the hypotheses that the new proposed measure will be a better predictor of scores on related variables than the existing exercise motivation measures
- Testing the convergent and discriminant validity of the new measure based on hypotheses from the self-determination continuum
- Finding support for the proposed structure of the new measure through interviews with nineteen prisoners

Careful thought was paid to the process of conducting an adequate factor analysis as guided by previous research, this included consideration of variable range, sample demographics, sample size, factor rotation, and the appropriate number of factors to retain. More information about these decisions and justification for them is provided in [Technical Appendix E](#).

***Exploratory factor analysis outcomes.*** Exploratory factor analysis with ordinary least squares was conducted on the remaining 34 items to begin identifying any underlying factors that were influencing participants' exercise motivation. Velicer's MAP test was conducted on the 34 items to identify the appropriate number of factors to retain, suggesting that a nine-factor structure was appropriate. Items were validated through the structure matrix to identify any items that did not load uniquely enough on one factor, using the same criterion as used with validating items on the PCAs. This led to the removal of two items, one from the SMS "Excitement when really involved in activity", and the second from the EMI-II "Compare my abilities with others". Velicer's MAP test was conducted again, this time identifying an eight-factor structure, which was supported when reviewing the scree plot. A third EFA was conducted which led to the removal of one final item, "For pleasure in living exciting experiences".

At this point, a review of the factors for anything unusual highlighted one item in particular, "it might be fun", which loaded highly with the *Socialising* factor (.667) but did also show moderate loadings with four other factors of between .44 and .308, and was the least uniquely loaded of all the items. This likely occurred due to this item's moderate correlation with the item "To have fun being with active people", and because an OLS approach was adopted and there is no discrimination of items with higher variability, the item "it might be fun" was retained, despite having very low correlations with the remaining two items in the factor. The decision was made to remove the item altogether. A review of the

pattern matrix revealed that the communality estimate for the item “To control my weight” was 1.009, which is known as an Ultra-Heywood case (Heywood, 1931), this means that the model predicts negative unique specific variance for this item, which is theoretically impossible. There are many reasons as to why this may have occurred, causes include outliers in the variable or under-identification<sup>12</sup>. As this was the only item that returned a prediction of negative variance, and there were two remaining items to explain the factor, the decision was made to remove the item altogether. Implications for this are explored in the discussion of this study.

The final Velicer’s MAP test on the remaining 25 items identified an eight-factor structure which was supported by the scree plot point of inflection ([Appendix C](#)). A fourth and final exploratory factor analysis employed ordinary least squares and oblimin rotation, returning an eight-factor structure with clear unique loadings which accounted for 70.90% of the variance in the model. The KMO measure of sampling adequacy was 0.804, which is good. Bartlett’s test of sphericity was significant ( $p < 0.001$ ) which indicated the variables were not uncorrelated. The factor structure according to the structure matrix was confirmed by a review of the pattern matrix ([Appendix D](#)).

It could be argued that the model achieved simple structure according to Thurstone’s (1974) definition, as most of the factors did have a few high loadings and mostly zero or near zero loadings (2, 4, 5, 7 and 8), however, factors 1, 3 and 6 had several cross-loadings around .4. Because all the subscales are measuring exercise motivation one would expect to see cross-loading between factors, and adopting an oblimin rotation allowed for these cross-loadings. Furthermore, the cross-loadings are not considered high, and there is a clear unique loading from the few items that load highly on all factors. It is of interest that the three factors

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<sup>12</sup> For a comprehensive review of Heywood Cases please see Kolenikov & Bollen (2012).

with high cross-loadings all measure more internal exercise motivations, and this will be explored later in the discussion of this study.

Table 2.5.

*Structure matrix factor loadings from the final Exploratory Factor Analysis on the Male Prisoners' Exercise Motivation Measure*

	1	2	3	4	5	6	7	8
1. Strength & health								
I want to maintain good health	<b>0.875</b>		0.444	0.436		0.540		
To increase endurance	<b>0.795</b>		0.435			0.474		
To get stronger	<b>0.860</b>		0.455	0.471		0.408		
To feel more healthy	<b>0.892</b>					0.487	-0.412	
2. Amotivation								
I did have good reasons now asking self whether to continue		<b>0.822</b>						
I may not be able to succeed		<b>0.810</b>						
I don't really think my place is in exercise		<b>0.756</b>						
3. Competition & challenge								
I enjoy competing	0.411		<b>0.798</b>					
I enjoy physically competing			<b>0.834</b>					
I find PA fun especially when competition involved			<b>0.767</b>					
To measure myself against personal standards	0.465		<b>0.823</b>			0.418		
4. Appearance								
To have a good body			0.430	<b>0.792</b>		0.414	-0.459	
To improve appearance	0.472			<b>0.838</b>				
To look more attractive				<b>0.781</b>				
5. Weight								
To lose weight					<b>-0.758</b>			
Exercise helps burn calories					<b>-0.918</b>			
6. Interest								
I will find it interesting						<b>0.888</b>		
For the pleasure discovering new ways of exercising	0.438					<b>0.801</b>		
For the intense emotions doing exercise I like	0.480		0.401			<b>0.740</b>		
I think it will be interesting	0.507		0.417			<b>0.783</b>		
7. Revitalisation								
Exercise gives me energy	0.509		0.446				<b>-0.737</b>	
To recharge my batteries	0.408				-0.416		<b>-0.918</b>	
8. Socialising								
To have fun being active with people	0.420							<b>-0.690</b>
To make new friends								<b>-0.752</b>
To spend time with friends								<b>-0.667</b>

### 9.5.7. MPEMM

The eight subscales of the MPEMM are reflective of forms of exercise motivation, and thus are presented in terms of their regulatory style, perceived locus of causality and relative position on the self-determination continuum according to Organismic Integration Theory (OIT; Deci and Ryan, 1985), beginning with non-self-determined motivation (lack of control and impersonal perceived locus of causality) and ending with entirely self-determined

motivation (complete control and internal perceived locus of causality). Table 2 provides descriptive statistics of respondents' scores for each subscale, from highest to lowest scoring.

Table 2.6

*Means and Std. Deviations for the Male Prisoners' Exercise Motivation Measure subscales*

	Std.	
	Mean	Deviation
Strength & health	4.33	0.95
Appearance	3.78	1.34
Interest	3.65	1.28
Revitalisation	3.51	1.53
Weight	3.39	1.72
Competition & challenge	2.94	1.43
Socialising	2.00	1.28
Amotivation	0.98	1.38

***Amotivation - Non-regulation.*** The *MPEMM Amotivation* subscale measures a lack of intention, values and control in relation to exercise, and therefore reflects an impersonal locus of causality which is characterised by a belief that outcomes related to exercise are out of the individual's control, and that attempting to regulate behaviour to achieve any desired exercise outcomes is beyond the individual's ability.

***Weight – Introjected.*** Weight loss or management as measured through the *MPEMM Weight* subscale, is an external motivator that has been internalised into esteem-pressures, using guilt or shame avoidance to regulate exercise behaviour. Thus, an individual who is exercising for these reasons is acting with a somewhat external locus of causality and experiences their actions as controlled.

***Appearance – Introjected.*** The *MPEMM Appearance* subscale reflects reasons for exercise to attain ego enhancements based on personal appearance such as pride, or recognition from others, thus it is regulated by contingent self-esteem. These reasons for

exercise are internal to the individual but still have an externally perceived locus of causality and are not fully accepted as their own, and as such are introjected.

***Socialising – Identified.*** The *MPEMM Socialising* subscale reflects more self-determined behaviour in the form of identified regulation. For an individual to be motivated to exercise for reasons of affiliation then being with friends or other active people must be of personal importance to them, and this conscious valuing reflects a somewhat internal perceived locus of causality.

***Revitalisation – Identified.*** Although an individual might be told that exercise can boost energy levels, for them to consciously value this as a reason for exercising they must experience it and internalise it, recognising it as something of personal importance for them. Thus, the *MPEMM Revitalisation* subscale reflects an identified regulatory style of reasons to exercise concerning energy which have been somewhat internalised.

***Strength & health – Identified.*** It is common knowledge that exercising is good for one's health, but, as with the previous subscale, adopting health reasons as a means of regulating one's exercise behaviours entails a conscious valuing of one's health as personally important, thus, the *MPEMM Strength & health* subscale reflects an identified style of regulation. Exercising for the reasons outlined in the *MPEMM Strength & health* subscale are likely to mean that the behaviour will be experienced somewhat autonomously. It is also of note that the reasons that seem to be of most importance in relation to health include endurance and strength, which, in the original exercise measures, are classified separately.

***Competition & challenge – Identified/intrinsic.*** Although exercising for competitive reasons could be argued as reflecting ego-involvement, which is a form of introjected regulation, the *Competition & challenge* subscale of the *MPEMM (MPEMM Competition & challenge)* is mainly comprised of more internalised reasons that focus on the enjoyment of

competing. Further support for interpreting this subscale as a more internalised form of motivation is the presence of a fourth item which focuses on meeting personally important goals, reflecting an identified regulatory style which has a somewhat internal perceived locus of causality. The *MPEMM Competition & challenge* subscale is therefore reflective of both identified and intrinsic regulators of exercise behaviour, implications for this will be explored in the discussion.

***Interest – Intrinsic.*** The final and most internalised subscale is *MPEMM Interest*, this comprised of items which focus purely on the interest and pleasure of exercising. Interest are reflective of intrinsic regulatory processes which do not originate from an external source, but are entirely internal, and therefore one would expect individuals scoring highly on this subscale to show the highest adherence to exercise.

#### **9.5.8. Reliability**

***Internal consistency reliability.*** *Strength and health* revealed excellent internal consistency with a score of .919, which would increase to .925 if the item “To increase endurance” was removed. It was not deemed necessary to remove this item as the reliability remained excellent and endurance is a distinct concept from the remaining items and therefore may provide additional value as a motivator. The remaining subscales’ consistency would not have increased with the removal of any items (Table 2.7).

Table 2.7

*Internal reliability scores of subscales across the Male Prisoners' Exercise Motivation Measure*

Subscale	Internal reliability (Cronbach's Alpha)
Strength & health	.919
Amotivation	.830
Appearance	.838
Interest	.876
Competition & challenge	.872
Revitalisation	.83
Weight	.797
Socialising	.721

***Test-retest reliability.*** The reliability of a test over time is known as test-retest reliability, and in the present study this was tested by correlating the scores from the MPEMM taken before participating in the workshop with scores taken two weeks later following completion of the workshop (n = 64). Ideally, there should be a three-month gap between responses to minimise any standard error associated with a test re-test analysis, and a minimum sample size of 100 (Kline, 2000). However, obtaining follow-up data in a prison can be problematic, and given the high number of responses required from each subject (106 items), the most practical approach was to include the exercise motivation measures as part of the start and end surveys of the workshops as a means of obtaining the highest completion rate possible for both sets of scores. It should be noted that the sets of data were gathered from the same sample, which will have partially minimised standard error.

Based on the assumption that correlations between the test and retest scores must be a minimum of .8, and therefore show an agreement of 64 per cent, the only subscale to demonstrate acceptable test-retest reliability is *Interest* ( $r_s = -.811$ ,  $p < .001$ ). Unfortunately, the remaining seven subscales all fell below the minimum criteria of .7. *Competition & challenge* was the second highest ( $r_s = -.747$ ,  $p < .001$ ), *Weight* and *Appearance* fell below .7

( $r_s = -.636$ ,  $p < .001$  and  $r_s = -.622$ ,  $p < .001$ , respectively). *Revitalisation*, *Strength* and *Affiliation* fell below .6 ( $r_s = -.568$ ,  $p < .001$ ,  $r_s = -.572$ ,  $p < .001$ , and ( $r_s = -.509$ ,  $p < .001$ , respectively), and finally, *Amotivation* had the poorest rest retest reliability ( $r_s = -.387$ ,  $p = .002$ ).

Given that the two-week workshop was specifically developed to engage participants in exercise and to increase their motivation for exercise, it is perhaps encouraging that the test retest reliability of the MPEMM is so poor. If participants' scores on the MPEMM had remained the same at the end of the two-week period then the workshops would not have had an impact on exercise motivation, and therefore would have failed in their purpose. In terms of the retest reliability of the MPEMM however, this does not make for particularly useful data, although further review of the retest scores may be able to provide information that is useful in understanding the impact of the workshops, and thus will be explored further in study III.

#### **9.5.9. Construct validity**

Motivation measures are not exemplars of the construct that they measure, rather they are reports of relevant behaviour that reflects an individual's motivation. Therefore, they cannot withstand conceptual analysis against measures of other related concepts to determine their suitability and must be validated in terms of their internal reliability and their relationship to other related behaviours within the same sample, known as construct validity. Although the construct validity of the new proposed measure cannot be proven outright, the adoption of multiple validity tests can make for a strong supportive argument of its content and structure.

### **Translation validity<sup>13</sup>**

*Content validity.* The items that were used to develop the new proposed measure of exercise motivation for prisoners were taken from three existing measures of exercise motivation designed for use on the general population. These three measures were selected for their reliability and suitability based on an extensive review of existing exercise motivation measures which were developed based on the principles of Self-Determination Theory. More detail on the properties of these measures and the selection process is provided in the materials section of this study and [Appendix B](#).

*Face validity.* The face validity of the items in this study were reviewed in line with two criteria related to the phrasing of each item; wording, clarity and concision; and applicability to most prisoners regardless of their sentence type or privileges. A three-step verification was conducted, firstly, the researcher reviewed all the items across the three measures and rephrased anything that was considered unsuitable for use on the prison population. Secondly, the remaining items were verified for applicability on the prison population by an academic with extensive prison research experience. Finally, the researcher spoke to nineteen prisoners who had completed the surveys and asked about their thoughts on the suitability of the items, using an example of the survey to prompt their memory. All those who were asked felt that the items were easy to understand and relevant to them as prisoners. Analyses of any missing responses revealed that there was no pattern to the items which were missing a response (for details of this please see [Technical Appendix A](#)), indicating that, in general, respondents could provide a response to all items.

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<sup>13</sup> For more information on the types of translation validity considered in this study and their importance, please see [Technical Appendix F](#)

### Criterion-related validity

*Predictive validity - Correlations with relevant variables.* Spearman's Rho correlations were calculated for the MPEMM and the BPNEs, as shown in Table 2.7, showing support for the predictive validity of the MPEMM. According to SDT, if the three basic needs for exercise are satisfied, then motivations to exercise become more internalised. Therefore, one would expect internalised reasons for motivation to be stronger predictors of BPNs than external reasons, which has been demonstrated by the MPEMM. The subscales of *Interest, Revitalisation, Strength and health, and Competition and challenge*, are stronger predictors of the subscales on the BPNEs than the more external subscales of *Amotivation, Affiliation, Weight, and Appearance*. Furthermore, as expected, the subscale of *Affiliation* reasons for exercise on the MPEMM is a predictor of relatedness for exercise.

As expected, the majority of the subscales on the MPEMM correlated significantly with the BPNEs, ranging from a small correlation at .219 to a moderate correlation of .447. All subscales saw a significant correlation with perceptions of relatedness for exercise. *Weight* was the only subscale not to correlate significantly with perceptions of competence. Interestingly, autonomy saw the fewest significant correlations with subscales on the MPEMM, which is perhaps to be expected in the context of the prison environment where there are many more structural and cultural barriers to autonomous engagement in exercise. Possible reasons behind a lack of correlation between weight and competence, as well as the lack of correlations with autonomy for exercise will be explored further in the discussion.

Table 2.8

*Correlations between subscales on the Male Prisoners' Exercise Motivation Measure and the Basic Psychological Needs for Exercise Scale and Health-Related Quality of Life*

	Autonomy	Competence	Relatedness	Emotional well-being	Social functioning	General health	Energy & fatigue	Physical functioning
Interest	.385**	.346**	.399**	0.161	0.141	.276**	.244*	0.099
Amotivation	-0.125	-.277*	-.233*	-.221*	-0.212	-.361**	-.243*	-.241*
Socialising	0.188	.241*	.311*	-0.005	-0.018	0.007	0.006	0.12
Weight	0.052	-0.04	.245*	0.064	.247*	0.144	0.031	0.002
Revitalisation	.313**	.424**	.311**	0.098	0.102	.291**	0.112	0.042
Appearance	0.19	.219*	.257*	-0.059	0.006	.301**	0.126	0.189
Strength & health	.419**	.447**	.395**	0.051	-0.015	.298**	0.197	0.058
Competition & challenge	.429**	.382**	.372**	-0.002	0.06	0.204	0.205	0.052

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Further support for the predictive validity of the MPEMM is provided through its correlations with subscales on the health-related quality of life (HRQL). Firstly, according to SDT, internalised motivation is required for personal well-being, and autonomy for a behaviour is required if one is to feel revitalised when engaging with it successfully. Thus, it makes sense that the subscale of *Amotivation* has a significant negative correlation with *Emotional well-being*, *General health*, *Energy & fatigue*, and *Physical functioning*, as one would expect that a complete lack of motivation for a behaviour would result in poor well-being and diminished energy levels. Furthermore, the most internalised and therefore autonomous form of motivation is measured through the *Interest* subscale, which is a significant positive predictor of both *General health* and *Energy & fatigue*. Therefore, those who identified more with exercise motivations of Interest were more likely to experience better general health and higher levels of energy, as one would expect in line with the theory.

The subscales of *Revitalisation* and *Strength & Health* were both predictors of *General Health*, which one would expect given the internal nature of the items in these subscales. Perhaps a more unusual finding is that *Appearance* is also a predictor of *General*

*Health*, which one might not expect given the somewhat external nature of appearance as a motivator for exercise, and possible reasons for this are discussed later.

Interestingly, those who were motivated to exercise for weight reasons were more likely to have increased scores of social functioning. However, the measure of social functioning only contained one item, due to the unsuitable nature of the remaining items in the domain, therefore this finding should be treated with caution and may not be reflective of any underlying processes, although future research may wish to explore this further.

***Predictive validity comparisons with original exercise motivation measures.***

Comparisons between the predictive power of the original exercise motivation measures and the MPEMM were also made, to ascertain whether the subscales in the new measure are a better predictor of BPNEs and health domains than subscales within the original measures where appropriate. These comparisons were also pivotal in understanding and validating the structure of the MPEMM in relation to the structure of the original measures and form the framework for identifying any differences between the present sample and the general population for whom the original measures were intended.

The SMS-28 is structured in relation to regulatory styles, so to allow for accurate comparisons to be made the predictive validity of the MPEMM was also tested with the subscales grouped into regulatory styles. Firstly, comparisons are made between the MPEMM and the EMI-II and MPAM-R, and the SMS-28 is then considered separately.

**MPEMM subscales.**

***MPEMM Weight.*** Overall, the original subscales which measured exercise motivations directly related to weight and appearance were not as strong as *MPEMM Weight* as an all-round predictor of relatedness and social functioning.

***MPEMM Appearance.*** Overall, the MPEMM subscale of *Appearance* is a reasonable predictor of competence and relatedness, and the best subscale of its type for predicting general health. Although the original subscale from the EMI-II is a stronger predictor of BPNEs, this is seemingly because it begins to cross-load with constructs of interest and revitalisation which are more internalised, and better predictors of need satisfaction overall. Therefore, the MPEMM subscale of *Appearance* is arguably the most reliable and valid measure of appearance as a motivator for exercise for use on the prison population as considered by the present study.

***MPEMM Socialising.*** Overall, the *Socialising* subscale of the MPEMM is a moderate predictor of relatedness and was only marginally worse than the EMI-II and MPAM-R, which one would hope to find given the context of the items. The new subscale is also a reasonable predictor of competence, and although it does fall beneath the significance threshold for autonomy it is worth noting that none of the original subscales for affiliation or social reasons alone correlated above .245 with autonomy. Implications for this and the inclusion of affective terms in items are explored further in the discussion.

***MPEMM Revitalisation.*** Overall, the *Revitalisation* subscale of the MPEMM is a weaker predictor of BPNEs than the original EMI-II subscale, however, the MPEMM is arguably a more reliable measure of revitalisation as a motivator for exercise that is distinct from health. Implications of these findings for the validity of the MPEMM are explored later in the discussion of this study.

***MPEMM Strength & health.*** Overall, when strength and health are combined as a factor for the MPEMM they present a much stronger predictor of the proposed criteria than health alone, but not as strong as a single subscale of strength. A review of the PCAs and EFAs on the items shows that items related to health and strength load strongly and uniquely

onto the first factor throughout all iterations, proving it to be the strongest factor. It is arguable then, that these two constructs are rightly combined when measuring exercise motivations for the present sample, as the items likely reflect an underlying common factor. Furthermore, the key difference between the EMI-II *Strength* subscale and the MPEMM *Strength & health* subscale is that the former includes the item “to develop my muscles”, which may have quite strong connections to appearance as a motivator, rather than strength alone. This will be explored further in the discussion.

***MPEMM Competition & challenge.*** Overall, the MPEMM *Competition & challenge* subscale is a stronger predictor of all three BPNEs than the original subscales of a similar nature. Although MPAM-R *Competence* is a stronger predictor of the basic needs which is explored in [Technical Appendix G](#) and possible reasons for this are presented in the discussion.

***MPEMM Interest.*** The MPEMM *Interest* subscale is a stronger predictor of the criterion measures than the MPAM-R *Interest* subscale. However, overall, the *enjoyment* subscale of the EMI-II is a stronger all-round predictor of well-being and BPNEs, proving itself to be the strongest subscale for predicting BPNEs across all the measures explored in the present study. Implications for this on the validity of the MPEMM are discussed later.

***MPEMM regulatory styles.*** Table 2.8 displays the predictive validity of the MPEMM when categorised into regulatory styles. The introjected scale includes *Weight* and *Appearance*, the identified scale includes *Socialising*, *Revitalisation* and *Strength & health*, and the intrinsic scale includes *Competition & challenge* and *Interest*.

Table 2.9

*Correlations between Basic Psychological Needs for Exercise Scale, Health-Related Quality of Life and Male Prisoners' Exercise Motivation Measure*

	MPEMM Introjected	MPEMM Identified	MPEMM Intrinsic
Autonomy	0.105	.349**	.446**
Competence	0.084	.415**	.401**
Relatedness	.299**	.418**	.436**
Emotional well-being	0.029	0.031	0.068
Social functioning	0.177	-0.01	0.119
General health	.276**	.216*	.259*
Energy & fatigue	0.091	0.078	.222*
Physical functioning	0.116	0.112	0.09

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

***MPEMM Amotivation.*** None of the subscales within the original measures could predict emotional well-being, including the SMS-28 original subscale, whereas *MPEMM Amotivation* was a significant but weak negative predictor of emotional well-being. Overall, the subscale of *Amotivation* on the MPEMM is a stronger predictor of BPNEs and health domains than the original amotivation subscale within the SMS.

***MPEMM Introjected.*** Overall, the *MPEMM Introjected* subscale was not a good predictor of the BPNEs and was not correlated with perceived autonomy or competence at all. Implications of this on future development of the MPEMM are explored in the discussion.

***MPEMM Identified.*** The *MPEMM Identified* subscale appears to be a robust predictor of the BPNEs and general health in comparison to its comparable scale on the SMS-28, proving itself to be a strong all-round measure of prisoners' identified motives for exercise.

***MPEMM Intrinsic.*** Overall, the Intrinsic subscale of the MPEMM is a stronger predictor of BPNEs, health and vitality than the Intrinsic Knowledge, Stimulation and Accomplishment subscales of the SMS-28.

Convergent and discriminant validity. The convergent and discriminant validity of the factors was tested by examining the correlations among them, with the expectation that correlations between regulation types would be in line with the simplex correlation pattern that is proposed by SDT. Thus, factors should have a stronger correlation with other factors that are closer to them on the self-determination continuum in terms of regulation type, compared with factors that are further along the continuum. For example, factors that reflect intrinsic forms of motivation should correlate positively with factors that reflect integrated or identified regulation, whilst one might expect them to correlate negatively with other factors that reflect external regulation.

Table 2.10

*Cross-correlations between subscales of the Male Prisoners' Exercise Motivation Measure*

	Interest	Amotivation	Weight	Revitalisation	Appearance	Strength & health	Competition & challenge	Socialising
Interest	—							
Amotivation	-0.09	—						
Weight	.410**	-0.021	—					
Revitalisation	.457**	-0.092	.429**	—				
Appearance	.448**	-0.062	.406**	.407**	—			
Strength & health	.644**	-0.14	.386**	.661**	.583**	—		
Competition & challenge	.423**	-0.18	.272**	.368**	.342**	.488**	—	
Socialising	.224*	0.184	.286**	.388**	0.17	.267*	.279**	—

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

The least self-determined form of motivation according to the self-determination continuum is amotivation, and the *Amotivation* subscale provides good support of the MPEMM's discriminant validity. Firstly, the only negative correlations are between

*Amotivation* and the remaining seven subscales (see Table 1), which one would expect, as amotivation reflects a complete lack of motivation, and should therefore see an inverse relationship with subscales that measure the presence of motivation. If the discriminant validity of the MPEMM is to be further supported then the subscales with the lowest negative correlation should be those closest to *Amotivation* on the continuum, whilst subscales with higher negative correlations should be further along the continuum. This hypothesis is supported, with *Weight* and *Appearance* (somewhat external motivators) correlating lowest with *Amotivation*, and the more internal motivators of *Strength & health*, *Competition & challenge*, and *Affiliation*, all revealing the highest negative correlations. This relationship suggests that the more an individual is motivated to exercise for internal reasons, the lower their amotivation score will be, which one would expect based on the principles of the self-determination continuum, thus supporting the discriminant validity of the MPEMM.

Given the structure of the self-determination continuum, one would expect externally regulated forms of motivation to correlate higher with one another than they would with internally regulated forms, and vice versa. *Weight* is a form of introjected regulation and is therefore somewhat external, and in support of the MPEMM's convergent validity shares its strongest correlations with *Revitalisation* and *Appearance*, the latter being a clear measure of ego-involvement and therefore also an introjected form of regulation, whilst *Revitalisation* arguably sits between somewhat external and somewhat internal forms of regulation. Further support of the MPEMM's discriminant validity is provided by the three subscales which correlate lowest with *Weight*, which are of more personal importance and therefore reflect identified and more internal forms of regulation, namely, *Strength & health*, *Competition & challenge*, and *Affiliation*. A similar set of relationships is seen in the convergent correlations between the external motivator of *Appearance* and the external and somewhat external motivators of *Weight* and *Revitalisation*, respectively, and the weaker correlations between

*Appearance* and the more internal motivators of *Competition & challenge*, and *Affiliation*.

The strongest correlation that *Appearance* shares is with *Strength & health*, which may seem counter to the self-determination continuum. A likely explanation for this is that one of the items measuring *Appearance* is “to have a good body”, which, in the context of a masculine environment, is likely to be associated with being muscular, and therefore strong, thus forming a relationship between reasons for exercise related to strength and appearance, and accounting for the cross-correlations.

The *Affiliation* and *Competition & challenge* subscales saw weaker correlations with external motivators of *Weight* and *Appearance*, reflecting good discriminant validity, and strongest relationships with each other, as well as *Revitalisation* and *Strength & health*, which all reflect the same somewhat internal regulatory styles, thus supporting the MPEMM’s convergent validity.

*Interest* is the most internally regulated form of motivation measured by the MPEMM, and has its highest correlations with *Strength & health* and *Revitalisation*. It is unexpected that *Interest* correlates higher with *Appearance* than *Affiliation* and *Competition & challenge*, as the latter are thought of as more internalised forms of regulation. Possible explanations for this are explored later in the discussion of this study.

Overall, a review of cross-correlations between subscales on the MPEMM based on hypotheses generated from the self-determination continuum provided strong support of its convergent and discriminant validity.

## **9.6. Testing the applicability of Self-Determination Theory: Methodology**

To address the suitability of SDT as a lens through which to understand prisoners’ exercise motivations the present study tested two key premises of the theory. Firstly, the

presence of a self-determination continuum, and secondly, that an individual's BPNs must be satisfied to experience behaviours as intrinsic and for personal well-being.

Outcomes from part 1 of this study which sought to test the convergent and discriminant validity of the MPEMM were able to provide some support for the presence of a self-determination continuum by demonstrating that subscales mostly correlated higher with other subscales which sat closer to them on the continuum. Further support for the presence of a continuum can be found by exploring relationships between regulatory styles for exercise motivation and the BPNES, as the theory would suggest that satisfaction of the needs will facilitate more internal styles of regulation.

As Table 2.7 revealed, subscales of the MPEMM which reflect more externally regulated reasons for exercise, such as *Weight, Appearance* and *Affiliation*, all have weaker correlations with the subscales of the BPNES than the subscales that reflect more internal reasons, such as *Revitalisation, Strength & Health, Competition & challenge* and *Interest*. Furthermore, *MPEMM Amotivation* has negative correlations with all three BPNs, which one would expect to see in line with the theory. These relationships provide support for both premises of SDT that are being tested, by demonstrating the increasing strength of correlations between exercise motivations and BPNs as motivations become more internally regulated.

In line with SDT there are significant positive correlations between the three needs, as measured on the BPNES, and emotional well-being and vitality. As satisfaction of relatedness, autonomy and competence for exercise increased, so did scores of emotional well-being ( $r_s = .37, p = .001$ ;  $r_s = .37, p = .001$ ; and  $r_s = .25, p = .023$ , respectively) and vitality ( $r_s = .419, p < .000$ ;  $r_s = .411, p < .000$ ; and  $r_s = .421, p < .000$ , respectively). Furthermore, perceived autonomy support as measured at the end of the workshops was significantly related to all

three BPNs of autonomy ( $r_s = .328$ ,  $p = .011$ ), competence ( $r_s = .340$ ,  $p = .007$ ), and relatedness ( $r_s = .327$ ,  $p = .009$ ), but was not related to emotional well-being or vitality. A further important finding in relation to participants' well-being was the strength of the relationship between measures of vitality and emotional well-being ( $r_s = -.587$ ,  $p < .001$ ), demonstrating the importance of vitality to participants' overall well-being. Supporting this link between autonomy and vitality contributes to the evidence based which is currently limited (Nix et al., 1999), existing studies have applied experimentally manipulated variables in terms of locus of causality, whereas the outcomes from the present study are related to a perceived locus of causality that was real and profound, which provides a valuable addition to the literature.

The BPNES was the only available measure of BPNs for exercise known to the researcher at the time of conducting this study and support for its reliability is relatively sparse in relation to the other measures applied. Therefore, the applicability of the BPNES on the present population was tested. All three subscales of the BPNES revealed excellent internal consistency (autonomy = .901; competence = .917; and relatedness = .950). And as Table 2.10 demonstrates, the subscales showed moderate correlations between each other, as expected, but these were low enough to suggest that the subscales are measuring distinct constructs. Correlations between all twelve individual items were also reviewed, the highest of which was .868 between two items on the relatedness subscale, indicating that each item was measuring a distinct concept.

Table 2.11

Correlations between subscales of the Basic Psychological Needs for Exercise Scale

	1	2	3
1. Autonomy	—		
2. Competence	.716**	—	
3. Relatedness	.625**	.671**	—

\*\* Correlation is significant at the 0.01 level (2-tailed).

A generalised least squares factor analysis with oblimin rotation was performed on the BPNES. The KMO measure of sampling adequacy was 0.904, which is excellent, and Bartlett's test of sphericity was significant ( $p < 0.001$ ) which indicated the variables were not uncorrelated. The model accounted for 78.46% of the variance in the factors. A review of the structure matrix (Table 2.11) supported the factor structure of the BPNES somewhat, with the four items of autonomy and relatedness loading highly on the same factor, with a distance of at least .2 to the subsequent factor. However, two of the items in the subscale of competence revealed strong cross-loadings with both other subscales, namely, "I have been making huge progress with goals I set myself" and "I can manage with the requirements of my exercise schedule". Implications for this on the applicability of the BPNES as an appropriate measure for use on the prison population are explored in the discussion.

Table 2.12

*Structure Matrix from Factor Analysis of Basic Psychological Needs for Exercise Scale*

	1	2	3
Autonomy - Exercise fits well with my choices and interests	0.647	-0.636	<b>0.891</b>
Autonomy - Exercise fits perfectly with the way I prefer to exercise	0.579	-0.637	<b>0.883</b>
Autonomy - Exercise is a true expression of myself	0.611	-0.632	<b>0.82</b>
Autonomy - Have opportunity to make choices with respect to the way I exercise	0.602	-0.55	<b>0.8</b>
Competence - Have been making huge progress with goals I set myself	0.652	-0.746	0.708
Competence - Do perform my exercises effectively	0.623	<b>-0.979</b>	0.706
Competence - Exercise is an activity in which I do well	0.663	<b>-0.895</b>	0.664
Competence - I can manage with requirements of my exercise schedule	0.751	-0.786	0.721
Relatedness - Feel extremely comfortable with the others I share my exercise space with	<b>0.908</b>	-0.666	0.653
Relatedness - Associate with other exercise Ps in a very friendly way	<b>0.924</b>	-0.707	0.695
Relatedness - There are open channels of communication with other exercise Ps	<b>0.898</b>	-0.569	0.682
Relatedness - Feel very much at ease with other exercise Ps	<b>0.93</b>	-0.591	0.639

Further support for the use of the BPNES is the significant correlation between all three subscales and scores on the readiness to exercise ladder, which measures participants'

stage of readiness to exercise based on the principles of the TTM. As the theory would predict, participants who were further along the stages of change had higher scores of autonomy ( $r=.418, p<.001$ ), competence ( $r=.494, p<.001$ ), and relatedness ( $r=.336, p=.002$ ) for exercise.

Overall, there is significant support for the applicability of SDT as an appropriate lens through which to understand prisoners' exercise motivations. Although the BPNES is a sufficient tool with which to support this understanding, items in the competence subscale may need refinement to strengthen their validity.

### **9.7. Study I Discussion**

The purpose of the present study was to explore prisoners' exercise motivations through the lens of SDT and identify whether the theory provides an appropriate framework for understanding the behavioural processes at play. Firstly, a new measure of male prisoners' exercise motives (MPEMM) based on the self-determination continuum was developed and tested, and secondly, the study tested the key premises that prisoners' exercise motivations present themselves along a continuum of internalisation, and that satisfaction of the BPNs for exercise would lead to more internalised motivations to exercise and improved psychological well-being.

This discussion will consider outcomes from the development of the MPEMM in relation to validity, reliability and its suitability compared to existing exercise measures, followed by an exploration of what the new measure can teach us about prisoners' exercise motivations and what next steps should be taken to improve the MPEMM further. The second part of the discussion will look at the application of SDT to understanding prisoners' exercise motivations and where the functional significance of this understanding lies, followed by an

identification of any findings that the quantitative measures applied in the present study cannot fully explain, and therefore what key questions must be asked in the subsequent study.

### **9.7.1. Reliability and validity of the MPEMM**

Overall, the MPEMM revealed strong reliability and validity across a comprehensive series of tests. One of the subscales revealed excellent internal consistency (*Strength and health*), five subscales revealed good internal consistency (*Amotivation, Appearance, Interest, Competition and challenge and Revitalisation*), and the remaining two revealed acceptable internal consistency (*Weight and Socialising*). Unfortunately, test re-test scores were not seen to be reliable due to the influence of the sports-based intervention on participants' motivation to exercise during the two-week period between Time 1 and Time 2, future testing of the MPEMM should include consideration of test-retest reliability.

The review process of eight original exercise measures ensured that the final three chosen measures held good content validity in terms of application to the general population. Whilst the three-step verification of items for face validity ensured good overall translation validity for application to the prison population. Although some amendments were made to the wording of items when reviewing for suitability, outcomes from the present study provide some further clarification with regards to suitability, and implications for this in terms of further refinement of the MPEMM are conferred in later in this discussion.

In terms of predictive validity, correlations between subscales of the MPEMM and criterion measures of basic psychological needs for exercise (BPNES) were mainly significant, supporting the idea that scores on the MPEMM were reflective of the intended exercise-related constructs. Further support for the validity of the MPEMM is provided through a lack of significant correlation between perceived autonomy on the BPNES and the four subscales which sit at the non-self-determined end of the continuum, which is to be

expected as such motives are reflective of more controlled regulatory styles. Predictive validity was further tested using five domains of the HRQL, with mainly significant correlations between all subscales of the MPEMM and General Health, but few other correlations. The *Amotivation* subscale was the only one to correlate significantly with most of the health domains, which provides support for the predictive power of this construct. However, the lack of correlation between other MPEMM subscales and health domains is likely to be reflective of confounding variables within the prison environment influencing health outcomes over and above exercise behaviours, rather than an indication that the MPEMM is a poor predictor of exercise motivation. A better understanding of the variables that mediate the relationship between prisoners' exercise engagement and health outcomes is provided in the subsequent study. Overall, these analyses provide preliminary support for the reliability and validity of the MPEMM as a measure of male prisoners' exercise motivations.

### **9.7.2. Comparison of the MPEMM to existing exercise motivation scales**

With respect to predictive validity, the MPEMM was found to be stronger overall than the original exercise motivation measures when correlated with the criterion measures of the BPNES and the health domains of the HRQL. Each of the subscales are now discussed in turn, drawing on relevant research and comparing their validity to that of their counterparts in the original exercise measures.

#### **Amotivation**

The *MPEMM Amotivation* subscale was a better predictor of health domains and BPNEs than the original subscale derived from the SMS-28, and importantly, was significantly negatively correlated with emotional well-being and energy & fatigue, and although not significant, was also negatively correlated with social functioning, unlike the original. The EMI-II and the MPAM-R do not have any items measuring amotivation or a

lack of engagement, and this study has shown that the ability to identify amotivation increases the capacity of the MPEMM to identify motives across a diverse population, including those who lack intention to exercise. According to SDT, amotivation reflects an impersonal locus of causality and leads to a sense of incompetence and helplessness, thus, the ability of this subscale to predict emotional well-being above all other subscales on the MPEMM is perhaps unsurprising. The *MPEMM Amotivation* subscale could have potential as a valuable indicator of prisoner well-being, with its focus on exercise motivation it can be applied in physical activity settings and therefore is unlikely to be perceived as a direct measure of psychological well-being, thus, it may be an important tool to identify prisoners who are experiencing emotional problems but are not clearly identifiable and do not seek support.

### **Introjected motives**

The MPEMM *Weight* subscale was the best overall predictor of relatedness and social functioning when compared to subscales that focused on weight or appearance. However, it is a brief subscale with just two items, which may have contributed to its relatively low internal consistency when compared with the *Weight* subscale of the EMI-II. Further testing of this subscale on prison populations will provide clarification on whether two items is sufficient. The strong correlations between MPEMM *Weight* and social variables may be of relevance, and is perhaps best explained through reference to weight loss as an introjected form of motivation. Exercising to manage weight is a controlled behaviour that has stemmed from an external source, thus, its internalisation is introjected. Weight maintenance, specifically a desire to lose weight, is likely to be influenced by a need to feel valued by others, therefore, it may be that a prisoner's desire to maintain or lose weight through exercise is influenced by the extent to which they feel connected to others, and could be an indicator of social

functioning. Further research is needed to establish causality and the extent of this relationship.

The MPEMM *Appearance* subscale was stronger than the MPAM-R as a predictor of BPNEs, but not as strong as the original EMI-II appearance subscale. The justification for removing one of the original items ('to look younger') was its high cross-loading with more internal reasons for exercise, which suggests that looking younger is of more personal importance to prisoners. Perhaps this is somewhat influenced by their relationship with time, and a sense of wanting to gain some time whilst in prison. Appearance was the second highest motivator for participants in the present study and was the strongest positive predictor of general health, positioning itself as key to prisoners' reasons for exercise engagement.

The positive relationship between social functioning and weight management, and the prevalence of exercise motives related to appearance, may form the impression that these are good motivators for exercise. Furthermore, Ryan and Deci (2000) have demonstrated that introjected motives for exercise like these are positively related to expending more effort. However, identified motives also lead to increased effort, therefore it is important to identify prisoners' exercise motives through a measure such as the MPEMM, as it may not be easy to distinguish between introjection and identification otherwise. Ryan and Deci also note that introjection is positively related to feeling more anxiety and coping worse with failures, and exercising to gain approval from others in terms of one's appearance is reflective of contingent self-esteem and is likely to result in vulnerability to social pressure (Ryan and Brown, 2003). Furthermore, if a prisoner is motivated by introjected motives alone then exercise adherence is likely to be low. If prisoners' motives for exercise are to move from more external reasons such as appearance to more internal reasons, then their physical condition and skills must improve (McAuley, Wraith and Duncan, 1991). Thus, prisoners who show an interest in exercise for weight management or appearance need to exercise in an

autonomy supportive environment to promote physical condition and allow for skill improvement, fostering more internal motives and promoting long-term adherence and well-being.

The *Introjected* subscale of the MPEMM was not a strong predictor of BPNEs or health domains, and this suggests that an additional subscale of introjected motives may be needed to strengthen the MPEMM overall. The MPEMM lacks items that measure introjected regulation, this includes exercise engagement for reasons of appearing stronger to others, or for comparing abilities to others, despite these motives being included in the original 106 item set. This is in complete contrast to the literature surrounding the masculine and competitive environment of prison gyms, which will be explored in Study II. The SMS-28 phrases items regarding guilt-avoidance towards the self in general, such as “I must do sports to feel good about myself”, whilst the EMI-II focused on social recognition with items like “to show my worth to others”, but the EFA suggested that these items are not reflective of underlying introjected reasons for prisoners’ exercise behaviours. Perhaps their absence from the final MPEMM is a result of social desirability bias influencing responses and failing to identify all the true motives for exercise, or perhaps these items are just not reflective of prisoners’ exercise motives. Introjected regulation is influenced by a desire to maintain feelings of worth and avoid guilt or anxiety, and it is likely that prisoners value the perceptions of individuals outside of prison, such as friends and family, more than they value the perceptions of those inside prison. Thus, introjected motives that are seen to be socially acceptable are more likely to be driven by a desire to be worthy in the eyes of close friends and family outside of prison, and items should be worded to reflect this specific group. Efforts to identify introjected reasons for exercise which are influenced by others in the prison should be informed by greater insight into prisoner discourse around the exercise culture of prison.

### **Identified motives**

The first of the identified motives on the MPEMM to be discussed here is *Socialising*, which was found to be a reasonable predictor of relatedness, although the affiliation subscale of the EMI-II was a marginally stronger predictor of all three BPNEs. Social reasons for exercise were the second lowest scoring of all eight subscales, with only amotivation scoring lower. This is in stark contrast to findings from the general population, with social and affiliation reasons being the third most popular reason for exercising when Markland and Hardy (1992) developed the EMI. It may also be of concern when considering the potential that social support has for enhancing positive outcomes through physical activity, as outlined by prison research (DiLorenzo et al., 1999; Sonstroem, 1997; Meek and Lewis, 2014; Parker et al., 2014; and Weiss and Ebbeck, 1996). Perhaps there is some social desirability response bias at play, as it may not be considered socially acceptable, or in line with masculine norms, to express an interest in exercising to make new friends. Or perhaps prisoners do not define fellow prisoners as their 'friends', which may be particularly prevalent for the present sample, with many being in the prison for under a year and a substantial portion still on remand. Interestingly, the items "to spend time with friends" and "to make new friends" returned particularly low mean scores (1.56 and 1.60, respectively) when compared with the item "to have fun being active with people", with a mean score of 2.86. It is feasible that including an element of fun makes it more socially acceptable to identify with the item, or perhaps it is the use of the term 'people' rather than friends than mean prisoners have a stronger identification with the item. There is value in ensuring that a measure of exercise motivation for male prisoners can accurately measure social factors, as McGale et al.'s (2011) findings demonstrate, men respond well to high perceived levels of social support through sport, therefore it is important to be able to identify the factors that appear to influence male prisoners' motivation to exercise for social reasons.

Overall, the correlations between items in MPEMM *Socialising* subscale are considerably lower than they are for other subscales, and the internal reliability is also the lowest of all subscales at .764. This subscale needs refinement, and perhaps the terminology would benefit from changing “friend” to something less intimate, such as “other people”. Study II helps to develop a better understanding of the importance that prisoners place on the social elements of exercise.

The *Revitalisation* subscale of the MPEMM was reduced to just two items, which was important in ensuring that it remained focused on the concept of energy, which is recognised by SDT as a key outcome of autonomous behaviours (Nix et al., 1999). Targeting domains of health that are of value is important when developing exercise programmes (Rejeski and Mihalko, 2001) and it is likely, given the dearth of factors which influence so-called ‘calm energy’ in prison, such as autonomy and feelings of love and intimacy, that vitality is a domain of health that is valued by prisoners. There is a lack of correlation between any of the vitality subscales and the *energy & fatigue* subscale of the HRQL, which suggests that, regardless of how strongly participants identified with revitalisation as a reason for exercise, their energy levels were not sufficiently affected. This suggests that there are many influences within the prison that affect prisoners’ ability to gain vitality through exercise. Prisoners’ relationship with energy levels and exercise will be explored further in Study II.

The *Strength & health* subscale of the MPEMM was the highest scoring of all the motivators, with items focused on health, fitness and strength, and no reference to physicality, framing it as a somewhat internal motivator. The original EMI-II strength subscale includes an item which refers directly to developing muscles, which would sit at the more introjected end of the self-determination continuum as this reflects a need for others to recognise one’s strength. This is an important distinction, as showing oneself to be strong through a muscular physique is likely to be a common motivator in prisons, but one which

will not result in positive well-being or exercise adherence. Whereas exercising to feel strong in oneself is of personal importance and is more likely to result in self-motivation and enhanced well-being.

Although the EMI-II strength subscale is a stronger predictor of many variables than the newly developed *Strength & health* subscale, the new subscale has excellent internal consistency and was the first and strongest factor throughout the scale development process. It is striking that items for health and strength have loaded so strongly on the same factor, particularly since Markland and Hardy note that items on the strength subscale did not load on any other factor at all when developing the EMI. This finding suggests there are differences in prisoners' perceptions of strength and how they define feeling healthy, when compared with the general population, with prisoners perceiving the feeling of being strong as synonymous with being healthy. This has implications for the phrasing of items to measure prisoners' exercise motivation, as well as for informing the language adopted by prison interventions seeking to promote internal motivators for exercise.

The *fitness and health* subscale of the MPAM-R revealed very similar predictive validity to the MPEMM *Strength & health* subscale, but the item 'I want to have more energy' on the MPAM-R cross-loaded highly with *Revitalisation*. This is unsurprising, and further highlights the importance of defining constructs in the context of specific populations, as energy is seen to be an important and unique construct for prisoners, separate to health in general.

The *Competition & challenge* subscale of the MPEMM is the final identified subscale to be discussed and is the strongest predictor of BPNE in the MPEMM, although it was the third lowest scoring motivator. While the subscale refers to competition it does not include any reference to 'winning', although there were items in the original set that did include this

term. Two of the items in the subscale mention enjoyment, and a third frames physical activity as fun. This suggests that the subscale is reflective of the enjoyment of competing and achieving personal goals, rather than beating others. It is possible that this has been influenced by the nature of exercise that is involved in Cell Workout, which is individual and non-competitive, leading respondents to relate to this form of exercise rather than competitive sport in general. Approaches to sports which de-emphasise winning are advocated in the rehabilitation of prisoners (Andrews and Andrews, 2003), framing this *Competition & challenge* subscale as a meaningfully positive motivator for prisoners.

It is also worth noting that the phrasing of these items poses questions in terms of the regulatory style of the subscale, as it appears to measure motives of personal value, but it also focuses on the intrinsic motivators of enjoyment and fun. This finding is in line with Hagger, Chatzisarantis & Biddle's (2002) research with adolescents, finding correlations between intrinsic and identified motives for exercise to be high enough to justify them being combined. Power et al. (2011) suggest that adolescents exercise more for reasons of fun than for keeping fit, and Calfas et al. (1994) propose that reasons for the decline in physical activity over time is attributed to major transitions such as leaving school, entering the workforce and having children. Perhaps in the context of prisons where there are very limited opportunities for fun activities, and an absence of external factors such as work or children, prisoners place greater value on exercise as a fun activity with more time to focus on it, becoming more motivated by intrinsic reasons for exercise. This supports the inclusion of both identified and intrinsic motives for exercise within the *Competition & challenge* subscale of the MPEMM.

The competence subscale of the MPAM-R was a stronger predictor of perceived competence than the MPEMM *Competition & challenge* subscale, which is to be expected given they are measuring similar constructs. But the MPAM-R competence subscale had high

cross-loadings with *Interest* and *Strength & health*, failing to reflect a distinct construct. The use of the term ‘skills’ in three items of the MPAM-R may account for its inability to load independently, because if the respondent is engaging in physical activity that does not involve a specific skill, such as body weight exercises, then competence is more likely to be measured in terms of fitness and health rather than ‘skill’.

The *Identified* subscale of the MPEMM is a far strong predictor of the BPNEs and general health than the *identified* subscale of the SMS-28. It is probable that the latter is a poor predictor because it is designed to reflect factors of personal importance and conscious valuing in the general population (to meet new people, to develop other aspects of self, to learn things important in other areas of life, to maintain friendships), which may not reflect the values of prisoners. Or perhaps do not reflect the values which prisoners feel comfortable or able to identify with through exercise in prison. This strengthens the argument for developing a new measure of exercise motivation for the prison population which identifies their unique motives.

### **Intrinsic motives**

The *Interest* subscale of the MPEMM is the only purely intrinsic motivator and is the third highest motivator for the present sample. In terms of its predictive ability it is a good predictor of the BPNEs, general health and energy & fatigue, but is especially weaker than the enjoyment subscale of EMI-II. However, although interest and enjoyment both characterise autonomous behaviour according to SDT (Deci & Ryan, 1985), there is an important distinction to be made between interest and enjoyment as different outcomes of behaviour. Nix et al. (1999) have suggested that interest is more closely related to dynamics of vitality, and enjoyment is more closely related to dynamics of happiness. Ryan, Koestner & Deci (1991) posit that enjoyment can accompany any positive outcome, including

extrinsically motivated behaviours, whilst Reeve (1989) has found that interest is an outcome of so-called 'collative motivation', as coined by Berlyne, Crow, Salapatek & Lewis (1963). Collative motivation refers to the drive to engage in a behaviour for reasons of optimum stimulation, which individuals gain from comparing and contrasting different stimuli and categorising them into a meaningful system for operating and storing. Thus, people are intrinsically motivated to approach stimuli which offer novelty and incongruity, or interest. Through this distinction between interest and enjoyment then, prisoners' exercise motivations appear to be reinforced by a desire for psychological stimulation, rather than the enjoyment of successful engagement in a positive behaviour. This is an important distinction, as it seems to reinforce the importance of vitality as an outcome for prisoners' behaviour, rather than happiness. It also suggests that innovative approaches to exercise provision are required to support prisoners' motivation, rather than assuming that access to exercise equipment in the gym will be sufficient for intrinsic regulation. Therefore, although the enjoyment subscale of the EMI-II presents itself as a stronger predictor of the BPNEs, there does seem to be utility in creating a distinct measure of interest as a motive for prisoners' exercise behaviours.

Another interesting finding is presented by the predictive validity of the three intrinsic subscales within the SMS-28 in comparison to the MPEMM *Intrinsic* subscale. The SMS-28 subscales of *intrinsic knowledge* and *intrinsic stimulation* were not able to predict the BPNEs or energy & fatigue as effectively as the MPEMM *Intrinsic* subscale. However, the *Accomplishment* subscale presented itself as a stronger predictor than its counterparts on the SMS-28. The items which measure accomplishment are closely related to mastery, which Ryan and Deci (2000) propose to be a key antecedent for outcomes of enjoyment and vitality. Thus, it appears that challenge and achievement are more important intrinsic drivers of prisoners' motivation for exercise than enjoyment and domain-specific knowledge, which further supports the structure of the *Competition & challenge* subscale of the MPEMM and

the idea that a positive challenge is key in promoting prisoners' well-being and long-term engagement in physical activity.

Finally, there are inferences which can be made based on the relatively strong internal consistency and predictive ability of more internalised factors compared to external factors on the MPEMM, which is a sign that they are less prone to influence from confounding variables. This suggests that internal motivators have greater capacity to transcend structural and cultural factors within the prison, remaining true motivators regardless of the environment. External factors such as appearance and weight management have greater variance and therefore appear to be far more transient and delicate, which is in line with the premise of SDT that more internalised motives are akin to increased resilience. Therefore, it appears that identifying with more internal motives for exercise such as positive challenge, good health, socialising, interest and vitality, will somewhat mediate the impact of structural and cultural factors as barriers to exercise in prison. This is explored further in Study II through identification of the socio-environmental influences on prisoners' exercise behaviours.

### **Extrinsic motives**

The MPEMM does not include any items that measure external regulation, such as compliance or external rewards and punishments. The SMS-28 included three extrinsic subscales, but these had such poor internal consistency that they were removed in the first step of item reduction. Firstly, the *extrinsic: external* subscale of the SMS-28 was designed to reflect external regulation of motivation through reward, punishment, and compliance i.e. because others think it is important to exercise, for respect from others, or to be thought of highly by others. In terms of compliance, it is often the case that prisoners take part in prison-based programmes because active engagement is viewed favourably by prison management,

particularly in terms of sentence planning, therefore, compliance is likely to play a substantial role in prisoners' behaviours across a range of activities. However, the role of compliance may not be as straight forward in the context of exercise, as is it one of the few positive activities that a prisoner can engage in without it being formally recognised by the prison, and therefore is one of the only activities that is not entirely regulated by compliance with prison management expectations. Although there are conflicting views on where the power lies with regard to sport in prison, as Sabo (1994) reports that prison officials view engagement in sport as compliance, whilst Carrabine and Longhurst (1998) suggest that despite this effort from prison management, prisoners are trying to use the prison gym as a space in which to challenge the dominant masculinity of controlled bodies and minds. This relationship will impact on prisoners' experiences of compliance, reward and punishment, and items which seek to measure these factors need to take the context of prison into consideration.

Other than compliance, external motivators are reflective of rewards and punishments from those around us. Measuring the extent to which social recognition and rewards have an impact on prisoners' exercise behaviours through psychometric means may be problematic, for the same reasons of social desirability bias that were given in the context of Identified motives. Research frames prison gyms and the dominant form of exercise in prison as a means of showing worth and appearing muscular and competitive (Riciardelli, Maier & Hannah-Moffat, 2015), so it seems unlikely that these external motivators do not play a role in individual exercise motivations, and revision of the MPEMM must take this into consideration. The sample that the MPEMM was developed through were already somewhat motivated to exercise, and were interested in engaging non-competitive exercise, which may have contributed to the failure of the present study to identify more external motives. There are also more obvious and immediate rewards and punishments that operate through the

prison regime, such as going to the gym as a reason to spend time outside of a cell, and development of the MPEMM should take these into consideration.

### **Structure of measures**

The original exercise motivation measures used in the present study are not explicit with regards to their intended populations, and it could be assumed that they have been developed for application across the general population. However, all three measures were originally developed using an active population, and this is likely to influence the items employed. The SMS-28 was tested on university athletes who had been engaged in competitive sports for a minimum of two years (pg. 42, Pelletier et al., 1995), while the EMI-II and MPAM-R were both developed using populations that were regularly engaged in exercise. Although the creators of the SMS-28 do identify the use of the scale in relation to motivation for athletes, as well as mentioning the importance of sport motivation in the context of athletes, there is no explicit indication of the specific demographic that the measure has been developed for and what constitutes an ‘athlete’.

The intended audience of the SMS-28 appears to have influenced the structure of the scale, as the subscales map directly onto the regulatory styles, whilst the EMI-II and the MPAM-R reflect exercise motives more specifically, such as weight management or affiliation. This highlights a key difference between exercise motivation measures based on the self-determination continuum that future research would do well to explore; the relationship between subscales and regulatory styles of motivation. As with the EMI-II and MPAM-R, the development of the MPEMM also found that prisoners’ exercise motives did not map onto regulatory styles, but were more appropriately categorised in terms of direct motives. The creators of the SMS-28 also argue that the individual assessment of seven types of motivation that the measure provides should “allow for a finer analysis of motivational

forces than these other instruments, which should lead to better discriminant, as well as predictive, validity.” (p. 48, Pelletier et al. 1995). It is arguable that this is true for physically active individuals, but for those who are physically inactive, the items and the way they are structured may not be relatable.

The differentiation between perceived reasons and causes for exercise is important, and has implications for the practical application of any measure of motivation. Interestingly, the introjected subscale of the SMS-28, which is a more direct measure of the regulatory processes that influence motivation (e.g. “Because I must do sports to feel good about myself”), rather than focusing on tangible reasons (e.g. “To improve my appearance”), is a stronger predictor of the BPNEs than all of the other subscales when measuring introjected reasons for exercise such as weight and appearance. However, factor analysis has shown that the structure of the subscales on the SMS-28 were not robust when applied to the present sample, suggesting that participants did not identify with the items in the intended way. As research has shown, it is often beyond the actor to identify causes behind their actions (Buss, 1978), so perhaps direct reasons are a much more identifiable way for an individual to explain their exercise behaviours. For example, an item referring to the specific motive of gaining energy is relatable, and it would be easy to ascertain how much one identifies with the item in relation to one’s own exercise behaviours. However, an item that asks whether one exercises to learn things which are useful in other areas of one’s life is far less direct and could be interpreted a number of different ways, making it much less reliable in the context of a self-report measure. Perhaps in the context of the present population such items would make for the basis of an insightful interview, whereby a practitioner could guide the responses, but in the present context of identifying prisoners’ perceived reasons for exercise, it is possible that they are not direct enough. Perhaps it is unsurprising that a scale which focuses on regulatory processes specifically is more closely related to BPNEs, however,

whether this format is appropriate or practical for the prison population is debateable. If the purpose of identifying prisoners' exercise motivations is to understand what can be done to support internalisation of these motivations then perhaps more tangible reasons are better suited. Knowing that an individual is more internally motivated to exercise because they use it to develop themselves is beneficial, but identifying that it is good health and strength that are important to that individual is much more practical, and from a researcher's perspective it can provide great insight into the exercise motivations of the population. Perhaps the application of a measure based on regulatory style such as the SMS-28 is of greater utility from a broader perspective, when the specific antecedents to exercise behaviours are not known or are too broad to identify. Whilst the use of concepts which reflect tangible motives may be more phenomenologically accessible for those who are considered physically inactive, whilst it is arguable that they remain applicable to those who are physical active, thus reaching a more varied audience which is necessary in contexts such as prisons with such a diverse population. It should be noted that when the MPEMM was categorised into broader regulatory styles it held greater predictive power in terms of the BPNEs, general health and vitality. Thus, there may be utility in using the MPEMM both as a means of identifying individual exercise motives to inform practical attempts to promote well-being through exercise, as well as an indicator of the effectiveness of a specific intervention or environment on supporting BPNE and well-being.

### **9.7.3. Item phrasing**

The items that comprise the MPEMM are relatively brief and simple in their structure, and this item structure may account somewhat for the strong preference towards items from the EMI-II throughout the factor analysis process. At face value, there are clear differences between the items used on the EMI-II compared with those on the MPAM-R and SMS, as most of the items included on the EMI-II are concisely worded. Guidance on the

development of questionnaire items suggests that vocabulary should be kept simple, avoiding abstract or general words, lengthy questions, or double-barrelled questions (Siniscalco & Auriat, 2005). Perhaps this is of greater importance in the context of prison population, with a literacy level substantially lower than that of the general population (Creese, 2015), and far higher rates of attention deficit hyperactivity disorder (ADHD; Eme, 2009; Ginsberg, Hirvikoski & Lindefors, 2010; Rasmussen, Almvik & Levander, 2001; and Rosler et al., 2004), which can severely affect executive functioning. Participants in the present study were afforded considerable time to complete their questionnaires as they were provided with them three days before commencing the workshops, but time is a luxury not often found in prisons. Regardless of the population it is preferable to create a psychometric test that is as succinct as possible, although this may be of even greater importance for the prison population given the rates of ADHD and restrictions on time.

#### **9.7.4. BPNEs and health domains**

Assessing the predictive validity of exercise motivation measures in line with the BPNEs has highlighted the extent to which confounding variables impact on prisoners' perceived need satisfaction for exercise, by suggesting that more internalised exercise motives are related to greater perceptions of need satisfaction, whilst introjected forms of motivation have a far weaker relationship with need satisfaction, and are thus prone to influence from external factors which may act as barriers to exercise. Correlations with BPNEs also highlighted which of the psychological needs are more strongly related to intentions, and which are more prone to influence from external factors. Relatedness arguably had the highest correlations with all subscales, suggesting that there are fewer confounding variables affecting the relationship between exercise motives and perceived relatedness for exercise. This supports the research that sport can be an effective means of promoting social support and a sense of connectedness in prisons.

Measures of competence for exercise were also strongly related to most of the subscales on the MPEMM, suggesting that prisoners who engaged in exercise for more internal reasons were less prone to external influences affecting their perceived competence. PCA revealed that the competence subscale of the BPNES was not as strong as its counterparts, and this may be because the two items which had strong cross-loadings suggested that the respondent was currently active to a level that requires a schedule and goals, which was not the case for many participants in the present study. Further research should look to amend the wording of these items to make them more applicable to those who may not be on a specific programme.

Autonomy saw the fewest significant correlations with subscales on the MPEMM, which is perhaps to be expected in the context of the prison environment where there are many more structural and cultural barriers to autonomous engagement in exercise. This finding mirrors the conclusion of Cashin, Potter & Butler's (2008) study, which found only a small degree of variation between hopelessness (which is more often found in people who lack control; Palmer and Connelly, 2005) and exercise in prisoners, proposing that it was likely there were many other factors that impact on the reduction of hopelessness in prison. These outcomes further highlight the importance of considering the contexts in which prisoners' exercise behaviours are experienced as autonomous or controlling, and the differing impact this is likely to have, which is explored further in Study II.

In terms of the validity of the MPEMM in relation to health domains it must be recognised that these are not directly associated with exercise, and therefore, even in the general population one might expect to see only small correlations. The only subscale able to predict emotional well-being was amotivation, which suggests there are many confounding variables which affect well-being over and above exercise behaviours, which is perhaps

unsurprising in the context of prisons, but does have implications for efforts to increase prisoners' well-being through exercise.

#### **9.7.5. EMI-II**

The MPEMM derived 19 of its items from the EMI-II, two from the MPAM-R and five from the SMS-28. The EMI-II has contributed significantly to the development of the MPEMM with a comprehensive set of concise and relevant items for measuring exercise motivation which have seemingly resonated with the sample in the present study. However, there are substantial differences between the two that provide justification for the new measure. Firstly, the EMI-II has 51 items, which is arguably not concise enough for use on the prison population. Secondly, the inclusion of scales for amotivation and pure interest are valuable additions. Finally, combining the subscales of competition and challenge, and strength and health, not only provides a more concise measure, but also provides valuable insight into the underlying factors that influence prisoners' motivation for exercise. The original Exercise Motivation Inventory (EMI) was based on 100 responses to open-ended questions from regular exercisers (exercising for a minimum of once a week for at least an hour), and then refined using responses to 71 items from regular exercisers (Markland & Hardy, 1992). Although the EMI-II includes items which could be completed by those who are contemplating exercise, the measure still lacks a measure of non-intention for exercise. The MPEMM rectifies this and is developed for application to male prisoners at all levels of exercise engagement, from physically inactive through to sedentary and physically active.

The EMI-II included a subscale measuring stress management, but this does not feature in the MPEMM, despite the literature highlighting exercise as a means of alleviating stress (Buckaloo, Krug & Nelson, 2009; and Nelson et al., 2006). This may be an omission in the development of the MPEMM, or perhaps it is because prisoners have little autonomy over

their exercise behaviours, which may prevent them from using exercise as a direct coping strategy in response to stressful situations. Research builds on this concept of exercise as a stress reliever in prisons and suggests that prisoners find empowerment through achievement and self-worth, which in turn acts as an alleviator from stress (Hassmen et al., 2000 and Salmon, 2001). Thus, it may be that prisoners do not identify directly with exercise as an effective stress reliever, but instead they seek to use exercise as a means of empowerment, which is noted through the MPEMM subscales of *Strength & health* and *Competition & challenge*. Furthermore, engagement in autonomous exercise results in enhanced feelings of vitality (Rovniak, Blanchard & Koestner, 1998), which is framed by Nix et al. as a ‘relaxed’ state (p. 268, Nix et al., 1999), therefore, there may be utility in exploring whether energy or vitality as an outcome further enables prisoners to manage stress.

The MPEMM was developed from a comprehensive set of 106 items measuring a wide range of motives for exercise across many different perspectives, from tangible reasons to regulatory styles. The inclusion of so many and varied items strengthens the argument that the majority of factors that underlie prisoners’ exercise motives were included in the original item set. The MPEMM builds on the strengths of the original measures it was derived from; the concise nature of the items on the EMI-II, the inclusion of pure interest from the MPAM-R, and a subscale of amotivation from the SMS-28. Despite its brevity in comparison to the EMI-II, the MPEMM is a significant predictor of all three BPNs for exercise as well as general health and vitality, and the differences in predictive power between the MPEMM and the original measures for these variables is arguably quite minimal.

#### **9.7.6. Next steps to refine the MPEMM**

Achieving simple structure through EFA can help to identify variables fundamental to the structure of the field, as achieved through the EFA in this study. However, as Kline points

out “Factors revealed by exploratory factor analysis should be regarded as starting points of investigation rather than ends in themselves” (p. 148, Kline, 2000), and the process of construct validation is ongoing (Marsh & Jackson, 1999). Therefore, the MPEMM should undergo further scrutiny to improve its worth as a reliable and valid measure of male prisoners’ exercise motivations. Further testing should consider that Self-Determination Theory has formed the basis for exploring male prisoners’ motivations for exercise in the present study, and the outcomes of this inquiry have formed the MPEMM, thus, future testing of this new measure should be in line with the principles of SDT.

Although many steps were taken to ensure the reliability of the MPEMM, the present study framed its first application and the sample size would be deemed as relatively small compared to the development of other measures of its kind. Ideally, a larger sample size would have been obtained, unfortunately, the nature of prisons as structural institutions means that obtaining data from the prison population is particularly problematic, as alluded to by previous researchers (p. 160, Woods, Hassan & Breslin, 2017a). Given the size of the original item set the present study was fortunate in its response rate, and subsequent validation and refinement of the MPEMM can be conducted on larger samples with relative ease given the reduced number of items. The small sample size also meant that a confirmatory factor analysis (CFA) was not performed on the MPEMM, as the statistical test used for CFA becomes highly insensitive with small samples, and may confirm a good fit for the target matrix at the expense of a better, stronger set of factors. Future research should look to conduct a CFA to test the structure of the MPEMM, and test-retest validity should be considered using a larger sample of participants who do not engage in any formal sports intervention between tests.

Further validation of the MPEMM should include testing on male prisoners from different prisons to control for between prison effects. Although the current sample was

representative of the wider prison population in terms of age and sentence type the prisoner population is heterogeneous, and motivation for exercising may differ greatly depending on accessibility, previous exercise behaviours, gender, prison, ethnicity etc. It is also important to consider that the sample of prisoners used were already somewhat motivated in their exercise behaviours participation in the workshops was voluntary. Although the sample of responses used from the start surveys did include responses from participants who dropped out of the workshop, therefore some degree of variation in terms of pre-determined motivation was still present. Future studies should also look to test the predictive validity of the scale on long-term outcomes through longitudinal follow-up studies, such persistence with exercise, improvements in physical fitness, and personal well-being.

A key consideration in further development of the MPEMM is the inclusion of a subscale to measure integrated regulation of exercise motivation. There were no items measuring integrated regulation included in the original item set for the development of the MPEMM, and many exercise measures do not include an integrated subscale. However, the modified version of the SMS-28 developed by Mallett, Kawabata, Newcombe, Otero-Forero and Jackson (2006) and the BREQ-3 (Markland & Tobin, 2004, and Wilson et al., 2006) both include a measure of integration which could be used to inform the future development of the MPEMM.

In terms of minor adjustments there are two items in the MPEMM *Interest* subscale that could be collapsed into one, namely “I will find it interesting” and “I think it will be interesting”. It is arguable that collapsing these into one item will not affect the validity of the scale, thus, the item “I believe I will find it interesting” can be used to replace these two. Future research can explore the impact of this on the validity of the subscale and overall measure. Furthermore, the item “To control my weight” was removed from the *Weight* subscale as this was the only item that returned a prediction of negative variance, and there

were two remaining items to explain the factor. Future research could include the item again to ascertain whether the same outcome occurs with a larger or different sample.

A possible criticism of the development of the MPEMM was the decision to not make any radical changes to the content of any items. However, this is something that future development of the measure should look to do once the socio-environmental factors affecting prisoners' exercise motivations have been understood more comprehensively. This exploration would help to identify which items require adjustment and how this should be phrased. For example, amending the item "I exercise to spend time with my friends" will be better informed with an understanding of prisoners' discourse relating to friendship and socialising. This will also support the development of more introjected motives for exercise that are not based on physicality, and external items which reflect the specifics of the prison environment.

#### **9.7.7. Testing of SDT**

Overall, Self-Determination Theory has shown itself to be an appropriate lens through which to understand male prisoners' exercise motivation from a quantitative perspective. The presence of a self-determination continuum was confirmed through the application of the MPEMM, demonstrating that subscales mostly correlated higher with other subscales which sat closer to them on the continuum. And secondly there were significant positive correlations between the three psychological needs, as measured through the BPNES, and emotional well-being and vitality, and more internalised exercise motives revealed stronger correlations with the BPNEs, supporting the premise that satisfaction of the basic needs supports integration of motivation and personal well-being.

The application of SDT to frame the present study has allowed for valuable distinction between prisoners' psychological needs and individual values. As Ryan (1995)

highlights, this separation allows for an investigation of whether the values that exist in a culture are supportive of psychological growth and health, or whether they are incongruent, and lead to internal conflict and poor health outcomes. Thus, the development of the MEPMM and identification of prisoners' exercise values has highlighted prisoners' key supportive values in relation to exercise, namely positive challenge, interest, revitalisation, socialising, and good health and personal strength. Whilst appearance and weight act have been identified as external and more controlling motives. In literal terms, the model created in the present study explains 60% of the variance in prisoners' exercise motivations, thus, further research is needed to understand what other external motivators to exercise exist within the prison culture. The prison itself presents many structural and cultural influences that are likely to have a substantial impact on prisoners' exercise behaviours. For a more holistic understanding of how to maximise prisoners' well-being through exercise and likelihood of engaging in further healthy behaviours, one must look beyond the individual factors that have been identified in this proposed model and consider how the prison as an institution can enhance or diminish exercise motivation in prisoners, which Study II will seek to achieve.

#### **9.7.8. Implications for study II**

The measures used in the present study have highlighted several unexpected and interesting relationships which can be explored through qualitative means to understand the influencing factors. Firstly, there are striking correlations between some subscales that warrant further investigation. Namely, *Interest* correlated highly with *Strength & health* and *Revitalisation*, whilst *Affiliation* has its strongest correlation with *Revitalisation*. Prisoners' low scores for social reasons of exercise is also of interest, as is understanding reasons as to why items measuring competition and challenge were included in the same construct. Low correlations between subscales and perceived autonomy are also of interest, suggesting a

substantial amount of influence from the prison environment on autonomous behaviours, which research would propose is diminishing prisoners' energy levels.

In their development of the EMI, Markland and Hardy (1992) suggest that research is needed to identify how exercise goals may interact with personal or situational factors to determine adherence. The present study has explored prisoners' exercise goals through the development of the MPEMM, thus, the subsequent study will look to identify personal and situational factors that are specific to prisoners to develop a more comprehensive understanding of exercise adherence in this population.

## 10. Chapter 3 - Study II

### 10.1. Sporting masculinities in prison

Mainstream prison research tends to recognise male prisoners as the non-gendered offender. This is despite early work such as Sykes' "pains of imprisonment" (1965), recognising that the very status of male prisoners as male is called into question through the liabilities of prison as a single-sex world. And although it is understood that contemporary researchers are beginning to acknowledge the omission of their predecessors to treat the gender of male subjects as problematic (Morgan, 1981; Newton, 1994), this realisation remains relatively isolated in academia, as within the prison walls there still exists an apparent silence around gender and masculinity (Sabo, 2000). Johnsen's ethnographic study into sport, masculinities and power relations in a Norwegian prison revealed that few male prisoners view themselves as gendered men or have any concept of masculinity, instead appearing more at ease discussing femininity and their gender in relation to women (Johnsen, 2001). So, although research is now serving to objectify male prisoners as gendered subjects, on the most part male prisoners seem to be subjectively unaware of their gender, except perhaps, in the context of sport (Baumer & Meek, 2018).

#### 10.1.1. Body image

Improved body image through physical activity is related to biological, psychological and social aspects of exercise (Campbell & Hausenblas, 2009), as such it is important to acknowledge the relative input from each of these perspectives when considering the impact of body image on mental wellbeing. A small random effect of exercise on improved body image as revealed through a review of fifty-seven physical activity interventions (Campbell and Hausenblas, 2009), showed no significant difference between moderate and strenuous activity or aerobic and resistance training, with higher frequency of exercise per week being the only apparent moderator of improved body image. Exercise is not only related to

improvements in perceived body image, but can also be associated with negative body image, which is particularly common and can have significant and detrimental economic, physical and psychological consequences. Females are at a higher risk from negative body image and its effects than males (Elgin & Pritchard, 2006; Feingold & Mazzella, 1998), and as a result studies on body image tend to focus on females. However, it has been recognised that there is an increasing pressure on males to form a muscular physique, with body image concerns from males being that they want to gain weight and muscle mass (McCabe & Ricciardelli, 2004), and alarmingly in some cases negative body image is related to steroid use (Raevuori et al., 2006). Thus, further research is needed on the impact of exercise on males' body image, particularly in the context of the increasing popularity of resistance training such as weightlifting.

### **10.1.2. Weightlifting and masculinity in prison**

From a sociological perspective, body image for males is strongly related to masculinity and masculine ideals and sport plays a key role within discourses of masculinity in Western contemporary culture (Johnsen, 2001). With the decline of physical labour and warfare throughout the 20<sup>th</sup> century, the relevance and meaning of the muscular body changed from being practical, to a tough, macho and powerful symbol (Messner, 1990, p. 213), and in this sense, the muscular and athletic body of a professional sportsman is often seen as the masculine ideal. McNay (1992) deduces that characteristics seen as masculine are often related to dominant perceptions of the male body such as firmness and strength. Extracts from Johnsen's (2001) study reveal that this association also exists within prisoner discourse, where a distinct connection is made between masculinity and muscles, as well as relating a fit body with being attractive to women, thus enforcing the heterosexual image attached to the hegemonic masculinity. In some cases the link between masculinity and sport is so strong that it appears exclusive, as one prisoner claimed he was not masculine as he did

not exercise (Johnsen, 2001, p. 109). Therefore, sport as an accessible form of masculinity becomes pivotal in a prison setting where embodied masculinities are struggled with due to a lack of ways to overtly display heterosexuality (Bandyopadhyay, 2006; Riciardelli, 2013). Riciardelli et al. (2015) assert that such muscularity, coupled with physical prowess and ability, are signifiers of power, dominance and manliness amongst prisoners, and that this status transcends ethnicity. Through the use of their bodies then, men in prison can affirm their gender and sexuality using sport (Sabo, 2001).

Combat sports have been viewed as the ultimate exhibition of masculinity for thousands of years, so perhaps unsurprisingly boxing was found to be the most popular sport of choice in a survey of young prisoners choosing the focus of a sporting academy (Meek, 2014). Bourdieu attests the popularity of combat sports to the visible signs of manliness and testing of manly virtues (Bourdieu, 2001), however contact boxing and similar sports are currently not authorised in public prisons, and the use of punch bags is only sporadically permitted, dependant on the prison.

To paint an accurate picture of the average prison gym across England and Wales one would need to include a vast range of free weights and weight machines of varying conditions, with a smattering of cardiovascular machines around the outside, including a few treadmills, exercise bikes, and perhaps a rowing machine. There would also be a sports hall for team sports, usually football, maybe tennis or circuit training, and an outdoor pitch or two for rugby or football. Nevertheless, as de Viggiani observed during his time in a closed-male Category-C prison in South West England “Although a wide range of sports were available, only a minority of prisoners used the facilities on a regular basis, most of these seemingly preoccupied with the use of weights to build muscle bulk” (de Viggiani, 2012, p. 278). In

particular, bench pressing appears to be the preferred exercise, which focuses on increasing muscle around the upper arms, chest and shoulders (Baumer & Meek, 2018).

As Johnsen (2001) attests, prisoners are very vocal about lifting heavy weights, and everyone knows who has lifted the most. De Viggiani noted the same, with regular gym users bragging about the maximum they could lift or bench press, and one prisoner boasting that he had shattered the bones in his lower legs when performing squats with particularly heavy weights (p. 279, de Viggiani, 2012). There is pressure amongst prisoners to attend the gym (de Viggiani, 2012), and there is a lot of pressure to participate in weight training if you are going to attend the gym, as Ricciardelli et al. (2015) conclude, the hierarchy which pre-exists in the weights room can be a particularly tough place to integrate into, particularly for newcomers who may be overwhelmed with feelings of insecurity, uncertainty and emotional exposure. As Sabo et al. report “One way to avoid a fight is to look as though you’re willing to fight – as a result prisoners lift weights compulsively, adopt the meanest stare they can muster, and keep their fears and pain hidden beneath a tough guy posture” (Sabo et al., 2001, p. 10). Perhaps this image of prisoners in the gym is a little exaggerated, even more so when we consider the reasons prisoners give for lifting weights which do not reflect the masculine ‘tough guy’ ideal at all. Within prisoner discourse there is a recognition that there is not much else to do, but the ‘challenge’ associated with lifting weights appears important, as well as the ‘high’ or feel good factor associated with lifting more, promoting self-confidence and alleviating tension (Ricardelli et al., 2015; Johnsen, 2001). As Baumer and Meek (2018) describe, prisoners’ lack of free time and the extreme isolation they experience exacerbates their emotional vulnerability, resulting in elevated levels of anxiety and poor mental well-being. However, asking for help to deal with these emotions would lead to a loss of masculinity, thus, more dominant forms of masculinity which legitimise violence are viewed as a more acceptable way of managing well-being (Evans and Wallace, 2008). Sport can be

an alternative to violence, providing alleviation from stress by allowing prisoners to feel empowered and recreate themselves as individuals with feelings of self-worth, self-esteem and achievement, in turn giving them the ability to manage emotions by forgetting or suppressing them, which can help diminish anxiety and even depression (Hassmen et al., 2000; Salmon, 2001). Although more research is needed which focuses on the relationship between mental wellbeing and sport in prisons specifically, accounts from prisoners suggest that weight lifting may be a way for them to deal with the stresses of incarceration through the emergence of new, positive masculine ideals. However, whether the motives for weight lifting as a sport and the psychological outcomes from anaerobic forms of exercise are entirely conducive to positive well-being is contestable.

### **10.1.3. Sporting masculinities and empowerment in prisons**

*The body as social capital.* The body plays an essential role as a material and symbolic signifier of how we see ourselves as gendered, thus having a significant impact on the process of masculinity (Shilling, 1993; Gordon et al., 2000; Connell, 1995). We are somewhat aware of the significance and resource which our bodies hold in various social settings, referred to by Shilling (1993) as ‘physical capital’.<sup>14</sup> And as Swain concludes, this capital has the potential to empower individuals with resources of influence such as power and status (Swain, 2002). The prison gym is an exemplar of how a fit body can act as social capital within social relations (Johnsen, 2001).

The Ministry of Justice instruction on PE for Prisoners (National Offender Management Service, 2011) states that “*PE makes a major contribution to the physical, mental and social wellbeing of prisoners and positively impacts on the good order and discipline within establishments*”. Sabo (1994) reports that prison officials view prisoners’

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<sup>14</sup> As drawn from Bourdieu’s idea of ‘embodied’ capital as a subdivision of cultural capital (Bourdieu, 1986).

involvement in sports as making them more compliant, while Carrabine and Longhurst (1998) suggest that the prison service imply a sense of control over PE as a form of masculinity, using it as a mechanism for regulating prisoners' attitudes and bodies. It is proposed that in spite of this attempt at control from prison management, prisoners seem to be using the gym as a 'heterotopia' (Foucault, 1991) of sorts in which to 'do masculinity' and develop an excessively macho and muscular body, consequently representing a challenge to the prison's ideal of disciplined minds and bodies (p. 168, Carrabine and Longhurst, 1998). This process is a form of protest masculinity; the method of using your body to claim a gendered position of power (Connell, 1995). This protest masculinity as it exists within prison gyms is a pronounced example of the power of the body as a tool of social practice. It is important to note that the function of heterotopias can change, thus, prison gyms do not have to maintain their reputation as a space in which prisoners aspire to a hypermasculinity, and their role in this respect can be challenged with a change in socio-cultural dynamics within and between prisoner and staff groups.

***Masculinity and negotiating risk in prison.*** Sykes' study into a maximum-security male prison outlines five pains of imprisonment, one of these being the deprivation of security (Sykes, 1958). He describes an acute anxiety experienced by male prisoners through prolonged intimacy with violent and aggressive men, assaultive or threatening behaviour from others, and a continual testing of their manhood and nerve when being forced to stand up to threats. Whilst Alison Liebling's extensive experience of prisons as a criminologist led her to depict fear, anxiety, violence and uncertainty as a 'hidden' but everywhere apparent feature of prison life (Liebling, 1999). This perceived risk creates a constant threat to prisoners' physical and emotional safety, not to mention the threats to their legal safety, which are magnified in a remand situation. Condon, Hek and Harris' (2008) qualitative study

exploring health choices in prison found that interviewees in all prisons described the risk of violence as having a profound effect on their mental health, whilst Listwan et al. (2013) found that exposure to such prison strains is likely to have a criminogenic effect. Maruna & Toch (2005) support this notion, suggesting that the adaptive behaviours which prisoners are forced to engage in as a response to pains of imprisonment mimic the crime-related behaviours witnessed outside of prison, particularly, prison gang behaviour and hyper-masculine behavioural norms (Toch, 1997).

Riciardelli et al. (2015) propose that previous research has failed to address the way in which prisoners' reactions to such risk and uncertainty can shape and conflict with their masculinities, stressing that whilst undergoing these personal tests, prisoners wish to come across as empowered rather than submissive. They outline masculinities as fluid and transient, arguing that there are nuanced variations of gender in prison and he who is best able to manage 'penal uncertainties' such as the arbitrary nature of decision making or involuntary prison transfers, holds the most empowered position. Avoiding confrontation with others or officers is important to avoid emasculation or subordination, de Viggiani describes, prisoners use a range of 'front management' tactics in a bid to present an acceptable persona. These fronts took many forms, including the use of prison banter or 'prison talk', body image, toughness, reputation and heterosexism (de Viggiani, 2012). Fronts also become an important tactic on first entering prison, with prisoners seeking to avoid unwarranted attention by endeavouring to remain anonymous, projecting a 'front' as a strategy of self-preservation (de Viggiani, 2018). Consequently, those who can negotiate such challenges are most protected against unpredictable situations and therefore constitute hegemonic masculinity. An example of such an individual is reflected in Johnsen's (2001) portrayal of a Norwegian prisoner on the 'contract wing' who was afforded enhanced privileges due to good behaviour, and in his words had learnt to 'play the game' (p. 137,

Johnsen, 2001). Power relations such as this are continuously being influenced and negotiated in the presence of changing masculinities, with the idea of an empowered prisoner changing from one context to the next.

***Prison gyms and empowerment.*** According to Swain (2002), hegemonic masculinity describes the most idealised form of masculinity at each setting with the greatest power and authority, which can regulate, influence and shape action. Since the overt authority in a prison setting lies with officers and management, empowerment is attributed even greater importance for the configuration and practice of masculinity amongst prisoners. In the context of Riciardelli et al.'s (2015) impression of prison as a risk-prone environment, there is a question of who is more empowered, and therefore holds hegemonic status in the prison gym. Is it the hyper-masculine prisoner, or the prisoner who has learnt how to navigate the system? Bandyopadhyay (2006) suggests it is possible to present two versions of hegemonic masculinity; the official ideal male prisoner, and one who has successfully mastered manipulation of the rules and achieves a balance with prisoners and staff. However, in this context it is arguable that these versions of hegemony cannot mutually exist. The potential risk associated with embodying the ideal male prisoner who demonstrates hyper-masculinity, is that such associated behaviours could be interpreted as challenging the prison ideal of good order and discipline, thus resulting in punishment. This has a direct impact on exercising masculinity through sport as those demoted to the basic level of the Incentives and Earned Privileges (IEP) scheme<sup>15</sup> for poor behaviour will have their access to the gym limited to as little as once a week (Baumer & Meek, 2018).

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<sup>15</sup> The IEP scheme currently running in prisons across England and Wales operates three privilege levels; basic, standard and enhanced. Prisoners must display good behaviour and work towards their own rehabilitation if they are to earn privileges and gain enhanced level status.

Some UK prisons deny access to weight lifting for prisoners on the basic regime altogether, instead limiting them to physical activity in the sports hall such as team sports or circuit training. Conversely, in many prisons, prisoners whose good behaviour is rewarded with enhanced level status are permitted to access the gym on a regular basis, sometimes daily. Therefore, to maintain the hegemonic masculinity of a muscular body which requires regular attendance at the gym, prisoners must also conform to the requirements of the prison management system through good behaviour and active rehabilitation. Thus, the IEP scheme can be seen as an approach to regain some control over prisoners' use of the gym and participation in sport, whilst allowing prisoners to 'do masculinity'. However, the very presence of the IEP scheme was seen as a strategy of 'divide and rule' by some prisoners in de Viggiani's research (2018), who believed that there is a lack of equity when it comes to rewarding or punishing prisoners for behaviour, also recognising that those without sufficient levels of resilience, motivation or life skills, will not be able to navigate the system effectively. Furthermore, prison staff admitted that a lack of resource places restrictions on the regime which undermines the IEP scheme, meaning that all prisoners are forced to forgo any privileges, and that some officers operate nepotistically, again, increasing the unjust nature of the scheme (de Viggiani, 2018). Thus, the use of the IEP scheme as a means for prison management to regulate behaviour through modified access to the gym is subject to the availability of resource, and could be severely undermined through an increasingly restrictive regime, leading to an absence of incentives for good behaviour.

#### **10.1.4. Challenging hegemonic masculinities in prisons through sport**

The potential benefits of challenging toxic hegemonic masculinities within the prison gym are two-fold; firstly, it can minimise subordination of sub-groups, and secondly, it can protect those who strive to achieve this hegemonic status. As Swain concludes, any strategy

for the maintenance of power, such as embodying the hegemonic masculinity of a prison gym, is likely to involve a dehumanising of other groups, leading to a diminished sense of empathy and emotional relatedness within the self (Swain, 2002). Personifying the 'macho-male' and maintaining this power requires a tremendous amount of self-discipline, and although there are rewards in status and power, these are not guaranteed and always up for contestation. Thus, occupying this position as the most muscular in the prison may result in withering empathy and emotional relatedness within the self.

A successful challenge of hegemonic masculinities will need to be communicated effectively in a way that does not threaten masculinity entirely. Sloan, Gough & Conner's (2010) interviews with 'healthy' men considered the role of masculinity in framing health-promoting lifestyles. Interviews with ten healthy men revealed that they tended to justify healthy practices such as low alcohol intake and regular exercise in terms of action-orientation, sporting targets, appearance concerns and being autonomous, discarding the idea of talking or thinking about health, which were viewed as excessive or feminine. Such findings have interesting implications for informing effective health promotion in male prisons.

***Hardness-softness dichotomy.*** Masculinity is a discursive construction which unfolds and changes through time, culture and context (Morgan, 2000; Connell and Messerschmidt, 2005). Baumer and Meek (2018) propose that it is imperative to bear this idea in mind when describing masculinities in the context of prison gyms in general, as there are many within and between prison differences that should not go unrecognised. Bandyopadhyay's (2006) ethnographic study exploring how men in a prison in Kolkata, India, deal with the 'less than a man' image which prison imposes on them, concludes that hardness and softness are not traits 'inscribed onto maleness', but that they vary with circumstance. This alternation is

described by Sabo (1994) as a ‘hardness-softness dichotomy’, which stimulates and mirrors feminine and masculine stereotypes. The construction of masculinities which express ‘hardness’ are centred on a male code for acting tough, which includes being prepared to fight, minding your own business, suffering in silence, and never admitting you’re afraid. This so-called hardness and softness are often understood through personal appearance and thus can be amplified through sport or exercise; a perfect illustration of this is found in the way a male athlete constructs himself as muscled, aggressive, competitive and emotionally controlled (Sabo, 1994). In terms of prisons, Ricciardelli et al. (2015) found evidence of a softer masculinity in low secure settings, where severe violence is thought to be less of a risk. Prisoners in these settings tend to reflect compliance and a submission of ‘tough-guy’ behaviours to elude transfer to a high secure prison, by acting stoically, avoiding attention, attending prison programmes and refraining from violence (Ricciardelli et al., 2015). In contrast, those in more secure prisons where violence is rife use sport as a means of expressing hardness by displaying a penchant for body building, but not only to appear muscled and competitive, but also to “alleviate tension and feelings of isolation and limit physical vulnerability by spending more time away from other prisoners or in supervised settings” (p. 500, Ricciardelli et al., 2015). Thus, prisoners can use sport as a means to control emotions and stay out of trouble, whilst maintaining a ‘hard’ masculinity (Baumer & Meek, 2018).

***Prison management and masculinities.*** There is a call for research to pay closer attention to the management of prisons as organisations, with “*a clearer focus on the activities of the powerful and their interactions with the relatively powerless*” (Carrabine and Longhurst, 1998, p. 163). With this in mind, it would be remiss to discuss sporting masculinities within prison without mentioning the PE Officers who form such a crucial part of the prison management system.

The very feeling of being repressed, lacking control and being admonished by those with authority over them places prisoners in a gendered subject position which counters the hegemonic masculine ideal. On the wings of a prison, Ricciardelli et al. (2015) describe a lack of autonomy for prisoners who feel that the officers make the decisions for them despite compliance. However, when they are in the gym or sports hall these negative feelings are somewhat weakened. Prisoners who gain access to the gym have more control over how they spend their time, albeit within the gym milieu and restricted to a certain extent, to some extent they have a choice towards which machine to use or which activity to engage in.

Johnsen (2001) frames prison discourse on masculinity as reflective of the authoritarianism alongside which macho masculinity operates, considered to be essential in the control of prisoners. However, Baumer & Meek (2018) argue that this sense of authoritarianism appears to lessen in the context of PE Officers, who often present a fine example of embracing a softer masculinity within the context of prisons. The authors suggest that the prison gym is seldom witness to any disputes between prisoners, subsequently, PE Officers rarely need to impose overt authority on prisoners under their care and are thus able to develop a relatively untarnished relationship with them that fellow officers may struggle to achieve. They observe that it is quite common for prisoners who enjoy spending time in the gym to spend significantly more time with the PE Officers than wing officers, strengthening the relationship further. This perception is highlighted in Meek's exploration into the role of physical activity in correctional settings in England and Wales, through a quote from Prison Gym Staff when citing an improvement in the relationship with prisoners as a result of increased time spent together through sporting academies, "Lads see us differently - rather than screws we are screws with individual personalities and interests" (Meek, 2014, p. 106). When discussing this bond with PE Officers, Meek found that prisoners often refer to them as being unlike the officers 'in blue'. Those 'in blue' being uniformed officers, differing in

appearance from the PE Officers who wear casual sports clothes - an important distinction in terms of embodied masculinities and the authoritarian masculinity represented by the officers' uniform. Baumer and Meek (2018) continue to describe the relationship between prisoners and officers, describing prisoners' perceptions of wing officers in uniform as "the opposition", adopting a "strong 'us versus them' mentality when referring to them, unlike the warmth with which they frequently refer to PE Officers" (p. 208, Baumer & Meek, 2018). They propose that due to the relatively relaxed setting which PE Officers occupy, exchanges between them and prisoners can often afford to be light-hearted, and it is not uncommon that PE Officers will allow themselves to appear inferior or make jokes in front of prisoners at their own expense. Suggesting that some may see this endeavour to drop the hegemonic macho-masculinity as a way for PE Officers to develop a mutual respect with prisoners, whilst others would see it as a result of the potential to lose access to the gym if prisoners misbehave. Either way, they posit that this mutual respect is crucial when managing large groups of habitually muscular and potentially aggressive male prisoners, and believe there is something to be learnt from this positive relationship in terms of management strategies in general.

PE Officers take on an extensive range of responsibilities, as a Senior Manager at a prison describes in Meek's book, 'Sport in Prison', "*PE officers have to be able to organise and supervise offenders who display challenging behaviour. They teach PE, deliver vocational courses, coach a range of different sports, provide remedial treatment programmes for prisoners, mentor and influence prisoners in the unique custodial setting*" (Meek, 2004, p. 15). Baumer and Meek (2018) recognise that to realise such a diverse role PE Officers must exhibit an assortment of masculinities ranging from the "hegemonic macho masculinity which enforces authority on challenging individuals, to masculinities constructed by more feminine qualities such as caring and understanding in the role of mentor" (p. 208,

Baumer & Meek, 2018). They recognise that these masculinities require a careful balance, particularly in the context of a classroom where disruptive behaviours must be managed whilst simultaneously creating a rapport which encourages engagement; a most problematic task amongst juvenile offenders when we note their prevalence of attention deficit/hyperactive disorder and conduct disorder (Foley et al., 1996). Andrews and Andrews (2003) highlight the importance of the delicate balance required from prison staff in sporting contexts to offer praise and encourage the development of self-esteem, but at the same time not being patronising or alienating less-able individuals. This depiction of PE Officers is in stark contrast to de Viggiani's portrayal of prison officers outside of the gym, who actively maintain a discernible distance from prisoners, a gap which is reinforced by prisoners' perceptions that "You don't cross that barrier. They are screws, we are cons, and that's it" (p. 104, de Viggiani, 2018). Prisoners saw staff as patronising, which staff justified as a means of managing the aggressive or disobedient behaviour of the prisoners. Therefore, it could be argued that PE Officers are in a better position to undertake the task of leading and educating offenders through a deconstruction of recognised hyper-masculine bodies and macho-masculinities in order to recreate positive, effective masculinities which will help prisoners through their time in incarceration (Baumer & Meek, 2018).

***Gym Orderlies.*** Research into the sporting practices of male prisoners in a Norwegian prison has found that prisoners avoid asking others for advice or opinions with regards to training for fear of subordination, choosing instead to learn through observation (Johnsen, 2001, p. 60). Prisons in England and Wales however employ gym orderlies, who are given the specific responsibility of working in the gym to provide sport and exercise-related support and advice to other prisoners, which Baumer and Meek (2018) propose may help to combat the perceived risk of emasculation. Orderlies and PE Officers are both on hand to provide

support to prisoners who may need it. It is conceivable that because it is their *job* to provide sport-related advice, prisoners do not feel the same threat of subordination as observed by Johnsen when asking other prisoners for the same type of advice. This is reflected in the accounts of orderlies and PE Officers alike who recall frequent conversations with prisoners seeking advice or support for getting ‘bigger’, managing their weight, or trying something new (p. 209, Baumer & Meek, 2018).

Prison gyms typically offer no more than six to eight gym orderly positions any one time (and often only two or three), thus, Baumer and Meek (2018) argue that being an orderly is one of the most sought-after prisoner roles in the entire prison, offering the opportunity for more time in the gym than any other prisoner. Due to the time afforded to them for exercise, orderlies are often amongst the largest and most muscular of all prisoners; they are the “true embodiment of the physical hegemonic masculinity within the prison gym” (p. 209, Baumer & Meek, 2018). However, in non-corporeal terms, a typical orderly’s nature is in stark contrast to macho masculinities such as dominance and aggression. Prisoners are only afforded the position of gym orderly in return for impeccable behaviour: being on the enhanced regime is mandatory, and engagement in any negative incidents will result in their position being revoked, although this appears to be a rare occurrence. Orderlies also sit amongst the most respected and liked in the prison, amongst staff and prisoners who frequent the gym. Baumer and Meek (2018) propose that such a social standing is likely to be example of sporting masculinities constructed by the orderlies impacting on the strategic power situations between them and other prisoners. Concluding that the prisoners who are viewed as the most masculine are also examples of good conduct and popularity, contesting aggressive masculinities in the gym and presenting a respectable example of hegemonic masculinity that others may aspire to. However, it should also be noted that not all prisoners will relate to the image of a gym orderly, as they may not aspire to embody a muscular physique or display

great sporting prowess, but this does not mean that they are not seeking to engage in some form of exercise. Thus, it could be argued that although orderlies exhibit positive behaviours, they are not relatable to all prisoners, and there is a risk that their presence only enforces the hegemonic masculinity of the prison gym, serving to alienate those who do not feel a sense of connectedness to this image of masculine physicality.

*Non-competitive sporting activities.* Meek (2014) has highlighted the potential negative impact of sport participation in prisons through the possible promotion of inequality and division, as there is a danger that those with the most social capital may dominate activities and discourage participation from others. She also acknowledges the potential for a “positive deviance” to be created through the competitive nature of sport, as prisoners may begin to display sporting behavioural norms in their daily lives, such as taking risks or seeking to be seen as distinct from others, which is of particular concern amongst those with low self-esteem. In terms of masculinity, competitive sports are described as providing 'the quintessential manifestation of the masculine ethos' (Gilbert & Gilbert, 1998, p.60). Thus, Baumer and Meek (2018) suggest that it makes sense to remove any competitive edge when trying to challenge and contest such masculinities through sport. They observe that PE Officers working with Young Offenders (aged 15-21 years) report developing the strongest rapport with prisoners when on trips outside of the prison in non-competitive sports programmes, such as completing the Duke of Edinburgh award, taking part in running events, raising money for Troopaid and in particular the Airborne Initiative - a weeklong, hard-hitting residential course designed specifically to challenge young offenders to achieve their own personal success. Similarly, Andrews and Andrews (2003) advocate the use of sports which de-emphasise winning in the rehabilitation of young offenders, suggesting that the wrong type of sport can have detrimental effects.

As Connell and Messerschmidt (2005) explain, hegemony can be positive, and this is a key strategy for contemporary efforts at reform. The capacity to deconstruct gender binaries and criticise hegemonic masculinity is the basis for many successful educational interventions and change programmes including non-competitive sporting environments. Throughout the course of the programmes described by Baumer and Meek the dominant masculinities which express hardness as described by Sabo (1994) such as acting tough, avoiding intimacy, minding your own business, suffering in silence, avoiding “softer” behaviours and never admitting fear, are all contested. The reconstruction of masculinities necessary to achieve success on these courses include teamwork and intimacy, as well as an understanding of others’ needs. Through the embodiment of these new, positive, masculine ideals, young offenders achieve success at new levels, and prison staff describe tears of joy from both sides on completion of the week, which demonstrates how masculinities can be habitualised within typically softer characteristics; an acknowledgement which Riciardelli et al. (2015) argue the majority of research into masculinity has failed to make. Baumer and Meek conclude that the acceptance and construction of such empowering masculinities which contest existing, maladaptive masculinities, can aid prisoners when dealing with negative emotions once back within the prison walls (p. 211, Baumer & Meek, 2018).

Activities which are completed outside of the prison such as those outlined above require a Release On Temporary Licence (ROTL) application, which are becoming ever harder to obtain for two main reasons; the increase of Multi Agency Public Protection Arrangements (MAPPA) imposed on violent or dangerous offenders preventing them from taking part in activities outside of the prison, or the political views of particular prison governors and successive Justice Secretaries, wary of approving ROTL applications for any type of prisoner. Research into the positive impact of non-competitive sporting initiatives for offenders held outside of prison is currently very limited. Dubberley, Parry & Baker’s

evaluation into the impact of the Duke of Edinburgh Award on young offenders (aged 14-21 years) found an improvement in participants' attitudes toward victim hurt denial and perception of current life (Dubberley, Parry & Baker, 2011 in Meek, 2014), however, due to individual differences between the original cohort and the follow up group, the reliability of these findings are questionable. The recent Education and Employment Strategy released by the Ministry of Justice (2018a) recognises the potential positive impact of ROTL, and “expands the use of workplace ROTL to get prisoners who have earned it, and who have been properly risk-assessed, out of their cells and into real workplaces” (p. 4, Ministry of Justice, 2018a). However, no suggestions have been made in relation to permitting ROTL for prisoners outside of the workplace, even though there is a strong argument for its use to promote well-being and behavioural change through sport related activities.

*Sporting academies.* Meek’s research reveals that YOs (YOs; 15-21 years old) have a preference for team sports such as football and rugby, which present clear opportunities for conflicting masculinities and subordination (Meek, 2014). Therefore, it is crucial to develop strategies to challenge and contest existing competitive masculinities and promote the construction of positive masculinities that team sports can facilitate such as socialisation and teamwork. Sporting academies that bring together Young Offender Institutions (YOIs) and external organisations such as rugby or football clubs, are a good example of achieving this, and are an increasingly popular approach with YOs that are interested in sport. Classroom based sessions involving peer-review work and presentations from external speakers promote the development of adaptive skills and thinking skills, challenging existing masculinities centred on aggression and egocentrism.

Meek’s evaluation of four football and rugby academies run at HMP and YOI Portland involving 79 young men found sustained improvements in measures of belief about

aggression and self-esteem (Meek, 2014). This contestation and reconstruction of hegemonic macho-masculinities is illustrated perfectly through a quote from Prison Gym Staff on the academies, *"It creates good behaviour around the jail, through the perceived standing of the lads involved, leading to them openly challenging others' inappropriate behaviour either on the pitch or on the wings. Lads involved with this academy have openly stopped violent incidents and been strong enough to say why and lead others"* (p.105, Meek, 2014). This open challenge by young offenders of others' violent acts exhibits the powerful ability of sporting academies to nurture new masculinities which contest existing, damaging masculinities within the prison (Baumer & Meek, 2018).

Although reports of the outcomes from sporting academies are encouraging, many will not include prisoners unless they are on the enhanced level of the IEP scheme. Baumer and Meek (2018) suggest that this approach of denying access to positive programmes for those who reflect the 'hard' masculine ideal may create a greater desire to 'do masculinity' in other ways which are seen as deviant, such as overt sexism or aggression. Therefore, it could be argued that those most in need of an intervention to challenge their masculine ideals are not experiencing any of the direct benefits. Conversely, such an approach could be seen as encouraging good behaviour, as demonstrated by a YO who had engaged with a sporting academy *"Behaviour wise, when I was first sent down [to prison] I was always on basic [regime] for messing around. With the academies you have to be on enhanced [regime] so you have to be well behaved and work your way up, so they give you an incentive to behave."* (Meek, 2014, p. 105). Baumer and Meek conclude that this may be the experience of some prisoners, but research to date has not reflected on the impact of the IEP scheme, and perhaps a focus on sporting interventions for persistent non-engagers on the basic regime is needed.

### 10.1.5. Masculinity and participation in sport

*Masculine ideals and inequality of participation.* Although there are some restrictions on the type of sport and exercise available to prisoners based on their conviction<sup>16</sup>, for the most part the PE instruction is centred on the “*equality of access to PE programmes and resources to meet the requirements of all prisoners, through identifying and giving full considerations to meet specific needs of their gender, religion, age, disability, race and sexual orientation.*” (MoJ, 2011, 2.7). Baumer and Meek (2018) propose that, given the competitive masculinities which dominate the prison gym, this equality is inevitably threatened. Some may avoid prison gyms through a general fear of appearing as a loser (Johnsen, 2001), or the 'public trial of bodily presentation' (Wellard, 2002, p. 236). Whilst there is evidence from Senior Prison Management that “*Some prisoners, individuals or groups, may want to influence and dominate sports provision at the expense of others*” (Meek, 2014, p. 37). With respect to weight-lifting and competitive sports in particular, Norman (2017) identifies that a toxic hegemonic masculinity can be created within gyms in male prisons, contributing to hierarchical and violent cultures. This view is echoed by de Viggiani, reporting that prisoners are put off going to the weights room because of the “competitive atmosphere and poor level of supervision” whilst “Others admitted embarrassment or fear of ridicule had prevented them from using *any* of the prison sports facilities” (p. 111, de Viggiani, 2018).

Baumer and Meek (2018) observe that regulars in the prison gym will routinely associate with other regulars and isolate themselves from those who do not attend the gym, which could account for as much as half of the prison population. Average monthly participation levels for adult prison establishments (excluding immigration removal centres)

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<sup>16</sup> For example, sex offenders are forbidden from completing a sports based qualification on the basis that they may use this on release to gain employment which enables them to work with individuals who they may regard as potential targets for a sexual offence.

vary from 48% to 63% (Meek, 2014), and these figures are of concern, particularly when facing a prison population with an increasing multiplicity of requirements due to age, obesity, mental health, substance misuse and disability, highlighting the ever important need to ensure balanced provision of sport and exercise. Prisoners who belong to the existing gym milieu may benefit from the prevailing sport provision in some respect, but the question of who is choosing not to participate in sport within prisons and their reasons for this, is an important one.

Sabo et al. (2001) outline men's behaviour in prison as an exaggeration of many culturally acceptable forms of masculinity, rather than being deviant. Swain (2002) notes that masculinity is manifested in boys within sports at school from a young age, thus, Baumer and Meek suggest that there are arguable similarities to be drawn from research into sport in schools when considering sport in prisons. Through Swain's exploration of the practices of upper middle-class school boys in the promotion of masculinity through sport, he identifies several masculine practices that Baumer and Meek compare to those found within prisons. These include "competitive team games, strict discipline, a strict code of dress/uniform, divisions of labour and patterns of authority" (Swain, 2002, p. 6). Swain went on to contextualise three types of masculinity when explaining reasons for non-participation in sport; personal, subordinated and liminal. Through consideration of the type of masculinities outlined by Swain it may be possible to identify groups who exclude themselves from sport in prison and use the characteristics of such groups to inform programmes which encourage engagement.

Personal masculinity is associated with boys who choose not to participate in sports because they simply do not have the physical resource to do so, and will construct their masculinity in personalised ways. These individuals do not feel subordinated as they do not aspire to or wish to challenge the hegemonic masculinity of the 'sporty' boys. With regards to

prisoners, this personal masculinity describes those who do not attend the prison gym at all, do not associate with prisoners who do attend the gym, and do not have an interest in attending. It is probable that this subgroup of prisoners seek to create their masculinity through behaviours outside of exercise, gaining social capital through alternative means such as occupying a respected job role, or educating themselves to a high level. Thus, these prisoners are seemingly not negatively affected by a lack of engagement with the prison gym, however, with the distinct lack of lifestyle exercise experienced by prisoners, it is arguable that engagement in formal exercise would still be considerably beneficial to their physical health.

Subordinated masculinities represented a small minority of Swain's participants, they did not apply any effort to sport, and were seen as "outsiders" for reasons unrelated to sport. This group were isolated from their peers and subjected to regular subordination in the form of homophobic harassment. In the context of prisons, any prisoners emulating the experiences of this group are likely to be suffering from poor mental health, and are unlikely to attend the prison gym at all. It is important to note that prisoners who are considered especially vulnerable are located on specific wings and will be allowed to attend the gym separately to the general prison population. Thus, it is likely that subordinated masculinities in the prison context represent so-called "outsiders" who live amongst the general population, and are subjected to harassment. This group are likely to be "hard to reach" in terms of promoting exercise behaviours, as they may be difficult to identify, and are unlikely to put themselves in a position that makes them appear different, as this may aggravate any harassment.

Finally, Swain describes liminal masculinity as an aspirant type of masculinity embodied in those boys who would like to be seen in the same light as the hegemonic masculinities but who do not possess the personal resources to do so. They were good at sports, but not quite good enough, in other words, "Wannabes" (Adler and Adler, 1998). In

the prison context, those who are considered to embody a liminal masculinity may attend the gym, but are likely to experience low satisfaction of the needs for competence and relatedness, resulting in a contingent self-esteem that lacks fulfilment. These individuals are likely to benefit greatly from any form of exercise that challenges the hegemonic masculinity of sporting prowess and muscularity, demonstrating that engagement in sport is of value for many personal reasons, not just as a means of showing your worth to others.

***Contesting masculinities and increasing engagement.*** Wellard's (2002) exploration of 'exclusive masculinities' which can act as a barrier for sport engagement for gay and straight males from school right through to adult sports clubs, concludes that more reflection upon contemporary sporting practices is needed to increase participation from subordinated groups. In the context of prisons, this means establishing alternatives to the existing and established practices of team sports or the competitive environment of the gym, not merely ensuring that those who are less macho can become 'one of the boys' (Baumer & Meek, 2018).

Baumer and Meek conclude that there is potential within non-hegemonic groups which needs to be harnessed to *promote* difference; basing ideas on acceptance and accommodating difference, and ensuring that winning or losing, or dominating an opponent, are not key components. The authors note that there is currently limited provision of this type for young offenders in the form of the Airborne Initiative or the Duke of Edinburgh Award, and a distinct lack of anything similar for adults. These approaches can promote inclusivity in exercise, and "support the deconstruction of maladaptive coping mechanisms which are embedded in existing hegemonic masculinities in order to recreate positive and beneficial masculinities which will support prisoners throughout their time in incarceration" (p. 217, Baumer & Meek, 2018). PE Officers are in the ideal position to facilitate and develop this type of programme, however, greater support from prison management is needed to help

provide appropriate resourcing and ROTL approval where necessary. Finally, Baumer and Meek call for a greater body of psychological and sociological research which validates the impact and importance of programmes that address exclusion from sport and support the reconstruction of masculinities in a positive way, and suggest that this may elicit a more constructive response from policy makers and prison management.

#### **10.1.6. Barriers to exercise**

In the general population, it is often an individual's choice to remain sedentary or participate in physical activity. But even in this context, Dishman, Sallis & Orenstein's (1985) review concludes that this decision may not be a reasoned one, and that the critical behavioural determinants controlling this decision may be outside of the individual's abilities or skill, or even unknown to them altogether. Good intentions can be outweighed by environmental barriers, whether perceived or real, thus "physical activity and exercise are at once socially and self-regulated behaviours" (p. 168, Dishman et al., 1985). In the context of prison, these barriers are likely to be magnified, thus, any attempt at explaining mental wellbeing outcomes for sport and exercise amongst prisoners must carefully consider the synonymous nature of the relevant behavioural, social and environmental factors.

Logistical variables such as access to facilities and programs, relocation, or a conflict in schedule, are often overlooked by psychological theories, but according to Dishman and Buckworth (1997) there is potential for these to be just as important as the key psychological factors of knowledge and attitudes, and are likely to act as moderator variables when stimulating intentions into action. As reported by a number of studies, the most common reason for not participating in physical activity is having no time (Godin et al., 1994; and Booth et al., 1997), and this is the most prevalent reason for drop outs in supervised clinical and community programmes (Dishman, 1982; Oldridge, 1982). Other popular reasons

include being physically unable to exercise (Booth et al., 1997; and Godin et al., 1994), not wanting to exercise (Booth et al., 1997), and lack of access to appropriate facilities (Godin et al., 1994). This idea surrounding a lack of time to exercise may well reflect a lack of interest or commitment, and is questionable as a true determinant of physical activity. Perhaps this perceived lack of time could be related to poor time management skills, or is being used as an excuse in the case of poor motivation. Depending on the prison, the impact of time as a barrier to sport and exercise for prisoners is variable. For some, being in full time employment means there is reduced time for sport or exercise participation, whereas for others this is controlled for by allowing full-time employment-only sessions across evenings and weekends. For a young man in a prison on the enhanced regime with a well-structured timetable to allow for gym access outside of work, there is arguably no better access to sport and exercise. At the opposite end of the spectrum, a young man on the basic regime with a full-time job in a prison with no full-time employed dedicated gym sessions will see a significant reduction in access, arguably however, it is never time which is a barrier for prisoners, only the structure of the institution.

Researchers such as Dishman (1994), believe access is a reliable measure of physical activity when objectively measured, although a study by De Bourdeauhuij, Sallis & Vandelanotte (2002) would refute this. Their Belgian study of 172 young adults found that psychosocial determinants for physical activity remained relatively stable across a 7-year period. This stability held true for self-efficacy, social variables, perceived benefits and perceived barriers regardless of changing environmental factors, suggesting that it is cognitions towards barriers, rather than the barriers themselves, which impact on physical activity participation. Iso-Ahola & St. Clair's (2000) theoretical model of exercise motivation supports this view by positing that attitudes and knowledge towards exercise have a negative relationship with constraints, which in turn have a direct impact on motivation. Thus, positive

attitudes and better knowledge about the positives of exercise can temper the strong negative impact of perceived constraints to exercise.

Arguably, some prisoners do face tangible and objective barriers to some forms of sport due to the structured manner of the daily routine, and it would not matter what their values and beliefs towards physical activity were, these barriers cannot be overcome. These differences in autonomy for making healthy choices varies between prison and prisoner category, and are often intensified by the way in which prisons operate (Andrews and Andrews, 2003). However, there are ways in which prisoners can participate in exercise outside of the time afforded by the regime such as 'cell workouts', and there are many subjective barriers to sport and exercise that exist amongst prisoners which may be overcome if reasons to exercise were more internalised. To be successful in maintaining exercise change, the prison environment should promote increased activity by offering easily accessible facilities and removing objective barriers where possible. As Andrews and Andrews (2003) propose, if health inequalities are to be sufficiently addressed, prisons must ensure that prisoners' autonomy in relation to health behaviours is supported on a consistent basis.

***Relapse prevention.*** The behavioural and social factors considered thus far in this review have focused on adoption and maintenance of physical activity, but in the attempt to minimise drop outs from sport and exercise programmes, relapse prevention must also play a role in holistic behavioural change interventions. It is suggested that past participation in a sport or exercise programme is the strongest predictor of current participation (Dishman & Buckworth, 1997), therefore, efforts to minimise dropouts should focus on those who are new to physical activity participation. Prison is an opportunity to develop initial physical activity participation into a habit which is less likely to be broken on release; the more established the habit of physical activity, the less impact interruptions and life events will have (Dishman,

1982). Anticipation of such life events also help to prevent relapse, as they can be recognised as temporary impediments, allowing for the development of self-regulatory skills (Belisle, Roskies & Levesque, 1987). It is also important to follow-up on individuals who have engaged with sport or exercise through continued supervision or timely interventions. Physical activity adherence tends to decline after 6months (Lowther, Mutrie and Scott, 2002; Harland et al., 1999), so this would be the ideal time to revisit those on exercise programs to increase long-term adherence. Cognitive approaches such as the relapse prevention model (RPM; Marlatt & Gordon, 1985) have also been applied to increasing physical activity rates when used as part of a wider cognitive behaviour modification package (Belisle et al., 1987 and King et al., 1989). The principle components of the RPM address high risk situations for relapse, plans for coping or avoidance, positive outcome expectancies, anticipation of lapses and focusing on the pleasure derived from exercise rather than viewing it as an obligation. Testing of this approach on a 10-week exercise program revealed small but consistent results, concluding that as a low cost approach it is a worthwhile intervention for use following formal programs (Belisle et al., 1987).

## **10.2. Rationale**

In line with a critical realist approach, the present research has moved from a research question which broadly asks “what motivates prisoners to engage in healthy behaviours?”, onto the adoption of SDT as an appropriate theoretical framework to understand the patterns and regularities which sit behind this process of motivation. An understanding of SDT has supported the formulation of a hypothesis which proposes that prisoners’ motivations to engage in exercise, as a healthy behaviour, will be in line with a self-determination continuum, as supported by the three basic psychological needs. This hypothesis has been partially tested through empirical means in Study I, using quantitative data to determine where consistencies lie between prisoners’ basic needs, exercise motives and health

outcomes. In this subsequent study, qualitative analyses will explore the patterns suggested by the outcomes from Study I, looking for reasoning and meaning behind these, focusing on perceptions of the structural and cultural factors that hinder and promote prisoners' motivation to exercise.

### **10.3. Research questions**

1. What are the factors that influence prisoners' basic psychological needs in relation to exercise?
2. What are the key structural and cultural factors related to prisoners' exercise behaviours, and to what extent does masculinity influence the relationship between such factors and exercise behaviours?
3. To what extent do structural and cultural factors impact on the relationship between prisoners' individual motivation and participation levels in relation to exercise?

### **10.4. Study II Methodology**

#### **10.4.1. Design**

A qualitative approach using face to face semi-structured interviews was adopted for the second study to provide a greater depth of analysis in relation to prisoners' motivations to engage in exercise which allowed for identification of factors that fall outside of the existing individual measures, this included structural and cultural factors such as masculinity.

#### **10.4.2. Participants**

A sample of twenty-two participants who had some involvement in the Cell Workout Workshops were selected to engage in face to face interviews, including a member of staff from the PE Department and a prisoner who chose not to apply for the workshops. The sample was chosen to be representative of the diverse nature of the workshops' participants, including prisoners of different age groups, level of IEP scheme and across different wings.

### **10.4.3. Materials**

The interviews were conducted using a semi-structured approach, the introductory questions for all interviews were kept open to allow interviewees to guide the interview somewhat, and focus on what they felt was most important in relation to daily prison life. The time gap between studies I and II allowed the researcher to consider any unusual findings and key themes that had arisen from the first study, alongside emerging themes from the literature, using these to inform some of the later questions. Key themes included prisoners' awareness of their vitality, relationships formed through exercise, and experiences and thoughts in relation to exercise throughout their lives and in prison, to determine the extent of the impact that incarceration has on their motivations and behaviours. The questions were worded and framed in line with the principles of thematic analysis.

### **10.4.4. Procedure**

Interviews were conducted over two days in the legal visits suite in the prison and recordings lasted between twenty-four and forty-four minutes. The suite contains several private rooms situated away from the wings and is a quiet space with minimal distractions, each room in the suite contains a desk with two chairs sat either side. The researcher obtained prior verbal consent from participants to take part in the interviews when on the wings, although at the time the exact date was not known. The prison legal visits team informed the interviewees of their visit the day before the interviews took place.

Once the researcher was in the legal visits suite she remained there for the duration of the interviews, and a prison officer collected the interviewees and brought them to the suite. When the interviewee was in the room the researcher re-introduced herself, and confirmed with the interviewee that they were aware of the purpose of this visit, and that they were happy for the interviews to be voice recorded. Then, interviewees were given an information

sheet to read and keep ([Appendix E](#)), and a consent form to sign ([Appendix F](#)). One interviewee did not wish to be recorded, so the interview took place without the recorder switched on. For the remainder of the interviewees, the recorder was switched on, and the interview began. The researcher and interviewee were the only two in the room for the duration of the interview, and the door remained closed. Once the interview was complete, interviewees were given an opportunity to ask any further questions and reminded of where to go if they wanted to withdraw from the study. They were then thanked for their time and informed that a version of the evaluation would be made available to the prison once complete, should they wish to read a copy, before being escorted back to their cell by a prison officer.

#### **10.4.5. Data analysis**

The present study applies thematic analysis as a means of qualitative inquiry as guided by Braun and Clarke's (2006) comprehensive argument of thematic analysis as a method in its own right. For a comprehensive review of this analytical approach and how it was adopted within a critical realist framework please see [Technical Appendix H](#).

The thematic analysis for the present study was conducted in six phases, as guided by Braun and Clarke; 1 – Familiarisation with the data; 2 – Generating initial codes; 3 – Searching for themes; 4 – Reviewing themes; 5 – Defining and naming themes; and 6 – Producing the report.

In the first phase the researcher became familiar with the data in several ways, initially by listening back to the interviews in their entirety without interruptions or note taking, before transcribing the data and taking time to note down any initial ideas that arose during this process. Finally, the researcher read the transcripts back and noted down any more ideas, paying attention to anything of relevance in terms of the research questions.

The second stage involved identifying semantic features of the data which were deemed of interest to the researcher, known as codes. Codes are the most basic elements of data, and the process of highlighting and naming codes allowed the researcher to begin organising the data into groups, being mindful that the sections of text were large enough to ensure the context was not lost. Phases two through to five were completed using qualitative data analysis software, QSR International's NVivo 11 Software,<sup>17</sup> which allowed the researcher to tag and name selections of text within the data, as well as coding sections of data more than once, un-coding where necessary, and linking codes in later phases with ease.

Once all the data had been coded the researcher began the third phase of sorting the codes into potential themes, ensuring all relevant codes were included under each theme, with some codes sitting under multiple themes. To aid phases three to five a series of thematic maps were generated, allowing the researcher to visualise how the codes related to each theme, identifying any inconsistencies or broader themes and sub-themes within them, and deciding which codes were of less relevance and could be discarded (an early-stage thematic map can be found in [Appendix G](#)). The fourth phase involved a thorough review of each theme and the thematic maps, refining the themes and identifying which of them could collapse into each other and which needed to be separated. The aim of this refinement was to ensure that codes within each theme were coherent, whilst each theme was distinct enough to warrant being separate. Thus, if a theme did not have enough codes or the codes did not correspond with one another harmoniously, then the theme was removed and the codes were put under a “miscellaneous” theme. Once all themes had been reviewed the codes under the miscellaneous theme were reviewed to ascertain whether these would fit under a different theme, if not, then they were discarded. Once a distinct set of themes were created the entire dataset was re-read to ensure that any missed data could be coded and included under the

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<sup>17</sup> NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 11, 2012

relevant theme, and also to ensure that the themes reflect the meanings of the data as a whole and provide comprehensive answers to the research questions.

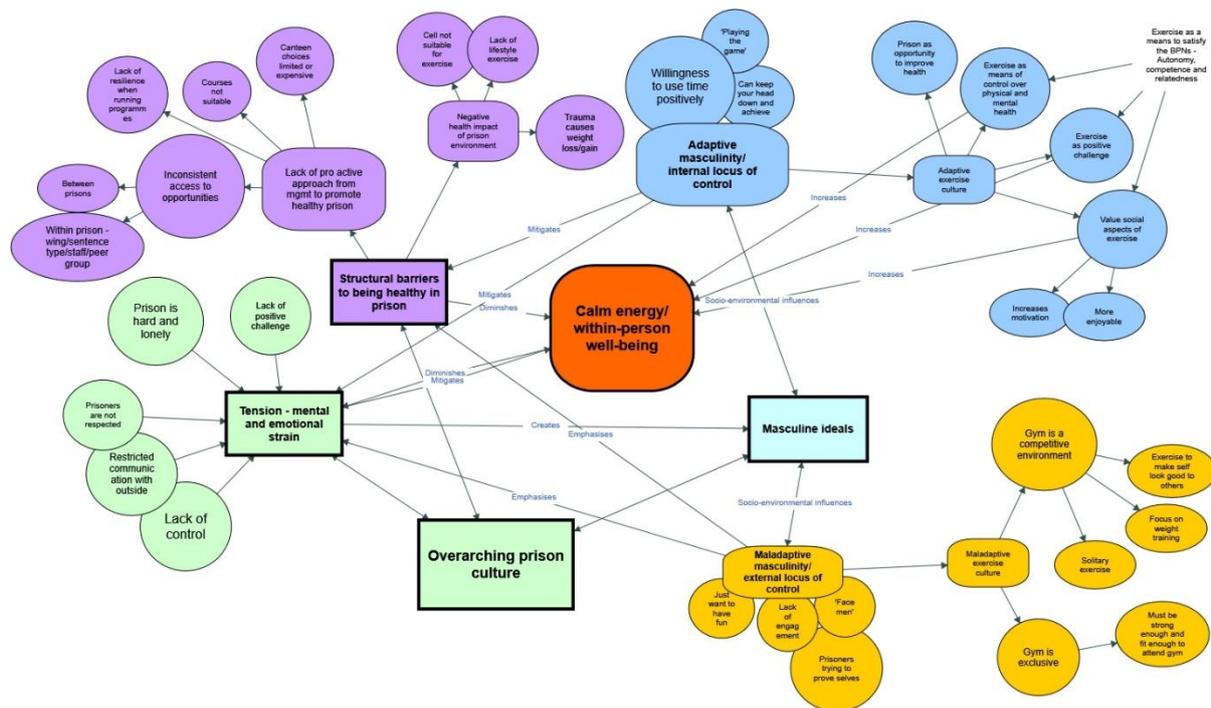
The fifth phase of defining and naming the themes involved identifying the crux of the key themes, understanding what is interesting about them and how they answer the research questions, ensuring they are concise and distinct. As a framework for this phase the researcher applied six questions to each theme as recommended by Braun and Clarke, namely, ““What does this theme mean?”, “What are the assumptions underpinning it?”, “What are the implications of this theme?”, “What conditions are likely to have given rise to it?”, “Why do people talk about this thing in this particular way (as opposed to other ways)?” and “What is the overall story the different themes reveal about the topic?”” (p. 24, Braun & Clarke, 2006). The final phase includes a full analysis of each theme and any sub-themes, and how these relate to the research questions and the existing literature, along with extracts to support the arguments being made.

### **10.5. Findings**

The six questions that Braun and Clarke propose to guide the fifth stage of thematic analysis are used to frame the present findings, which are illustrated on the concept map in Figure 1. Each theme is presented in terms of its meaning, assumptions, implications, in what context it arises, and why it is referred to in this way. Finally, the overall story that the themes create will be presented.

The foundation of interviewees’ experiences with exercise and healthy behaviours is represented by the “overarching prison culture”, which encompasses the combined structural, social and cultural factors that were prominent in daily prison life. These factors represent three key themes; “tension”, “structural barriers to being healthy in prison”, and “masculine ideals”.

Figure 1. Concept map displaying the themes and sub-themes of prisoners' experiences with exercise and healthy behaviours in prison



### 10.5.1. Tension

The first key theme is tension, which describes an ever-present mental and emotional strain experienced by prisoners throughout the prison. Interviewees experienced this tension throughout their daily lives in the prison, referring to it in the context of exercise, interactions with others, connections to the outside, and whilst in their cell. There was a consensus that prison is generally very lonely and hard to manage, both for prisoners and staff, and this is reinforced by fear for one's personal safety (for further interview extracts please see [Appendix H](#)).

*Prison is hard at the end of the day. There's an easy way of getting on with it or there's an 'ard way, and you've got to do the best you can do... You know- it's just hard. You have to keep going, unfortunately people aren't like me, but you've got to keep on- you can't let, you've got to be on your guard all the time, or- you know it's- dangerous. It's quite frightening. I mean you get your youngsters come in it's quite- especially first experience or might be second or third time, but I see them sitting there they don't wana eat, don't wana talk (Dale)*

This strain was further exacerbated through the absence of positive challenges that prisoners could engage in resulting in a lack of incentives for good behaviour, which often led to them reverting into negative behaviours.

*I know prison life and I know they'll promise you that and then tomorrow, it's a different thing- I always expect failure so when a positive comes up I get a positive, but I always expect failure so then it doesn't do nothing to me. So a lot of people don't- they will go back to their old behaviours cause that's their only comfort, the only comfort in here is food and cigarettes so they're gona go back if they don't get support... things like football or the gym right, if you said we're having a football day and we're gona play each other and if you did that once a month like an inter-prison tournament and people knew that they'd be doing it they'd behave themselves to be able to get out there. I think you need things that like in prison because at the minute a lot of the way this prison is run there is nothing, you're not getting out (Chris)*

A lack of control and restricted communication with the outside were also considerable sources of tension, which underpinned many prisoners' experiences. The lack of control seemed to manifest itself through endless periods of waiting, either to be let out of the

cell, or for an officer to attend to a situation, or to hear back regarding an application or legal proceedings. This continual passiveness led to a sense that there was no respect shown towards prisoners by prison staff, as there was a belief that it was within prison management's control to ease some of the tension.

*The officers don't care- I won't say it's none of my business, but I've always said, you can be in the Listener's suite you start talking say "hello, how are you?" within ten seconds of being there all they want is tobacco, well I ain't gonna sit there and deal with it, so I press the buzzer, it'll take another half hour. Then you get someone over and you say "we're finished sir" and they'll go "oh I'll have to go get someone with the keys" - another ten minutes (Dale)*

### **10.5.2. Structural barriers to being healthy**

The second key theme is structural barriers to being healthy in prison and is divided into two sub-themes; the lack of a proactive approach from prison management to promote a healthy prison; and the inherent negative health impact of prisons. Interviewees recognised and accepted that certain restrictions were necessary to adhere to standards of safety, but the crux of their frustrations surrounding a lack of health promotion tended to be directed towards the inconsistency of access to opportunities for being healthy, such as attending the gym or a structured programme. For the most part, this inconsistency was prompted by factors that were entirely out of the prisoners' control, such as the wing they were on, the length and type of their sentence e.g. whether they were on remand, and which officer happened to be on the wing at the time (for further interview extracts please see [Appendix I](#)).

*Everyone in my [Cell Workout] group was all on the ones, and I was the only one on the fours, and they go to the gym regular, where you live on the fours you only get to go once*

*a week if you get to go (Ahmed)*

Brian was located in the basement of the prison for some weeks along with seven other prisoners, their cell doors were kept open for most of the day allowing them to socialise in the communal space outside their cells, known as the ‘anexe’. Brian and the other prisoners in the annexe would exercise together in the communal area of the annexe daily, but without warning they were moved to separate cells throughout the prison.

*See when we was on E Wing, we’re over on Trinity now, when we was in E Wing we had the place upstairs where we done Cell Workout, and plus where we was in the annexe we had a big space we could work out in, so we was, we was doing it, I dunno, sometimes twice a week sometimes a bit more depending on what was happening (Brian)*

Access to the gym was also dependent on peer group associations, with associates of the gym orderlies tending to get regular access at the expense of other prisoners.

*I am, personally [able to get to the gym whenever I like] but I am one of the few, I am one of the lucky ones, my cellmate is the gym orderly so I get to go with him more on a daily basis, if I didn’t, if I wasn’t in with him I would take my chance by going to the exercise yard, it’s what I used to do before I was cell sharing with the gym orderly (Jimmy)*

Some of the inconsistency with regards to gym access was attributed to a lack of resource that had led to a tighter regime, resulting in no free-flow for prisoners and forcing the gym to close. Interviewees made comparisons between prisons with regard to the structure of the regime and the impact this had on the frequency of gym sessions.

*Yeah [I used to exercise in the gym before Cell Workout] ... but you weren’t getting it. Sometimes now it is so short staffed in prisons you don’t know what you’re getting you don’t even know if you’re gona get unlocked so gym is sort of a reward really. So you might get unlocked and think “fantastic” but you might not get it cause they’re short staffed (Chris)*

Finally, prisoners also seemed to understand that if they chose to engage in purposeful activity outside of their employment in the prison, then their position would not be held for them. So, engaging in a SBI such as Cell Workout would mean they sacrifice the job which it is likely they had spent considerable time trying to secure, and on completion of the intervention they would have no purposeful activity to engage in, spending up to twenty-three hours a day locked in their cell.

*No I didn't [ask whether they would be able to hold my job] to be honest, I just assumed it would get in the way of what I was doing and I was onto quite a good thing at the time and I was getting quite a good bit of gym time so I thought I'd just leave it... Didn't wana jeopardise it (Iqbal, prisoner who chose not to sign up to Cell Workout)*

Aside from the inconsistency of access to healthy opportunities, interviewees felt that prison management were not trying hard enough to cater for their specific needs. This was experienced through a lack of suitable educational or otherwise 'healthy' activities that reflected the diversity of the prison population, a lack of effort to advertise available activities, and a failure to be resilient in their approach to delivery, with many interventions being cancelled at the first sign of any negative behaviour.

*Because of how the prison is, like, they've got so many good ideas... But what happens is you start to get the fights, so you get the pricks that officers don't like which, it will just go off and all they want is one person to mess up and then that's it, and then they use that all against you... but I know prison life and I know they'll promise you that and then tomorrow, it's a different thing (Chris)*

*To me a lot of the courses are kind of boring cause they're like, how can I say, they'll be more based off people like if you've gotta do an English course or maths course they're for people who ain't got no real education- or not education, but no they're not up to a standard*

*where they could read this letter you've given me, they're not fluent, so it's just kinda a waste of time (Ahmed)*

Opportunities to be healthy were also viewed in terms of the food that was available to prisoners, with the consensus being that the daily meals provided by the servery were not nutritious, and although it was possible to take some control over this by ordering healthy food through the canteen this was not cheap, and meant that other luxuries had to be sacrificed.

*I don't think the food helps in prison [when trying to be healthy] so like- servery food a lot of it ain't the best, chickens are like, you can tell they're only little legs basically, it's always a right leg. So I'm doing a lot of money on fish every day, £1.29 - they put that up, mackerel's £1.75, I can eat four of those a day so it's expensive to be in prison nowadays if you wana look right and eat right, dya know what I mean? Otherwise you're just eating shit off the servery (Iqbal)*

The second sub-theme that contributes towards structural barriers to being healthy in prison is the inherent negative health impact of being in prison. This was felt through an inability to engage in the lifestyle exercise that interviewees would have engaged in prior to prison, and although these prisoners had been introduced to body-weight exercises that could technically be performed inside a cell, there were still many perceived barriers to this, such as the presence of a cell mate or not knowing when the next shower would be. Additionally, the trauma of imprisonment moved some prisoners to engage in comforting behaviours such as increased smoking or binging on foods that were high in sugars and saturated fats, or not eating enough food, and resulting in dramatic weight loss.

*On the outside for me to make myself feel healthy would be going to the gym, going swimming, doing activities, here it's the other way round, you need to look for food, when*

*you look to food for your energy levels it's two fold innit cause if it's not healthy and it's chocolate biscuits you're going round in circles, cause you wana feel happy, you wana feel content so, sugar! It's one of those things cause even in here- even if you get energy, there's no better feeling than eating chocolate, you get that euphoria and then you go to sleep... Coming in here, comfort eating, not moving about, so I've come in here from being like fifteen stone and I'm now seventeen and a half from living in here. But you don't notice it until you notice it, it's very easy to put on weight, it's very hard to take it off (Chris)*

*Maybe if like if your cell mate is sleeping [that would be a barrier to exercise] or... you know he wants to sit down and read a book, obviously you want to respect his space and also if you don't know when your next shower is gona be (Fahim)*

### **10.5.3. Masculine ideals**

The final key theme is masculine ideals, which seem to be created in response to the underlying tension, and in turn can mitigate or emphasise prisoners' perceptions of structural barriers to being healthy. Prisoners' masculinities appear to take two dominant forms; an adaptive masculinity, reflective of an internal perceived locus of causality, or a maladaptive masculinity, reflective of an external locus of causality.

Adaptive masculinities were experienced by prisoners as a willingness to use their time in prison positively and wanting to leave prison a 'better person' than when they arrived, these individuals also felt that they had more time to be healthy in prison, away from the distractions and barriers that they encountered outside of prison. They also sought to avoid confrontation by 'playing the game' and keeping their head down to maintain focus (for further interview extracts please see [Appendix J](#)).

*You can keep yourself to yourself and achieve as much as the next person who is running around and talking to everyone (Ahmed)*

*I've got a long time left to do and I wana go out better than when I come in, I mean I- in total I've gotta do seven years behind the door so if my health's better when I leave then I can get those seven years back by living longer... And the only way you can do that is by exercising not sitting behind your door doing nothing... when I come to prison I was eighteen and a half stone, I was grossly overweight so this is, ch- in a way prison's saved my life, the health benefits and I obviously I take what I do in 'ere to the outside, 100% (Brian)*

Whilst maladaptive masculinities were expressed through a lack of engagement with positive activities, which also manifested itself as a desire to sleep for extended periods of time. Prisoners who adopted this masculinity were seen to be in a constant battle to prove themselves to others, through body image and egotistical behaviour, frequent boasting, and an attitude that suggested they were only in prison to have fun. Many felt that these behaviours were more often seen in younger prisoners.

*Others eat then they go to sleep cause they waste out the day they think the day is quicker, it's one less day. Alright, it's Wednesday today, by the time I sleep and wake then it'll be Friday, if I go to sleep again it'll be weekend, weekend, you know it's finished, it's quick, two days. So that's how people look to spend their days (Chris)*

*[The younger prisoners are] trying to prove themselves, trying to make out that they're gangsters, a lot of it is attitude. The younger prisoners in here they wana try and... dunno, try and be something that they're not, and that's what a lot of it is in 'ere, they're trying to prove themselves to people when, who cares what other people think about ya? Dya know what I mean? There's two ways you can do prison ther- there's no easy way, there's the easy way but there's the hard way, and they wana do it the hard way by trying to fight and smoke all that crap just trying to, what's the word? Trying to impress people, that's wha- if a lot of the youngsters could get into something like this [Cell Workout] I think it'd do 'em the*

*world of good, but a lot of 'em they won't do it cause... they think it's uncool or something*  
(Brian)

These masculine ideals also fostered a relative exercise culture, framing prisoners' values and attitudes towards exercise in prison, which were often different to the reasons given for exercise before prison. In this respect, an adaptive style of masculinity views exercise as a means of satisfying the basic psychological needs, by gaining control over their physical and mental health (autonomy), which prisoners noted was unique to aerobic forms of exercise, with weight lifting not producing the same positive psychological health outcomes.

*Now I think [I exercise] to get rid of the stress when you're stressed or, yeah I wana leave here looking better too, yeah and I wana stay healthy cause I've got more control now, so that's it yeah, to look good, to stay healthy and to relieve stress* (Guy)

Exercise was also seen as an opportunity for positive *personal* challenge (competence), which was based on absolute achievement rather than achievement relative to others, and seemed to result in a reduction in fights, which made it distinct from the competitive nature of the prison weights room.

*Most of the time you get challenged it's negative, so in 'ere to do something positive, and its challenging you [Cell Workout], the way your behaviours as well, without taking it to you. Cause it's a choice, it's not telling you "you have to come" it's a choice, but its challenging you on a one-to-one level it's the perfect recipe to prepare yourself* (Chris)

Whilst in terms of supporting relatedness, those with an adaptive style of masculinity seem to value the social aspects of exercise to increase vitality and self-motivation, and to make exercise more enjoyable. Thus, exercise is used to mitigate the mental and emotional strain of prison by giving prisoners the psychological well-being needed to manage it.

*Whereas before I'd be on the bike on my own I'm now in the line-up for the running machine messing about having a laugh, I like to torment people so, I do a lot of that. But it's all fun we're all socialising and we're all fit, it's healthy. Yeah, I mean I'm like yeah! It's changed a lot... so I am now mixing with people I wouldn't have mixed with before and I'm good at it, I'm getting good at it so I'm getting a buzz out of it (Chris)*

Furthermore, prisoners who reflected this adaptive masculinity attempted to minimise the structural barriers to being healthy, and some sought ways to engage in their positive masculinity despite the restrictions of the regime.

*What we learnt with LJ and with Cell Workout is that you can do your own workout whenever you feel like, so it's an awareness really, so I feel like if you wana do it in your own time it's up to you. So where we done Cell Workout in groups, then some of us meet up sometimes in a room and do our exercises together (Ahmed)*

Despite a more positive attitude, prisoners adopting adaptive masculinities were often still negatively affected by structural barriers. When referring to behaviours that did not rely entirely on staff engagement these prisoners recognised that they had some control but conceded that they did not always have the high levels of motivation needed to overcome barriers.

*No, I don't [exercise in my cell]. I'm not gona lie, I'm gona tell you the truth, dya know what it's still t- still the thing of, I'm with a cell mate now who doesn't exercise and I think you've got to be with a cell mate who does wana exercise so you can both do it together... but, no I haven't in the cell... But it's laziness as well, on my side... But it is about, you've got to be motivated in yourself, but some of it is to do with the cell mate (Brian)*

Those prisoners who appeared to overcome structural barriers on a more consistent basis were those who were engaged in exercise and healthy behaviours prior to prison, and

thus were already highly motivated and likely to have been regulated by an internal perceived locus of causality.

*I've always been into my fitness... I would've [exercised in my cell] if I never had the job I had now [as a gym orderly], before I had the job and I did three months on the wing on A Wing, I would do a cell workout if I couldn't go out to the yard, that was the only opportunity I had to work out, so if there was no exercise outside I would do it in my cell (Jimmy)*

In contrast, maladaptive forms of masculinity led to prisoners viewing exercise as a solitary activity focused on weight training, viewing the gym as an exclusive place, and often perceiving others' abilities as far greater than their own. These externally-driven values and attitudes existed alongside a lack of perceived support for psychological needs through exercise, thus, healthy behaviours were experienced through an external locus of causality. Ultimately, this lack of perceived control over being healthy appeared to emphasise perceived structural barriers and worsen the overall tension experienced by prisoners.

*[I went to the gym during my last sentence] just to get big, I wanted to get big, big and sort of yeah, I just wanted to get muscles, muscles (Callum)<sup>18</sup>*

*There's a strong individualism, especially in the gym, it's how you look best to make the muscles, so people who have to do, you know, all of the weight lifting, this is like the first thing to look great... You tend to see some guys with each other when they do the weight lifting but apart from that, erm, I think we should have more of a, erm, less machines to be honest, I think personally there's way too many machines (Eden)*

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<sup>18</sup> Words underlined indicate emphasis from the interviewee

The type of masculine ideal that prisoners aspired to seemed to be influenced by socio-environmental factors both inside and outside of the prison. This could be the general health-related behaviours and values of peers, or a specific event, such as an illness or death of someone close to them. These events either prompted a shift in prisoners' attitudes towards using their time more positively and engaging in more healthy behaviours, or it could cause a relapse into negative health behaviours such as comfort eating, smoking, drug taking, and isolating oneself.

*You get a lot of thinking time in 'ere, I used to drink quite a bit and, take cocaine, and there's no healthiness in that at all. I wana prolong my life, when I get out I've got children, I've got grandchildren and I wana see them grow up, I couldn't go back down those roads of having what I was doing before coming here, I do I wana lead a healthier lifestyle and if that means staying away from certain friends then that's the way it's gona be... I've just had a little girl, dya know what I mean? I don't wanna have a heart attack, I wanna see her grow up (Brian)*

*I didn't smoke for eighteen months, that was also in prison. But then, my nan died, someone gave me a joint, I smoked it, and I started smoking from then. But, [my reason for quitting now] it's obviously my friend passing away, my mum's got COPD, my nan died of lung cancer, she never smoked in her life, but she died of lung cancer (Fahim)*

It should also be noted that these masculinities are shaped by different spaces in the prison, and even within the present research which focused on the context of exercise, it seemed that different exercise spaces promoted different forms of masculine ideal. For example, the weights room in the prison gym was very much viewed as reflective of maladaptive masculine ideals, whilst the environment of the CW Workshops and group-based exercise sessions that took place on the wings following the workshops, were supportive of

an adaptive exercise culture and fostered a more autonomy-supportive and adaptive masculinity.

*My cellmate who was on [Cell Workout] with me, his cellmate, an older man in his sixties [joins us exercising on the wing] 'cause he likes doing that with us, he does the spinning with us, whereas he weren't doing nothing, he doesn't like the gym but he likes being with us, it's a nice bonding session (Callum)*

As the maladaptive exercise culture appears to be the dominant culture of the prison gym, it is likely that these hyper-masculine values represent the image of the gym as held by prisoners who do not exercise. This enforces the image of the gym as an exclusive environment fuelled by testosterone and occupied by those who embody a muscular physique, at the expense of exercise engagement which promotes physical and psychological well-being.

This account of how male prisoners experience masculinity through exercise is by no means all-encompassing, and it only reflects the attitudes, values and behaviours of those who choose to exercise in some form. There were also examples in the present research of prisoners identifying with elements from both forms of masculinity simultaneously, for example, Eden engaged in a somewhat adaptive exercise culture by expressing an interest in exercise engagement to feel healthier and use his time positively, whilst still identifying with external and more maladaptive reasons for exercise such as wanting to look muscular.

*At the moment I'd say I'm on my A game [with regards to exercise] ... being in prison is erm... the fact that there's no distractions, I am more focused in prison on my training now... when it comes to dedication I've always had that, like my friends outside used to say like "you're always in the gym" but on the outside world also there is other things going on innit, in prison there's nothing, you can't do anything else apart from... get ripped. Yeah so,*

*it's less distraction so really... you're supposed to come out of prison in the best shape of your life if you're serious (Eden)*

Chris noticed a shift in his behaviours from a maladaptive masculinity during his last sentence, expressed through attention-seeking behaviours, to more adaptive behaviours in his current sentence. This change in attitude was accompanied by a change in his peer group associations, surrounding himself with others who adopted an adaptive masculinity and were seen as more socially acceptable by staff, which he felt gave him a far greater chance of avoiding trouble.

*Before [on my last sentence] I was a "face guy", one of the lads, now it's a much more, erm, informal person. So I'm not so much centre page no more doing silly little things for attention... This time on my sentence I've changed my whole persona of how I do things. So whereas before as I say I was one of the guys, that guy, now I don't really give a shit. Before I was very self-conscious and, always impressing or- I'm not like that now it's "take me as you see me" so I'm trying to change my behaviours. I've been doing this for 39 years, it hasn't been working but I keep coming back so it's doesn't matter how smart I am I can't do that, so my whole section of friends here, it's kinda changed, I- I wouldn't say nerds but pe- yeah that's the easy way to describe it I'd say I talk to them now so I'm in the nerd crew, the geek crew, the ones who are- socially acceptable to officers. So officers will be with me, whereas before they were more against me now they're more for me cause I'm- I will talk to prisoners on their behalf so, these screwboys, I'm saying "bruv you can't win, they're above you this is their system you can't win." So my whole way of friends have changed so the friends I've got now are... they know they've got a future on the outside, they can make something happen so we're not sitting down and being [sucks teeth] we're not talking about "yeah" negatives, we're talking about positives. Their energy- people I'm gravitating to now*

*are giving me energy whereas before the people would be giving me negative stuff so my energy wouldn't be there (Chris)*

Furthermore, there was evidence of prisoners experiencing conflict in terms of how they viewed their own masculinity, with Dale understanding himself through a more aggressive and dominating form of masculinity, whilst having to remain passive in the context of the prison environment, having a detrimental effect on his well-being.

*I'm very strong willed, I'm me own guvnor, you know I've always been sort of head of the family as well if you understand... if you want me to be nice I'll be nice if you want me to be horrible I'll be your worst nightmare, how dya wana play it? There's no in between with me... I keep myself to myself inside, cause you know I can't do what I wana do so it's better to do what I can do then get myself involved and do something stupid and I end up doing a longer sentence... I like to do something when it suits me. I'm not sounding selfish but I've got in my age now where I'm not gona be told what to do no more. But being in here, I have to be told what to do, 'cause it just makes things even harder. So the quickest I can get on and get out of here, it'll be better for me (Dale)*

#### **10.5.4. Calm energy/within-person well-being**

The final theme that emerged through the interviews was one of “energy”, and the crucial role that this played in prisoners’ discourse around daily well-being. Interviewees were acutely aware of the amount of personal energy that they possessed at any one time whilst in prison, however, most prisoners were not consciously aware of how they could positively influence their own energy levels (for further interview extracts please see [Appendix K](#)).

*[My energy] goes up and down, up and down... I think that's bad in one respect cause you're not getting a chance to rejuvenate your body, you're not- you're up you're*

*down, you're here you're there, 'cause you're stuck in your cell, you sit in the chair, get comfortable, you fall asleep then, bang! You're up- it doesn't do your system any good, you know, there's no, there's no progress in here, specially the wing we're on (Dale)*

*Yeah [I'd use] coffee [to increase my energy], I drink quite a bit of coffee, but I don't think that ain't no good for you is it? If you drink a lot.... Yeah it's just mainly coffee, that's about it I don't know what else I'd do, maybe a bit more sugar, but that's about it (Brian)*

Living by the prison regime and its structural barriers and managing the tension of prison diminished prisoners' energy levels, which was experienced as low mood.

Ahmed:

*I think it's just the prison regime [that affects my energy] it's just a depressing place to be really and truly even if you're not depressed, it's like it's so repetitive every day it's the same thing you come out in the morning, look around, it's lunch time, get out for lunch like you sit there and watch telly or you sit there and drift away, I've never slept so much since I came to prison, really and truly like if I lay down on my bed I just fall asleep, dya know what I mean? Even if I don't feel tired, it's actually mad for me 'cause I've never slept so much, so I don't know it's hard to really say I think like it's the conditions that we're in and I think it just takes your energy away even if you feel like you've got energy and you're motivated it won't stay for long (Ahmed)*

Smoking was also seen as a behaviour which suppressed energy, with vaping considered to be a healthier alternative that did not result in such a passive response.

*Without the smoking I think I'd be more in me head, wanting to train to keep my energy up. But yeah I feel it more when I'm smoking and some days your head feels terrible and everything about it brings your energy down (Brian)*

Although many interviewees were unable to identify methods for revitalisation when asked directly, they alluded to several behaviours that gave them an energy boost. Firstly, having some perception of control over positive behaviours was important for maintaining or enhancing energy.

*Like today, Wednesday, we're gona be cooking so that'll bring up everybody's energy cause we're cooking something like, it's healthy cause it's not high carbs it's not rice or anything with high calories I think that, we're trying something new (Chris)*

Engaging in light exercise within the cell was another way to increase energy levels.

*If I was banged up in my cell I'd get up swill my face round liven myself up, what else you do you do [to increase your energy]? There's nothing on telly, all programmes are the same, or I might stand and do a bit of, making out I'm skipping or making out I'm jumping you know, press ups, but then it's a cold hard floor, you got no room to move in your cells, and I do think if you had somewhere to do it, even if it was two or three times a week, an hour, hour and half a day just to break the boredom (Dale)*

The key method that interviewees identified with as a means for revitalisation was socialising with others whom they felt a connection with inside prison.

*If I couldn't cook something nice like we know is nice and healthy or something, [my source of energy] would have to be either doing a workout or just kind of communicating to give each other hope, like a- I wouldn't say a group setting but I- I've got people on the wings and it's crazy we just go when we're low and we start talking about positive things trying to keep ourselves upbeat so, energy levels... Everyone gets down in here you all get your ups and downs, when you've got good people around ya it helps to keep your mind off how you're feeling (Chris)*

Thus, prisoners' well-being, as expressed through their daily energy levels, was negatively affected by the structural barriers to being healthy in prison, and the mental and emotional strain of daily prison life. Whilst engagement with behaviours that seek to satisfy the psychological needs led to an increase in prisoners' daily well-being, which was expressed as an enhancement in energy levels.

## **10.6. Study II Discussion**

The present study sought to explore the socioenvironmental factors that influence prisoners' personal motives for exercise. A thematic analysis of interviews exploring prisoners' experiences with exercise and being healthy identified four key themes. Firstly, prisoners' experiences were underpinned by an ever-present tension within the prison that moderated their personal well-being, expressed through variations in their personal energy levels. Their involvement with healthy behaviours was also characterised by common structural barriers, focused on a perceived lack of a proactive approach from prison management to promote a healthy prison. However, prisoners' ability to manage this tension and navigate the structures of the prison was variable, and appeared to be characterised by two dominant forms of masculine ideal; adaptive and maladaptive. In terms of exercise engagement these masculine ideals fostered opposing exercise cultures, framing prisoners' perceptions of how exercise can benefit them personally whilst in prison. A maladaptive masculinity fostered a maladaptive exercise culture which was reflective of contingent self-esteem, an external locus of control and introjected regulation, through a constant battle to prove oneself and seek internal rewards based on others' perceptions of oneself, leading to poor well-being. Conversely, an adaptive style of masculinity seemed to foster an adaptive exercise culture that was reflective of an internal locus of control and led to the satisfaction of the psychological needs; prisoners viewed exercise as a means of gaining control over

physical and mental health (autonomy), a positive personal challenge (competence), and they valued the social aspects of exercise as a means to increase vitality and self-motivation, and to make exercise more enjoyable (relatedness). The satisfaction of these three needs through exercise seemed to provide prisoners with the personal energy, or well-being, to manage the tension of prison life.

There are many similarities between the findings of the present study and the research of Joel Harvey (2007) into adapting to prison life, thus, his research will be used to frame an understanding of how the key themes within the present research interact with one another. Harvey interviewed twenty-eight young male prisoners aged 18-21 in Her Majesty's Young Offender Institution (HM YOI) Feltham to develop an understanding of their experiences during their first month of prison, exploring how they adapted to prison life, and why some adapted better than others. He outlines three key ways in which young prisoners had to adapt; practically, socially and psychologically. Practical adaptation involved understanding their entitlements, the workings of the regime, the location of facilities, how best to navigate the canteen for their needs, where to find legal information, and how to engage in activities, including visits, employment and education. Social adaptation was the process of understanding social norms when interacting with prisoners and staff, knowing when and how to speak to others to get a desired outcome, and using others for support inside prison as well as maintaining contact with a support network outside of prison. Finally, psychological adaptation was the process of managing psychological distress, "reaching a cognitive, emotional and behavioural equilibrium" (p. 56, Harvey, 2007). This meant that prisoners had to learn how to deal with stressful situations effectively, regulating their emotions and behavioural responses, ultimately recognising that their situation was not going to change, but that their appraisal of the situation could be altered to help them cope. The ability to adapt practically improved with time, however, social and psychological adaptation were very

much reliant on the resources that prisoners imported into the prison and the ability to seek the support that was available inside prison. A further key variable in prisoners' capacity to manage distress was related to their perceived locus of control, as mentioned in Study I, with an internal locus of control facilitating prisoners' ability to seek ways in which they could take control of their situation, whilst an external locus of control exacerbated the experience of prison as controlling, resulting in increased distress.

In relation to SDT then, imported resources that affect prisoners' social and psychological adaptation may be reflective of prisoners' causality orientations, or rather, their "global" tendencies to experience behaviours as controlling or autonomous, which have been shaped by their previous experiences (see Study I; Deci & Ryan, 1985b), recognised by Harvey as an internal or external locus of control. The present research did not specifically look at changes in prisoners' behaviours over time, or make comparisons between prisoners at the start of their sentence, but there are some suggestions of between-prisoner differences towards healthy behaviours which may be attributed to prisoners' causality orientations. Many of the interviewees had imported their values and beliefs about health into the prison, which had affected their subsequent behaviours. For example, in the absence of opportunities for their usual forms of exercise such as swimming or lifestyle exercise, or access to a broad choice of food, prisoners were not able to regulate their motivation for being healthy, and instead fell into apathetic behaviours characterised by comfort eating or smoking more. Through the lens of SDT, these individuals were likely to have experienced a somewhat external causality orientation. However, there were examples of some prisoners who continued to exercise in their cell and use the canteen to make healthy choices, remaining healthy despite the barriers in prison. These prisoners were likely to have imported strong values towards being healthy with a tendency to experience behaviours as more autonomous, allowing them to overcome barriers to a certain extent.

### **10.6.1. Practical adaptation**

Harvey's three forms of adaptation share similarities with the key themes highlighted by the present study. Firstly, the process of practical adaptation can be viewed as an attempt to adapt to some of the structural barriers to being healthy that were highlighted by prisoners. This includes understanding how to eat healthily through the canteen sheet with limited funds and knowing where to go to be considered for opportunities such as the CW Workshops. Although the participants of the workshops had adapted practically to various extents, there was still a strong consensus that prison management failed to adopt a proactive approach to promote a healthy prison in general, and this aggravated any attempts to adapt. This idea that prisons are failing to adopt a whole-prisons approach to promoting health echoes the sentiments of previous research (Woodall, 2016; Meek & Lewis, 2012; and Meek, 2014), which is explored further in Study III. More specifically, prisoners also felt that there was inconsistency in the availability of opportunities to be healthy both within and between prisons, and their autonomy to engage in healthy behaviours was limited as they were often at the mercy of prison management in terms of accessing spaces to exercise, engaging in health-related programmes, being able to socialise and eating healthy food. This is echoed by Andrews and Andrews (2003), who found that such perceptions towards the availability of opportunities and barriers to making healthy choices had a profound impact on prisoners' subsequent engagement, and that many inequalities existed between prisons and category of prisoners in terms of promoting prisoners' autonomy to be healthy. Whilst Hughes (2000) concurs that there is a dearth of autonomy for prisoners to meet their health care needs.

### **10.6.2. Social adaptation**

Secondly, social adaptation is somewhat reflective of the masculine ideals, with an adaptive masculinity reflecting successful social adaptation by 'playing the game', socialising effectively with prisoners and staff to ensure they kept stressful situations to a minimum, and

valuing social interactions as a means of distraction and enjoyment. These behaviours are reflective of an internal locus of control, with prisoners recognising that they can gain some control over their experiences in prison and avoid confrontation by negotiating situations effectively. Those who engaged with an adaptive exercise culture adapted socially through engagement in group exercise, using one another as a means of motivation and enjoyment. This notion of engaging effectively with prisoners and staff to ease the tension of prison is reflective of the findings by Johnsen (2001) and di Viggiani (2018), with the ability to adapt socially being reflective of Riciardelli et al.'s (2015) idea of the hegemonic masculinity in the prison. Whilst those who adopted a maladaptive masculinity appeared to reject the notion of using others for support, both in general and in relation to exercise behaviours, instead engaging in a constant battle for recognition. This maladaptive masculinity is reflective of an external locus of control, with prisoners engaging in behaviours for ego-involvement and social recognition. Prisoners who had previously seen themselves as aspiring to this maladaptive masculinity reported being unfavourable to the prison staff, which contrasts with this idea of playing the game, and resulted in increased instances of confrontation. This shift in behaviours from maladaptive to adaptive was specifically related to the choice of peer group, previously associating with those who wanted to impress, and moving to associate with prisoners who were more 'socially acceptable'.

Harvey found that those who maintained contact with a strong support network outside of prison tended to interact more with both staff and prisoners inside prison (Harvey, 2007), which may account for some of the between-prisoner differences in social adaptation seen in the present study. One of the key differentiating factors with regards to masculine ideals that was noted by prisoners in the present study was age, with many referring to those who displayed maladaptive masculinities as the 'younger prisoners'. Maruna and Toch (2005) identify age as a factor which influences prisoners' experiences of imprisonment, and

Gottfredson and Hirschi (1990) argue that age is a key component in the desistance process. However, there were some young participants on the workshops (under the age of twenty) who engaged positively and reflected a more adaptive masculinity, thus, it could be argued that it was maturity that set prisoners apart in this respect, rather than age. Furthermore, maturation effects are well-established in terms of offending behaviour in the community (Gottfredson & Hirschi, 1990), and prison rule violation (Toch & Adams, 2002). These younger prisoners were also associated with a gang culture, and although research into prison gangs in the UK is limited (Wood, 2006), there is research that indicates younger prisoners are involved in more overt gang-related behaviours than older prisoners (Wood & Adler, 2001). Although younger prisoners may not necessarily be involved in more gang-related behaviours, their behaviours suggest that they want their involvement to be noticed, which reflects the maladaptive masculinity of trying to prove themselves. Gang affiliation has been shown to enforce behaviours characterised by a toxic hegemonic masculinity, such as toughness and success when competing against others (Luyt & Foster, 2001), whilst inside prison specifically, gang members have been found to display aggressive behaviours of verbal domination, intimidation and possession of contraband (Wood, 2006). Thus, engagement in gang-related behaviours in prison is not conducive to engagement in healthy behaviours for two key reasons. Firstly, gang-members are unlikely to be seen favourably by staff and thus are unlikely to be on the enhanced level of the incentives scheme, reducing their ability to apply for positive activities, socialise with others, and purchase healthy items on the canteen sheet. Secondly, their failure for effective social adaptation means they may not find support through others inside prison, which will have a detrimental effect on their well-being both as a lack of basic need satisfaction and prevention of psychological adaptation.

One of the interesting findings from the quantitative investigation in Study I was that prisoners did not appear to identify with social reasons for exercise. However, the present study found that most prisoners placed great value on the social aspects of the workshop, and the camaraderie experienced through exercise both in the workshops and in other exercise spaces in the prison was cherished as a means of support and coping. This apparent difference in social values could be attributed to the impact of the workshops increasing participants' sense of relatedness, or it could be a result of the method of data gathering. Perhaps response bias influenced prisoners' responses to the items on the motivation measures, or perhaps the items were not worded appropriately for the prison context.

Interviewees in the present study also found that social interactions were a key source of revitalisation, which is supported by the significant relationship between social and vitality variables in Study I. Prisoners noted that prison is a very lonely place, and found that having conversations with others who they had a positive relationship with gave them 'good energy' and kept them 'upbeat'. This experience of prison as lonely may be magnified in the context of modern society where communication plays such an important role in everyday lives. Through social media and mobile phones, the majority of the general population is able to get in touch with almost anyone at any time, whilst the nature of prison means that prisoners are often unable to have conversations with anyone, except perhaps their cell mate, who is a relative stranger. Therefore, being let out of their cell and being able to have a conversation with someone they get along with provides prisoners with a great deal of revitalisation, which is essential for positive behaviour change. Nonetheless, Zamble and Porporino's (1988) longitudinal study found that only 21 per cent of prisoners sought social support as a coping strategy inside prison, compared with 32 per cent when outside of prison, which suggests that prisoners are less likely to use others for support. This ability to employ effective coping strategies was definitive in prisoners' ability to adapt psychologically over time, further

highlighting the importance of introducing prisoners to means of engagement in positive social interactions. According to SDT, exercising to spend time with others may not be an effective motivator for long-term behavioural change, because it is seen as a somewhat external motivator. However, if spending time with others provides a much-needed source of vitality and well-being, then arguably this becomes a more salient motivator in the context of prison. Revitalisation is the product of autonomous behaviours, and in the context of prison where behaviours are so restricted, it seems that prisoners may be seeking alternative ways to feel 'energised'. Thus, promoting group exercise or any form of group interaction may form an important part of engaging prisoners in behaviour change.

The type of masculine ideal that prisoners aspired to was influenced by socio-environmental factors inside and outside prison, which Harvey would refer to as internal or external resources. A key influence was the identification of close friends and family as a motive for being healthy, or a cause of distress and subsequent engagement in maladaptive behaviours. These contradictory responses could be seen as reflective of social adaptation; using family and friends as a motive to be healthier employs effective behavioural coping strategies, whereas responding negatively to an illness in the family demonstrates an inability to regulate emotions effectively enough to cope with such events, thus greater social adaptation is required. This idea of being motivated by close friends and family to be healthy is in line with the idea of finding a "calling" which gives meaning and purpose outside crime, termed by Sennett (2003) as "craft love". This finding supports the suggestion in Study I to include items in the MPEMM that consider the influence of close friends and family on prisoners' exercise behaviours. It is likely that this desire to witness young family members growing up, or to spend time with loved ones, is driven by the intrinsic motivation of enjoyment and satisfaction that is associated with these experiences.

### **10.6.3. Psychological adaptation**

Finally, Harvey's concept of psychological adaptation reflects prisoners' personal well-being in the present study, which mitigates the ability to manage the tension of prison. In this respect, prisoners who do not adapt psychologically demonstrate poor emotional responses to the mental and emotional strain of prison. This ever-present tension that was described by prisoners in the present study is reflective of sociological and criminological research into the lived experiences of prison, particularly Skyes' 'pains of imprisonment' (1958), and the observations of Liebling (1999; 2002). This tension is felt through loneliness, fear, uncertainty, a lack of respect and autonomy, and being constantly mindful of their forced separation from the outside world. These experiences underpinned their health-related behaviours and seemed to be exacerbated by the restrictions of the regime, which they attributed to prison management, contributing to an increasing tension between prisoners and staff.

Prisoner interviews were a broad exploration of their experiences with health and exercise in prison through their own language, which was relatively free from the imposed language of quantitative measures. This approach was important in understanding how prisoners referred to their own experiences, particularly for informing the development of the MPPEMM, but also for informing health and well-being research more generally. The so-called 'space of translation' (Hanks, 2014) which facilitated the interpretation of prisoners' responses included recognition of the repeated use of the term 'energy', and how this seemed to feature heavily in prisoners' accounts of their daily lives. Nix, Ryan, Manly & Deci (1999) highlight the importance of using the concept of 'personal energy' as an accessible indicator of wellness in research, and in the present study, the terms 'energy' and 'energy levels' appeared to resonate with prisoners as a means of referring to their psychological well-being levels. In this way, prisoners were very much aware of their well-being through their

capability to manage with prison life, not just in a general sense, but from one context to the next. This form of energy is described by Nix et al. as ‘calm energy’; “the positive feeling of having energy available to the self” (p. 266, Nix et al., 1999), which is a product of autonomous behaviours.

Prisoners’ accounts portray the tension that exists throughout the prison, and as highlighted by Thayer (1987), tension diminishes calm energy. Furthermore, variables which research has shown to contribute to enhanced energy levels are noted by prisoners by their absence, such as autonomy (Kasser & Ryan, 2006), feelings of competence (Sheldon, Ryan & Reis, 1996), and restricted communication with loved ones outside of prison, which led to a lack of love and intimacy (Reis et al., 2000). Additionally, prisoners found that incarceration led to increased smoking behaviours and a carbohydrate-rich diet, which in turn seemed to diminish their energy levels further. Thus, the very experience of prison is a continual strain on well-being and feelings of vitality, and when prisoners were asked how they might manage their own energy levels there were few examples of effective coping strategies. However, prisoners did have an unconscious awareness that satisfying the basic needs would enhance energy, as expressed through positive communication with others, control over health, and engagement in positive challenges. This is line with research by Ryan & Frederick (1997) that if the basic psychological needs are supported, then vitality will be maintained or enhanced. This relationship underpins the findings of the present study that engagement in an adaptive exercise culture which fosters support for the three BPNs enhances ‘calm energy’, or well-being, and can empower prisoners to manage the mental and emotional strain of prison. Examples of this are found in the sport psychology literature by Hassmen et al. (2000) and Salmon (2001), who found that regular participation in sport can give individuals the ability to manage emotions by forgetting or suppressing them, which can help diminish anxiety and even depression. Further evidence of this desire for positive

challenges arose through the development of the MPEMM in Study I. The scale combined items measuring competition and challenge into a single construct, without any reference to winning, and it is possible that prisoners' desire to engage in positive challenges was underpinning this construct. So, regardless of whether it is a challenge against personal standards or a competition against others, it appears to be the positive nature of the behaviour which motivates prisoners, rather than any recognition.

According to SDT, prisoners who experience satisfaction of the basic needs will also experience behaviours as more autonomous and self-determined, through an internal perceived locus of causality. This internal locus of causality characterises the behaviours of an adaptive masculinity, with prisoners gaining control over their situation wherever possible and making it more manageable. Thus, engagement in an adaptive exercise culture may prompt prisoners to experience other behaviours in prison through an internal perceived locus of causality. This suggestion is supported by the work of Woodall, Dixey and South (2014) who note that prisoners could exert personal choice through self-determination in spite of the obvious structural barriers to autonomy in prisons. For example, prisoners may feel capable to further manage their situation by regaining control over other health behaviours such as smoking, or their diet, which in turn is likely to increase vitality and well-being even further. However, this process suggests that a prisoners' causality orientations have been shifted towards a propensity to experience behaviours as more autonomous, which may be a difficult task in the context of prison with a plethora of negative influences such as tension and structural barriers which serve to thwart prisoners' psychological need satisfaction. The continued existence of these negative variables are likely to have a negative impact on prisoners' global contextual supports, and in turn, possibly causing prisoners to lean towards a propensity to experience behaviours as controlled. This has huge implications for any intervention which tries to create a supportive environment and improve well-being by

promoting the psychological needs, as it suggests that the moment a prisoner is removed from that context and into a new situation, they will fall back into their integrative tendency of controlled regulation. Research does not suggest how long it may take for an individual's causal orientation to be affected by global contextual supports, and it is likely this will depend on their baseline level of self-actualisation, characterised by Harvey as imported psychological and social resources. But overtime, it is possible that even the most self-determined behaviours will eventually be experienced as controlled, resulting in a lack of engagement. This further highlights the importance of a whole prison approach to supporting prisoners' psychological needs wherever possible, across contexts and situations.

#### **10.6.4. Interactions between adaptation types**

Harvey found that the three types of adaptation interacted with one another, and these interactions exhibit many similarities to the interactions between the key themes of the present research. The first interaction identified by Harvey was that social adaptation affected psychological and practical adaptation; through laughter and conversation with others, prisoners were distracted from negative thoughts, and interacting with prison staff taught prisoners who to turn to for support. These processes are reflected in the present research by the interaction between masculine ideals and prisoners' ability to manage tension and their perceptions of structural barriers to being healthy. Adaptive masculinities (successful social adaptation) are characterised by a tendency to turn to others as a source of support and a means of vitality, which in turn mitigates tension (reflective of successful psychological adaptation). Furthermore, adaptive masculinities are reflective of a willingness to "play the game", by maintaining good relationships with prison officers and other prisoners, which in turn increases access to opportunities for being healthy, thus mitigating structural barriers. A good example of this is prisoners who developed relationships with the gym orderlies to secure access to the gym on a regular basis.

Finally, Harvey noted that practical adaptation, such as knowing how to apply for education, led to quicker involvement in social aspects of the regime and engagement in purposeful activity which served as a distraction to aid psychological adaptation. In terms of the present research, structural factors have been framed by prisoners as barriers, without consideration of how these structures had been used positively to support adaptation. However, there is evidence within the data that participants of the workshops had been able to adapt practically, such as understanding how to eat healthily through the canteen, and importantly, being accepted to engage in the workshops. Being accepted onto the workshops required an understanding of how to obtain an application form, what to write for a successful application, and which prison officer to speak with to be considered favourably. Thus, practical adaptation allowed prisoners to experience the social and psychological benefits of the workshops, leading to greater adaptation.

Finally, Harvey noted that a certain level of psychological adaptation was needed before prisoners could suitably adapt practically and socially. In Harvey's research those who were unable to adapt psychologically and experienced an external locus of control suffered from acute levels of psychological distress, and without being able to regulate their emotions and deal with stressful situations these prisoners could not proceed with adaptation. With respect to the present research findings this may clarify why masculine ideals appear to be created in response to tension within the prison, as a failure to adapt psychologically to this tension could be preventing social adaptation, leading to aspirations towards the more dominant maladaptive forms of masculinity, whilst successful psychological adaptation may be facilitating social adaptation, leading to an affinity with adaptive masculinities. This is a noteworthy finding, as it suggests that it is prisoners' ability to adapt psychologically which underpins the relationship between the key themes in the present research, and as the findings suggest, it is satisfaction of the basic needs which is required for this psychologically

adaptation to take place. Thus, Harvey's framework of adaptation supports the present research's theoretical framework that an environment which is supportive of the basic needs is the starting point to promoting prisoners' well-being and enabling them to manage the structural barriers and psychological strains of prison.

#### **10.6.5. Stages of acceptance**

Harvey outlines three stages that prisoners move through during their adaptation to prison, from liminal, to acceptance, and then equilibrium. The so-called 'liminal zone' was experienced through feelings of uncertainty, loss of control and freedom and preoccupations with loss. Adaptation can only begin once a prisoner is in the acceptance stage, which is characterised by feeling more settled and attached to the prison as an institution. In this stage, prisoners recognised the benefits of a routine and engaging in purposeful activity, and they were more socially active, which enhanced feelings of safety. The final stage, equilibrium, was only reached by five prisoners in the month that Harvey was engaged with them. Prisoners in this stage were active participants of the prison who experienced positive emotions and higher self-efficacy, they had a continued acceptance of reality and used their experience to improve their own conditions. This idea of equilibrium is in stark contrast to Sykes' (1958) idea that prisoners are worn down over time by so-called 'prisonisation', which disempowers prisoners. In fact, Harvey suggests that prisoners in this stage were less affected by external negative events, and could use the most appropriate coping strategies to deal with difficulties. There is evidence throughout the accounts of prisoners in the present research that they had reached this stage of equilibrium, with many showing signs that they had learnt to be balanced in their expectations, by applying for education and activities where possible, but avoiding extreme disappointment by not being too optimistic and recognising that the prison often failed to deliver. They also experienced many positive emotions during the workshops and further engagement with exercise, with marked increases in perceived

competence. Accounts of prisoners performing group workouts outside of the workshops also shows active participation and application of their knowledge from the workshops to help improve their situation. This picture of prisoners playing an active role and forming an interdependent relationship with the institution of prison, rather than being entirely passive to the experience, is reflective of Jewkes' (2002) work. Through their engagement with exercise as a means of supporting their social adaptation, participants of the CW Workshops had found ways to internalise the social structure of prison as an institution, and their behaviours had in turn shaped the social structure itself.

Although, as Harvey posits, prisoners in the final stage of equilibrium have a greater ability to sustain their practical, social and psychological adaptation, he also notes that adaptation is a dynamic process and prisoners can move backwards (p. 72, Harvey, 2007). Therefore, even though many of the prisoners in the present research showed signs of successful adaptation and equilibrium, the impact of events which challenge their adaptation should be considered. For example, the prisoners who were exercising in the annexe were likely to have felt practically and socially adapted because they had engaged with the right officers and prisoners to get themselves into that space, and they were able to engage in regular group exercise as a means of making their situation more manageable. However, when this was taken off them without warning and they were moved to different wings it is probable that some of their coping strategies were not sufficient to manage the change in situation, and it may have thrown some prisoners backwards in terms of adaptation.

### **10.7. Study II Conclusion**

As Harvey would argue, prisoners need to adapt psychologically before they can adapt to the structural barriers (practical adaptation) and socialise effectively (social adaptation). This reflects the principle of SDT that a prisoners' psychological needs must be satisfied before they are sufficiently internally motivated to overcome structural barriers to

engaging in healthy behaviours. However, just as Harvey suggests that prisoners' ability to draw on resources inside and outside of prison affects their ability to adapt psychologically, having increased levels of motivation relies on satisfaction of the BPNs, which in turn relies on prisoners being engaged in regular exercise in the first place, either inside or outside prison. The present study supports this notion of imported resource by highlighting that those who exercised in their cell or chose to stick to a rigidly healthy diet were already engaged in such behaviours before prison. These individuals' behaviours were reflective of an integrated form of regulation when it came to exercise and being healthy in general. They saw themselves as healthy individuals before prison, and continued to engage in these behaviours in any way possible whilst in prison. It is probable they had encountered barriers to being healthy outside of prison and had managed to overcome these, therefore, they imported strategies of behavioural regulation which meant they were well equipped to do the same in prison, despite the potential barriers. Those who were not exercising regularly before prison found it increasingly difficult to overcome the structural barriers to exercise, such as a lack of access to the gym. If a prisoner is not already internally regulated to exercise, then supporting the basic needs for exercise must entail regular engagement in appropriate forms of exercise inside prison, otherwise it is likely that it will be difficult for prisoners to identify with exercise as a means for managing the mental and emotional strain of prison, preventing psychological adaptation. Once these needs for exercise are satisfied prisoners can then effectively adapt practically, and find ways to overcome the structural barriers to exercise engagement, such as understanding where and how they can exercise if they cannot get to the gym, as well as socially, to engage with others through exercise as a means of psychological support as well as a source of motivation and information to help achieve desired goals. If the basic needs for exercise are not satisfied through an autonomy supportive environment then prisoners may also fail to adapt socially through exercise, instead aspiring to the hegemonic

masculinity which is so often present in the prison gym, reflecting stoicism and a competitive environment which exacerbates the mental and emotional strain of prison, in turn, having a negative impact on the overarching prison culture.

Although the present study is context-specific to exercise, and Harvey's research explored adaptation to prison life in general, there are parallels between the two. It appears that prisoners who adopt an adaptive form of masculinity and reflect the values of an adaptive exercise culture have successfully adapted practically, socially and psychologically. While it is important to recognise that it may not be necessary for prisoners to engage in exercise specifically to adapt to prison life, an adaptive exercise culture can be a supportive route through which adaptation can take place. A prisoner who has adapted well to prison life and reflects an adaptive masculinity in terms of a willingness to use their time positively may not necessarily engage with an adaptive exercise culture, particularly if one does not exist in the prison, or they have not been exposed to it. The accepted norm in the prison gym is to use weights and 'get big', perhaps there are individuals who subscribe to this norm but can satisfy their psychological needs in other areas, and do not feel controlled by the gym environment, and future research could explore this possibility. Furthermore, there will be prisoners who are physically inactive and do not wish to exercise but do not feel subordinated by those who do, in the same way that some school boys experience 'personal masculinities' (Swain, 2002). This subgroup is unlikely to have taken part in the CW Workshops and would therefore not have been included in this research, however, they are important to consider given the clear health benefits of exercise and the distinct lack of lifestyle exercise in prison. It could be reasoned that all prisoners who do not engage in formal exercise are physically inactive, therefore, it is important to consider ways of promoting exercise engagement in spaces outside of the hegemonic masculine environment of the gym to engage this subgroup.

Harvey (2007) stresses that no two prison environments are the same, and that different prisoners will experience the same environment in different ways, recognising that the outcomes of his research are bound by the institution in which it was conducted. The same caveat must be applied to the present research which was based in one prison, over six months, with one group of prisoners. However, there are also similarities between prisons and between prisoners, and it is important to build on the observations of other researchers to depict where these similarities lie and where there are differences, helping to identify and understand the processes at play and inform effective approaches to support and promote prisoners' wellbeing. Liebling notes the differences between prisons in her critical case study exploring the moral dimensions of the quality of prisons, describing how differences in the use of authority affects perceptions of fairness and safety (Liebling, 2004). Liebling's work suggests that it is possible for prisons to operate in a manner which creates a more autonomy supportive environment whilst maintaining standards of security, thus, research must do more to inform practice and promote prisoners well-being by facilitating psychological adaptation through support of the basic needs.

From a critical realist perspective, masculine ideals act as a prism through which prisoners view their reality. So, an adaptive masculine ideal shapes the reality of prison as a means to be autonomous in managing one's health, providing an abundance of time and distraction from other barriers to being healthy that exist outside of prison. A maladaptive masculine ideal shapes prison as a controlling environment full of negative challenges, forcing prisoners to engage in competitive behaviours. Understanding what influences these ideals can help to inform efforts to challenge them, and change the reality of prison that prisoners are experiencing. Through Harvey's depiction of prisoners' adaptation process, aspiring to adaptive masculine ideals and an adaptive exercise culture is a form of social adaptation. Thus, before a prisoner can adopt an adaptive form of masculinity, they must first

adapt psychologically. Therefore, challenging a prisoners' view of reality in relation to exercise must begin by creating an autonomy supportive environment which supports the basic psychological needs for exercise. The third and final study will seek to understand what constitutes an autonomy supportive environment in the context of exercise, to inform efforts to promote prisoners' engagement with exercise as a means of promoting their psychological well-being.

## 11. Chapter 4 - Study III

### 11.1. Sports-based interventions

Ultimately, the purpose of psychological and social research into sport and exercise is to maximise the positive impact of physical activity engagement, which includes informing sports-based interventions (SBIs) to ensure they are as effective as possible at increasing participation, promoting adherence and maximising well-being. In the context of prison, a typical SBI would involve the use of participation in sport as the key focus, with additional aims related to outcomes such as personal development or employability (Woods, Hassan & Breslin, 2017b). These SBIs, whether aimed at a sedentary individual or someone who is motivated in maladaptive ways, should look to address the cognitive, behavioural and environmental factors involved in ambivalence and reluctance to change (Rollnick, Miller, & Butler, 2008).

#### 11.1.1. The Community Guide

The domains specified in The Guide to Community Preventive Services (The Community Guide; Task Force on Community Preventive Services, 2002) are used by Kahn et al. (2002) and Heath et al. (2012) as a reliable means of classification for sports-based interventions, the guide also shares many of its descriptors with other international physical activity recommendation documents making it ideal for use in international reviews. These domains include: campaigns and informational approaches; behavioural and social approaches; and environmental and policy approaches.

*Campaigns and informational approaches.* As both Kahn et al. (2002) and Heath et al. (2012) acknowledge, it is particularly difficult to obtain accurate data regarding physical activity behaviour change in many of these approaches as the target populations are vast and there are many confounding variables, thus evaluation is problematic. Nonetheless, Kahn et

al. found that the informational approaches of point-of-decision prompts - strategically placed signs designed to encourage individuals to choose healthy alternatives - can increase exercise participation and energy expenditure. Whilst Dishman and Buckworth (1997) advocate the use of such informational approaches through the modification of individuals' knowledge, attitudes, values and beliefs towards physical activity in population-based educational campaigns, thus influencing intentions to exercise with a view to dramatically increasing participation.

The evaluation of such informational approaches in the prison setting are far easier to evaluate and have yielded some positive results. Muro et al. (2015) interviewed prisoners and prison staff who were involved in a prison intervention to promote health amongst prisoners with a history of drug abuse. The program adopted a community education model which encouraged a joint health awareness approach between prisoners, staff and secondary school students in the community, which created an effective source of social support that encouraged healthy behaviours.

Another informational approach which may lend itself well to the prison environment is the delivery of short physical activity messages at key community sites. Unlike mass media campaigns the messages are site-specific and often delivered by a health educator or communicator. Although primarily used in Latin America at present (Hoehner et al., 2008), Heath et al. (2012) advocate their use, and further research would do well to consider such an approach in communities within the UK.

***Behavioural and social approaches.*** Behavioural and social approaches to increasing physical activity focus on the teaching of widely applicable behavioural management skills, such as those outlined in the TTM, alongside a review and possible restructure of the social environment to provide increased support, this may include changes to the home, family,

school or work environments. Kahn et al.'s (2002) review of such approaches found a 50% increase in time spent doing moderate to vigorous exercise in schools as a result of changing the curriculum, however, as motivational approaches tell us, increasing physical activity on the curriculum may not increase leisure time physical activity (Sallis et al., 1992), which interventions must be able to do if they are to ensure long-term adherence.

Physical activity classes in community settings are an increasingly popular social approach in Brazil and Columbia suited to underserved populations who are likely to suffer from health inequalities and low SES (Martins & Duarte, 2000; Alves et al., 2017). Such interventions are typically offered to specific groups within a community by trained instructors who make use of the environmental resources within communities which support increased physical activity, and emerging evidence is supporting its use for increasing exercise adherence and providing social support through community-based free classes such as aerobics, yoga, stretching and dancing across low to high income communities. Alongside the classes, attendees are offered educational and other promotional material which provides an added connection with each of the intervention communities which are created. The populations which these approaches aim to serve mirror the socio-economic backgrounds of the majority of prisoners, and this idea of creating an intervention community may provide the ideal option for continued physical activity participation and social support after release. However, the nature of the session may need to be more closely aligned with male physical activity regimes such as weights or circuit training, and the obvious downfall of such an approach is the difficulty in the provision of free classes for prisoners post-release, alongside ensuring continuation of the intervention community which they have identified with.

Fitness assessments are a good example of a popular and widespread sports-based intervention amongst the general population (Sports Council and Health Education Authority, 1992). The assessment involves measurements of height, weight, blood pressure, strength,

flexibility, lung capacity and cardio-respiratory fitness, which inform a fitness profile based on norms for gender and age. This profile then determines an individual exercise program which is aimed at increasing fitness levels. An alternative intervention to the fitness assessment is an exercise consultation, which reflects a behavioural and social approach. Rather than considering fitness, this one-to-one-person-centred approach mirrors the aspects of the TTM by addressing social support, stimulus control and decisional balance, alongside plans for relapse prevention as set out in Marlatt & Gordon's model (RPM; 1985) and exploring exercise history and future goal setting (Loughlan & Mutrie, 1995). Exercise consultations have been shown to significantly increase physical activity in the long-term, which fitness assessments could not do (Lowther, Mutrie and Scott, 2002). Furthermore, exercise consultations are actually cheaper than fitness assessments, can be conducted almost anywhere, and can be conducted on all populations, even those with medical conditions who may be ruled out from completing a fitness assessment.

*Environmental or policy approaches.* Environmental or policy approaches to increasing physical activity focus on environmental opportunities, support and cues to facilitate the development of healthy behaviours. Attention is paid to policy development which will help support and strengthen community action to create healthful physical and organisational environments. An intervention such as this is directed at physical and organisational structures over a long period of time to affect entire populations, physical activity is increased through changing social networks, organisational norms and policies, the physical environment, resources and facilities and laws. An example of such an approach are interventions to enhance access to places for physical activity combined with informational outreach activities. Although some positive outcomes have been reported from such approaches, a more diverse range is needed before their efficacy can be established (Kahn et al., 2002). For such approaches to be effective Heath et al. (2012) highlight the need for

public health agencies to work in partnership with community organisations, including healthcare organisations, to plan, promote and coordinate efforts to increase physical activity, in turn reducing health inequalities.

It is arguable that environmental or policy approaches will be most effective of all those outlined in The Community Guide at promoting physical activity behavioural change in prisons. Ultimately, the entire prison population is being targeted, and for this to be effective the physical and organisational structure of the prison needs to be addressed, such as the attitudes and knowledge of prison staff, provision of appropriate facilities, policies around access for different groups and the fostering of appropriate social networks. Santora, Arild Espnes & Lillefjell's (2014) review of Norwegian health promotion policies in prison settings suggest that policy makers have much to gain from acknowledging the contributions of prison research and health promotion. This research also recognises the importance of organisational factors and community involvement in prisoner rehabilitation, re-entry and reintegration, which echoes Muro et al.'s (2015) recent findings around health promotion in prison. Further studies identify the need to raise prisoners' awareness and equip them with the skills and competencies for everyday life to ensure they are able to play a proper role in the wider community (Butzin, Martin & Inciardi, 2005; Inciardi, Martin & Butzin, 2004).

#### **11.1.2. Alliance of Sport for the Desistance from Crime (ASDC)**

Academic studies into the impact of physical activity on prisoners' wellbeing are sparse but they are growing, and to support this growth there are pockets of good practice and experience across various practitioners and organisations which should be drawn upon. The Alliance of Sport for the Desistance of Crime (ASDC) have conducted a brief overview of academic literature as well as discussions and consultations with 69 organisations across England and Wales delivering sports interventions and 202 service users across the criminal

justice system and in the community to develop the ‘theory of change’; a sector-wide framework to support the development of effective programmes using sports and physical activity to promote desistance from crime (Parker, Morgan, Roberts, Cryer, Coleman & Meek, 2018). This framework outlines five measurable outcomes which PA programmes can measure to highlight why sport is important in the justice system, namely; a better use of time (thus promoting desistance from crime), pathways into education/employment, physical and mental wellbeing, individual development and social and community development. In addition to these outcomes the theory of change focuses on engagement and how sport and exercise can be particularly effective at engaging those at risk of committing crime, drawing on the stages of behaviour change within Prochaska’s Transtheoretical Model of Behaviour (Prochaska & DiClemente, 1983) to highlight the order through which such behavioural change occurs.

Through consultation with practitioners ASDC have outlined several factors which they suggest can maximise engagement, these include being adaptable to needs, encouraging ownership and promoting choice, and using relatable coaches; factors which reflect the three basic psychological needs of competence, autonomy and relatedness, respectively. It is encouraging to see that psychological literature and practitioners’ experiences are somewhat reflective of one another, and it is important for such a relatively new field that the two perspectives do not operate in isolation but are able to inform one another to create a better understanding of ‘what works’ in terms of sport and exercise in prisons.

## **11.2. Sport, exercise and healthy prisons**

The health promotion strategy within prisons in England and Wales “Health Promoting Prisons: A Shared Approach” (DoH, 2002) adopts a settings-approach, advocating that success in health promotion in prisons will lie in a number of factors including enablement and empowerment, physical and mental components, duty of care to the whole

community and a multidisciplinary and holistic approach; factors which, based on the evidence considered in this review, would appropriately support efforts at improving mental well-being through sport and exercise. This strategy however was subsequently converted into practical guidance (PSO 3200; Her Majesty's (HM) Prison Service, 2003), which has been criticised for its gradual shift towards an over-emphasis on individualistic and disease orientated interventions, limiting its benefit on wider health determinants, and the apparent gap between such settings-based health promotion policy and the reality of operational activity. According to Woodall (2016) the input from the WHO in terms of health promotion in prisons has lessened over time, with a gradually declining emphasis on empowerment and enablement since 1995, which has since diminished from their literature completely. There has been a recent shift from healthy prisons to the health of individual offenders, but wherever the focus lies, Woodall proposes that greater priority needs to be given to tackling this population's needs.

In contrast to this holistic view of a health promoting prison, Meek & Lewis' (2012b) review of HMIP reports revealed that only twenty-two per cent of young offender institutions were integrating healthy living initiatives into PE programmes, compared with over fifty per cent of the adult estate, and just sixteen per cent of all establishments were providing PE programmes specifically aimed at improving mental health. Meek (2014) suggests that the lack of PE related health programmes for young prisoners may be the result of a stronger emphasis on sports-related educational and vocational opportunities, to the detriment of health promotion. Given that YOIs have one of the highest monthly average prisoner participation levels for sport and physical activity across the prison estate (67%; Meek, 2014) and it is known that young prisoners are particularly resistant to healthy living (HM Prison Service, 2003), prisons appear to be neglecting a crucial opportunity to use sport and exercise as a means to engage young prisoners in healthy living practices.

Despite these varying levels of engagement and health-related physical activity initiatives, the motivations and benefits of sport in prisons are overwhelmingly positive. Parker, Meek & Lewis' (2014) exploration of young male offenders' motivations for engagement in sports-based academies based around football, boxing, rugby or cricket revealed a new-found ability in one particular individual to focus his thoughts and energies and start to think about life in a more positive way. Interestingly, he refers to the others on the programme as only wanting to do weights "and just get big" (p. 386, Parker et al., 2014). This disparity between motivations to participate in sport and exercise is of particular interest in the domain of self-determination, and an exploration into the resulting mental well-being outcomes related to such different intentions may inform why some individuals will benefit much more from these initiatives than others. Additionally, prison was viewed by some as a means for overcoming motivational barriers to exercise which substance misuse can impose on the outside. Perhaps this new-found engagement is the perfect opportunity to realign prisoners' values to ensure that their intentions to exercise and engage in other healthy behaviours are as internalised as possible, increasing the likelihood for continued engagement following release. In terms of the programmes' positive outcomes, sport was a means for gaining a sense of achievement, and improving self-efficacy, which is particularly important for internalising intentions. Physical and social development was key to fostering this self-efficacy, resulting in benefits of self-perception and even improved family ties through increased confidence and communication.

More generally reported benefits of participation in sports initiatives for young offenders include providing something to focus on, alleviating boredom and frustration, an improved ability to deal with frustration and anger, and motivating individual good behaviour and discipline (Meek & Lewis, 2014). In line with research advocating community involvement (Santora, Espnes & Lillefjell, 2014 & Muro et al., 2015) a sporting initiative

including one-to-one settlement support received overwhelmingly positive feedback from participants and staff, highlighting the psychological focus of motivating and reassuring individuals with regards to their needs on release (Meek & Lewis, 2014).

Andrews and Andrews' (2003) evaluation of sport for use in rehabilitation in a secure unit in South England argues for an emphasis on choice, positive feedback, and the tailoring of programmes to suit individual need. This reflects the importance of autonomy which is needed for psychological well-being. Voluntary participation in sports has been outlined as a means for increasing empowerment and related autonomy around health-related behaviours (Meek & Lewis, 2012a). Andrews and Andrews (2003) found that reasons for prisoners' voluntary actions to engage in healthy behaviours such as exercising were based on perceptions of opportunities and barriers to making healthy choices, and many inequalities between prisons and categories of prisoners in terms of the level of available autonomy were found. Barriers to making healthy choices were related to a lack of autonomy experienced by prisoners, sometimes related to the inevitable such as separation from family and friends, but often exacerbated by the ways in which the prisons function. There were very few prisoners who had developed healthy behaviours which they intended to maintain post-release. The study concludes that to sufficiently address health inequalities, further consideration needs to be given to actions which increase prisoners' autonomy in relation to health behaviours on a consistent basis. This idea that prisoners do not have sufficient autonomy to meet their health needs is echoed by Hughes' (2000) exploration of prisoners' health care needs.

The literature on SBIs in prison is growing, but Woods et al. (2017b) point out that there is a distinct lack of studies which focus on the perspectives of stakeholders who are responsible for their design and delivery, suggesting that this gap may have implications for the effectiveness of such programmes to enhance well-being. Woods et al. argue that "Given the centrality of these stakeholders to the realisation of potential positive SBI impacts, a

detailed exploration of their views is deemed worthy of investigation” (p. 153, Woods et al., 2017b). It is also important to note the various practitioners who may benefit from an understanding of how sport can promote prisoners’ well-being, seeking to ensure that research findings are disseminated in an accessible format through multiple channels, rather than being confined to academic circles.

### **11.2.1. Smoking in prisons**

As a consequence of the Health Act 2006, smoking was banned in enclosed public spaces across England from 1<sup>st</sup> July 2007. From 2016, this ban was introduced as part of a phased approach to prisons across England and Wales. Currently, smoking in most adult prisons is permitted only inside cells or, perhaps counterintuitively, exercise yards (HM Prison Service, 2007). High numbers of prisoners smoking within cells exposes staff and non-smoking prisoners to second hand smoke, the effect of which is worsened by the poor and dated ventilation systems which are often found in prisons (Jayes et al., 2015), presenting a strong case for the ban. Although many prisons have already enforced the smoking ban, it is widely known that prisoners in such prisons can and do smuggle tobacco as contraband (Condon, Hek & Harris, 2011). Thus, efforts to promote smoking cessation are still required.

The prevalence of smoking in prisons is much higher than in the community, figures from the last national survey across England and Wales in 1997 found 78% of male sentenced prisoners were smokers, compared with 28% in the general population (Singleton, Farrell & Meltzer, 1999). Whilst more recent surveys and studies indicate smoking prevalence at approximately 80% (Public Health England, 2014; Clarke et al., 2015). It should be noted that tobacco is also used as currency within prisons, therefore the purchasing or requesting of tobacco does not always indicate a smoker and as a result these figures must be considered with caution. However, further support for a prevalence of smokers in prisons

is reflected by the observation that despite a national reduction in smoking prevalence (Belcher et al., 2006), the same fall has not been seen in prisons (Richmond et al., 2012). Furthermore, those in socially disadvantaged groups, as overrepresented in prisons, are less likely to remain successfully abstinent than more affluent groups (Taylor, Tompson, Greaves & Taylor et al., 2014), and in 2009 the Office of National Statistics recorded that 26% of adults in manual households smoked compared to 16% of those in non-manual households (Office of National Statistics, 2011). This disparity is widening the health inequality gap to such an extent that, according to Chandola, Head & Bartley (2004), smoking is now the biggest contributing factor towards health inequalities.

Prisoners have access to two forms of smoking cessation support in prison; behavioural and pharmacological. However, to date there is no conclusive evidence as to the effectiveness of these approaches (Public Health England, 2015), and stop smoking service data is variable as a successful attempt at quitting is defined as two-weeks abstinence (Health and Social Care Information Centre, 2016), which is not a sufficient time frame. Furthermore, prisons do advocate smoking reduction with the help of one or more of forms of medication for an unlimited period, despite claims from stop-smoking advisors that using nicotine replacement therapy whilst still smoking may have negative health consequences (Beard et al., 2012), a concern which is echoed by smokers in the community (Black et al., 2012). In terms of smoking cessation integrated with physical activity, Meek's (2014) report on findings from Her Majesty's Inspectorate of Prisons (HMIP) across 142 establishments between 2006 and 2012, revealed that less than 10% provide such support, two of these being open prisons. Furthermore, no physical activity related smoking cessation support is thought to be available for juveniles, high-security prisoners or those held in immigration removal centres (Meek, 2014). Overall, it is recognised that ongoing research is needed to identify

‘what works’ in terms of maximising smoking cessation success in the prison setting specifically (Public Health England, 2015).

It is important to consider that the smoking cessation support offered within prisons is currently adopted by those who wish to quit. And whilst perhaps not all prisoners will quit immediately, a forced smoking ban will eventually see many prisoners who do not wish to quit forced into abstinence, and such a group are likely to be characterised by different motivations and preferences towards cessation support. Cropsey & Kristeller's (2005) study explored the impact of a smoking ban in prisons in Indiana on prisoners' motivations to quit, and of the 314 self-identified smokers surveyed, 87.8% would not be using a nicotine patch to try and quit. It is fair to say that this number may be significantly reduced in England and Wales where patches are likely to be free of charge, as over half of those in Indiana stated that they could not afford to purchase them. Nonetheless, just 11.2% of smokers felt the patch would be mostly useful to them when trying to quit, and 33.8% felt it would not help at all. These perceptions suggest that alternative forms of support to aid in smoking cessation are necessary within prisons following a smoking ban to ensure prisoners feel adequately supported.

### **11.2.2. Smoking cessation and physical activity**

Smoking and physical activity are two incongruent behaviours. Therefore, encouraging smokers in prison to engage in physical activity to reduce their smoking behaviour and motivate them to quit altogether may seem counterintuitive. However, these behaviours are also very habitual, and ceasing one habitual behaviour by introducing a new habitual behaviour may be an effective way of distracting oneself away from old habits. In terms of promoting broader health gain, for many decades psychologists have acknowledged that self-control over health is positively related to activity levels (Gottlieb & Baker, 1986),

and according to Taylor & Thompson (2014), strength of self-efficacy and outcome-expectancy beliefs are strongly associated with whether or not physical activity is used as an aid to smoking cessation. Efforts to promote smoking cessation through exercise should also consider that low self-perception and a low sense of achievement have been linked with a greater tendency to smoke (Rodriguez et al., 2008), peer support is likely to play a vital role in providing positive models for behaviour (Gotlieb & Baker, 1986), and quitters are much more likely to use PA as a means to support their cessation if they believe in their own self-efficacy to participate in PA, and the efficacy of PA to support their quitting (Taylor, Everson-Hock & Ussher, 2010). A further positive effect of peer influence on smoking cessation is in the strong sense of identity which being a smoker can bring, and smokers will often congregate together to enjoy a cigarette. This is especially true in prisons where smokers are placed in cells together wherever possible. In an environment as isolating as prison these groups and identities can become particularly important, and when the freedom to smoke is taken away from prisoners their sense of identity as a smoker will go with it. Exercise participation can provide an alternative sense of identity (Taylor et al., 2014), thus, in the context of the smoking ban exercise engagement may form the basis for new peer groups where possible, providing a positive association with others outside of being a smoker.

As well as playing a role in the promotion of physical activity, the basic psychological needs as outlined in self-determination theory (SDT) have also been shown to increase smoking cessation rates. Specifically, Williams et al. (2002) found that self-reported levels of autonomous motivation, as directly supported by physicians, could predict cessation at 6, 12 and 30 months. Whilst Figueroa-Moseley et al.'s (2006) study found those with highest levels of empowerment as a result of participating in an SDT intervention were twice as likely to quit smoking at 1, 6 and 18 month follow-up. In the UK, the Exercise Assisted Reduction

then Stop (EARS) smoking intervention applies the principles of SDT, applying it as a framework to support clients in developing a sense of ownership and empowerment over their behavioural change. However, there is a dearth of studies which focus on the need of relatedness and the specific role this plays in smoking cessation, which is also an omission of SDT-based research in the field of exercise motivation, despite the recognition that offender motivation needs to be considered as a relational factor in the process of desistance.

### **11.3. Relatedness**

Rowe & Soppitt's (2014) evaluation of two programmes designed to address criminogenic needs revealed that prisoners' engagement in desistance programmes was highly influenced by their perceptions of the staff involved in the programme, suggesting that motivation to desist was higher when prisoners felt that the programme and staff were working outside of the boundaries of mainstream offender management. One such sports based intervention which is not devised or delivered by the criminal justice system is the Cell Workout (CW) Workshops, developed and delivered by ex-prisoner, LJ Flanders in Her Majesty's Prison (HMP) Wandsworth, a Category B male prison in London. The workshops are based on the book, *Cell Workout* (Flanders, 2016), which was written by LJ whilst he was in prison in response to a lack of access to the gym. The book provides an extensive guide to bodyweight fitness training that, theoretically, can be performed inside the confines of a cell. The exercises cater for a range of abilities and include a comprehensive guide from basic training principles through to mobilisation techniques, cardiovascular workouts and strength training, culminating with relaxation and meditation methods. Thus, the principles of the workshops are reflective of supporting the three psychological needs; LJ's position as an ex-prisoner places him in a unique position within the prison in terms of relational factors; the principles of the exercises aim to promote prisoners' autonomy by allowing them to exercise outside of the gym; and the nature of the exercises serve to promote competence by making

them accessible to a wide range of abilities and fitness levels and minimising competition between participants.

#### **11.4. Rationale**

The data gathered from studies I and II establish a theoretical framework of prisoners' motivation to engage in healthy behaviours. Study III seeks to apply this theory to a practical setting by measuring the psychological and physiological impact of the CW Workshops as a prison sports-based intervention (SBI) that addresses the key motivational factors identified by the present research, with a focus on relatedness. This study also explores the capacity of a SBI to promote engagement in further healthy behaviours beyond exercise, such as education, smoking cessation and healthy eating.

As Woods et al. (2017b) point out, it is important to understand the impact of prison SBIs from the perspective of the stakeholders involved in their design and delivery, therefore, the present evaluation includes careful consideration of the trainers' experiences throughout the process, from design through to post-delivery.

#### **11.5. Research questions**

1. What works in terms of increasing prisoners' individual motivation to engage in physical activity?
2. What works in terms of overcoming structural and cultural barriers to engaging in physical activity in prison?
3. Can engagement in physical activity impact on motivation to engage in further healthy behaviours such as education or smoking cessation?

## 11.6. Study III Methodology

### 11.6.1. Design

The present study applied a mixed-methods design to measure physical and psychological health outcomes, as well as behavioural change in relation to healthy behaviours for all participants who took part in the CW Workshops.

### 11.6.2. Materials

The following methods were adopted to measure prisoners' behavioural change;

- Surveys including quantitative and qualitative responses completed at three time points; two days before starting the workshop (Time 1; T1); on the final day of the workshop (Time 2; T2); and between 2-6 months following the workshop (Time 3; T3)
- A series of physiological measures completed on the first day of the workshop (T1) and the final day of the workshop (T2)
- Daily diaries kept by participants throughout their time on the workshop recording their activities, thoughts, mood, diet, energy levels and anything else of relevance
- Individual face to face interviews conducted with twenty-two participants across nine of the ten workshops

*Physiological measures.* At T1 and T2, the trainer's workshop, LJ, gathered the following physiological measures from each participant: weight; body fat; water levels; muscle mass; bone density; basic metabolic rate (BMR); active metabolic rate (AMR); blood pressure; heart rate; pulse rate; blood oxygen; and lung capacity.

*Psychological measures.* Surveys completed at T1, T2 and T3 included items measuring five domains of health across the health-related quality of life as measured by the RAND 36-

Item Health Survey (Ware and Sherbourne, 1992), namely, physical functioning, emotional well-being, social functioning, energy/fatigue, and general health perceptions, as well as the Basic Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006), for more information on these measures please see the Materials section of Study I. In addition to these measures the surveys began with a visual-analogue measure of readiness to exercise which was presented through the stage of change ladder as developed by Beiner & Abrams (1991). Although researchers advise against using the stages of change in isolation to the other four facets of the Transtheoretical Model of Behavioural Change (TTM; Prochaska & DiClemente, 1983), the ladder is being used to support outcomes from SDT, which includes consideration of behavioural processes and self-efficacy that are central to the TTM.

Surveys completed at T1 and T2 included measures of exercise motivation, for this study the newly developed Male Prisoners' Exercise Motivation Measure (MPEMM) will be used to measure changes in exercise motivation, for more information on the MPEMM please see Study I.

Finally, surveys completed at T2 and T3 included a measure of perceived autonomy support and items directly relating to the CW Workshop that had been devised specifically for this research. Perceived autonomy support was measured using the Sport Climate Questionnaire (Deci, 2001), including 15 questions with responses on a 7-point Likert Scale ranging from "Strongly disagree" to "Strongly agree". Questions focus on the participants' relationship with their trainer, for example "I feel understood by my coach". Questions related to the CW Workshop measured participants' experience of the workshops and engagement with further healthy behaviours since completion such as exercise, nutritional eating or applying for employment or educational courses, as well as any other long-term impacts of the workshop.

**Interviews.** A series of face to face interviews with participants from each cohort on the workshop were carried out at T3. Interviews ranged from 10 minutes to 45 minutes in length and used a semi-structured approach to explore the participants' previous experiences of exercise within prison, their experiences of the workshops, and their feedback on the suitability of the surveys. Please see [Appendix L](#) for the interview prompt sheet used by the interviewer.

**Daily diary.** Participants were also supplied with a personal target setting and progress diary enabling them to write a personal plan of what they hoped to achieve, including personal goals regarding fitness, educational targets, longer-term business ideas or plans for release. Participants were encouraged to maintain their diary to keep them on track with their goals and check their achievements and progress.

**Smoking behaviours.** Smoking behaviour measures were completed by smokers only ( $n = 62$ ), and focused on readiness to use physical activity (PA) to quit smoking, as well as the extent to which participants experience the reinforcing effects of smoking. The Readiness to use PA to Quit Smoking measure was developed by Taylor, Everson-Hock & Ussher (2010) based on the contemplation ladder of the commonly used Transtheoretical Model of Behavioural Change. The developers of the scale found that those in a more advanced stage of using readiness for using PA to quit smoking have greater belief in themselves and the ability of PA to help them quit. The effects of smoking were measured using the modified Cigarette Evaluation Questionnaire (mCEQ; Cappelleri, Bushmakin, Baker & Gilbert, 1997), which focuses on smoking satisfaction, psychological reward and aversion to smoking. Research has shown that these reinforcing effects of nicotine play a significant role in the desire to smoke (Benowitz, 1999; Brauer et al., 2001), and that diminishing these effects might increase the likelihood of a successful cessation attempt as well as reducing the chance

of relapse (Brauer et al., 2001; Rose, Behm, & Westman, 1998; Rose et al., 1994; Westman, Levin, & Rose, 1992).

The purpose of using these scales was to consider whether engaging in the CW Workshops had an impact on smokers' desire to smoke or readiness to use PA to quit and whether these correlate with any change in the smokers' physical or psychological status.

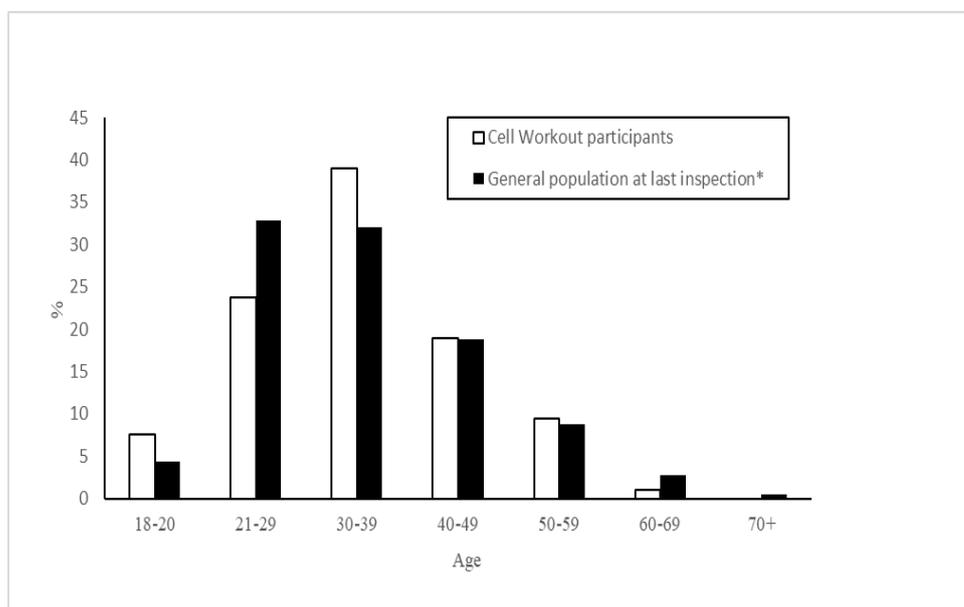
### **11.6.3. Participants**

HMP Wandsworth is a category B local male prison with a category C resettlement unit (Trinity), and currently the largest prison in the UK holding 1,630 prisoners at the time of the most recent inspection (HM Chief Inspector of Prisons, 2015), with an operational capacity of 1,628 (Ministry of Justice, 2018b). The latest inspection of HMP Wandsworth in March 2015 revealed that, on average, 31% of prisoners were locked in their cells during main work periods, with this dropping to 13% on Trinity unit (the resettlement unit). Those who are unemployed spent no more than an hour out of their cell each day, this was particularly true for prisoners on A Wing, with many being on remand and therefore not able to gain employment. Prisoners who were employed in the prison were normally unlocked for around six hours a day on weekdays. In general, "exercise periods were unpredictable in length and sometimes too short" (p. 49, Her Majesty's Chief Inspector of Prisons, 2015) and in some cases, daily exercise periods for the prisoners were as little as fifteen minutes. A survey of 194 prisoners found that 65% do not attend the gym at all, whilst 17% do not want to go, and only 3% of respondents attended the gym more than twice a week (HM Chief Inspector of Prisons, 2015).

In total 105 participants started the workshops, at the end of the fortnight (T2) there were 78 participants, and between 2-6 months following the workshops (T3) there were 36. The only demographic data collected directly from participants was their age, the remaining

demographic data was obtained by request to the prison and received at T3. It is worth noting that prisoners' level on the Incentives and Earned Privileges<sup>19</sup> (IEP) scheme and their ethnicity could only be obtained for the 44 participants who were still in the prison at T3. The IEP level was only known at T3 so no changes were recorded, however, it is also worth noting here that at T3 73% of participants were on the enhanced level of the IEP scheme and 11% were on basic, compared with 27% on the enhanced level and 4% on basic across the prison at last inspection (Her Majesty's Chief Inspector of Prisons, 2015).

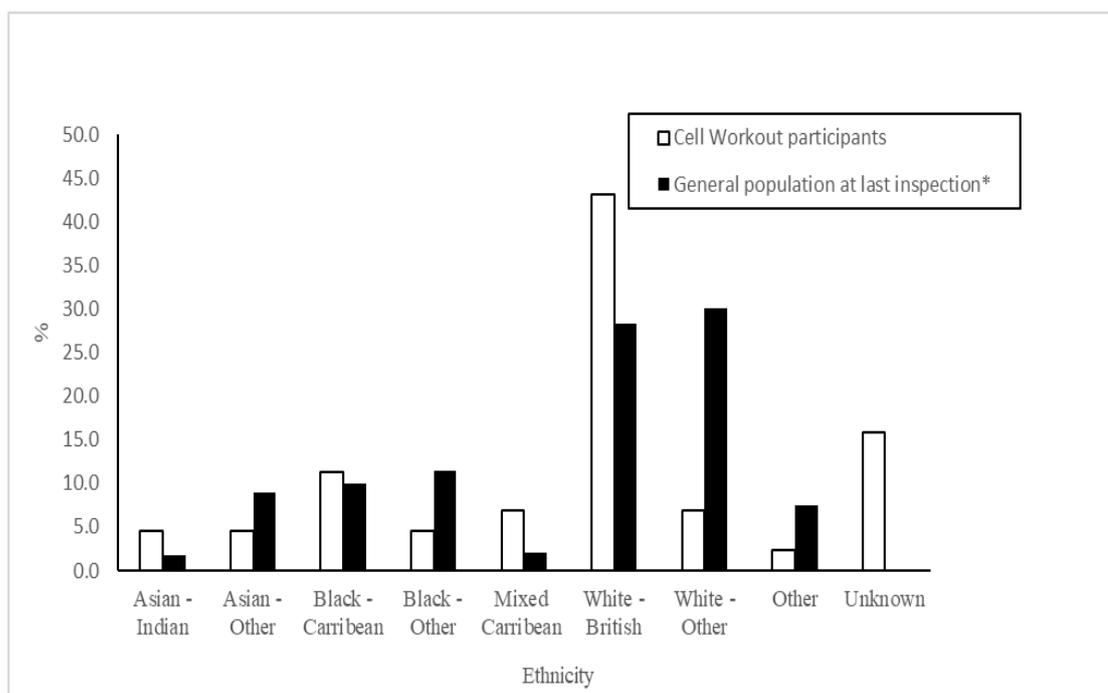
Participants had an age range of 18 – 62 years old ( $M = 34.86$ ). The spread of participants' ages is mainly reflective of the general population in HMP Wandsworth when compared with figures from the last inspection (Her Majesty's Chief Inspector of Prisons (HMIP), 2015), although there was a slight overrepresentation of prisoners in their thirties and underrepresentation of prisoners in their twenties (Figure 2).



*Figure 2* Age ranges of Cell Workout participants vs general population of prison at last inspection (\*Her Majesty's Chief Inspector of Prisons, 2015).

<sup>19</sup> The IEP scheme is a tool used by prison management to incentivise conforming behaviour by offering prisoners the chance to earn benefits such as increased gym access

Figure 3 shows that the ethnicity of participants in the workshops was predominantly white British, and white non-British prisoners were underrepresented. Although this data reflects the ethnicity of 44 participants only and over 15% of these were unknown, these differences in comparison to the general population of HMP Wandsworth should be taken into consideration when reviewing any findings.



*Figure 3* Ethnicity of Cell Workout participants vs general population of prison at last inspection (\*Her Majesty's Chief Inspector of Prisons, 2015).

At T1 29% of participants had been serving their current sentence for longer than twelve months, compared with 49% of all prisoners at HMP Wandsworth at last inspection (Her Majesty's Chief Inspector of Prisons, 2015). At last inspection 37% of prisoners at the prison had not yet been sentenced, which meant they were classified as being on remand. Two of the CW Workshops were delivered on remand-only wings, which is likely to account for the high proportion of participants who had been in prison for less than one year.

#### 11.6.4. Procedure

The CW Workshops were delivered inside HMP Wandsworth and funded as part of the National Offender Management Service (NOMS) 2016 Early Adopter Grant, supporting programmes with the potential to reduce reoffending and impact positively on family and friends outside of prison. The primary aim of the Workshops was to improve the health and well-being of inmates through exercise, education and self-achievement, and the programme also encourages participants to undertake further educational courses on completion, including distance learning with PET, thus increasing job opportunities, promoting rehabilitation and potentially reducing re-offending. The workshops were delivered as part of a pilot with limited resource, therefore there was minimal contact time afforded with the participants and only one brief individual consultation with LJ to obtain physiological data and answer questions. As such, the individual needs of participants on the workshops did not shape their delivery. Instead, a broader approach to target the needs of the prison population in general was adopted. Initially, the workshops were developed by LJ based on his own experience of prison and what he believed was needed to motivate prisoners to engage in healthy behaviours. This was followed by consultation with academic and practitioner-based evidence with support from the researcher of this study and the Alliance of Sport for the Desistance of Crime (ASDC), including consideration of their Theory of Change (ToC; for more information on the ASDC's ToC please see the earlier [review](#) in this study). The outcome measures from the ToC were applied to the proposed structure of the CW Workshops to strengthen its focus and highlight any areas which had not been considered. In particular, the aspect of community development was given further consideration, resulting in a proposed "supporters' day".

The workshops were delivered by LJ, who had completed Levels 1, 2 and 3 in personal training and had a year's experience as a freelance personal trainer with Virgin

Active. Data gathering was carried out jointly by LJ and the researcher. On the Friday before each workshop the prison provided a list of all the participants' cell numbers. This gave LJ an opportunity to speak to each participant individually, letting them know their application was successful, informing them of the time slot and location for their health MOT on the following Monday, giving them an opportunity to ask any questions, and handing over a T1 survey for them to complete across the weekend and bring to the first session. LJ also made participants aware that if they anticipated any literacy problems in completing the surveys they were welcome to complete them with him on the Monday, although it should be noted that all T1 surveys were completed successfully without support. It was unavoidable that participants would be made aware that their application was successful before completing the survey, but to minimise any further impact of this news on the way participants answered survey questions they were asked to complete them across the weekend before any further engagement with LJ, and before any engagement with others on the workshop. There was a high response rate to the T1 surveys ( $n = 105$ ), and completion rates of the surveys were also very high with only four questions missing more than 10% of responses.

The workshops ran for two consecutive weeks, with prisoners attending a 3hr morning session from Monday to Friday, and a 1hr 45 min afternoon session from Monday to Thursday (except for one Wednesday per workshop when staff training takes place at the prison). The morning sessions were exercise-based and aimed to introduce the principles of performing high intensity body weight exercises, whilst the afternoon sessions were theory-based and focused on topics such as goal setting and nutrition. The workshops culminated in a graduation day centred around an awards ceremony with a certificate of achievement, a chance for participants to reflect on their experience of the workshop, and an opportunity for them to lead their own workout based on the principles of CW.

**Workshop promotion and selection.** The Workshops were advertised on posters in six different wings across the prison ([Appendix M](#)). The poster explained what the workshop offered in terms of an ‘Intense Cell Workout bodyweight training session’ and ‘Group discussions including self-achievement’, and highlights that it is available to ‘All ages, abilities and fitness levels’. Participation requirements included a reference from a wing officer and availability to complete the course. It is also made clear that all those accepted onto the course must undertake a health check and gym induction prior to commencement, which includes completion of a Physical Activity Readiness Questionnaire (PAR-Q) which is completed by Physical Education Instructors (PEIs). Prisoners who wished to participate in the Workshop were asked to complete a general application form which they could obtain from the wing, explaining their reasons for signing up to the workshop.

Wing officers reviewed all applications and eliminated prisoners who had been recognised as causing significant trouble in recent weeks, as well as highlighting any prisoners who they felt had expressed a genuine interest and wanted to engage for positive reasons, and in some cases prisoners were put forward who were difficult to engage with and might benefit from the opportunity. Once the initial applications had been reviewed by the officers the reasons for applying were reviewed by LJ to identify those who would be selected for the workshop. In addition to those selected through their applications, some prisoners were selected to participate because they had shown an interest and approached LJ personally when they saw him on the wing to ask him whether they could be included. Those who appeared to express a genuine interest for positive reasons were given a chance to participate wherever possible.

**The workouts.** The first Monday of each workshop was used to gather participants’ physiological measurements, this was completed in individual slots. The first time the participants met as a group was on the morning of the second day of the workshop where

they all participated in the first workout. The workouts were 40 minutes long and were based on the body weight exercises outlined in the Cell Workout book including aerobic exercises such as running on the spot and strength building exercises such as press ups. Each 40-minute session focused on a particular muscle group, including chest, back, arms, legs and abdominals. Each exercise was demonstrated with a standard, a beginners' and an advanced option, for example, conventional press-ups with just toes and hands meeting the floor are offered as the standard version, whilst the beginners' version allows the individual to bring their knees into contact with floor for additional support, and the advanced version is performed with a clap between each press-up. Exercises were performed for 30 seconds in total with 15 seconds rest. For more details on the exercises and how they are performed, please refer to the Cell Workout book (Flanders, 2016). Initially, the morning workouts were led by LJ, allowing attendees to become familiar with the principles of the exercises in the book and to build on their fitness and strength. As the workshops progressed participants were encouraged to think of their own exercise routines, and the final group session on the second Friday of each workshop consisted of a series of 5-minute group workouts led by each of the participants individually.

The latter part of the first morning session began with LJ telling his own story, explaining how and why his personal experience of prison inspired him to write the Cell Workout book and eventually devise the workshops, highlighting any barriers and how these were managed. This introduced the participants to the key themes of motivation and resilience which were highlighted throughout the workshop, as well as enforcing a sense of relatedness between LJ and the participants, which was considered central to their continued engagement.

Upon commencing the workshop each participant was given their own copy of the Cell Workout book which formed the focus of the late-morning sessions. The book

introduces the reader to static body weight exercises, high-intensity interval training and relaxation techniques. Each exercise which was performed in the morning workout was looked at in-depth, helping to develop a better understanding of how they can be performed safely and effectively, as well as how they can be utilised to improve both mental and physical well-being.

*Afternoon sessions.* The afternoon sessions included group discussions, individual thinking and external speakers. All the content was written up on flip charts prior to the workshops, with each topic broken down into small chunks of information, focusing on one key message at a time. The group then discussed each point, relating the information back to them and their own experiences, with their feedback written up by LJ on a blank flip chart.

The first week's sessions addressed behavioural change and how to achieve it with the first session exploring the difference between a fixed and growth mind-set, identifying a fixed mind-set with traits such as avoiding challenges, ignoring criticism and giving up easily, and a growth mind-set as someone who wants to keep learning, acknowledging that change takes times and hard work, and that failure is something to be learnt from. The session prompts participants to identify which mind-set they adopt to different scenarios, asking whether this is something which can be changed. This is followed in the same session by highlighting the importance of setting manageable (specific, measurable, agreed, realistic and time-based; SMART) targets, to support them in changing their mind-set and achieving their goals. Participants were encouraged to set themselves a target or targets at the start of the workshop which they are asked to write down and share with the group or with a chosen 'supporter', either in or outside the prison. The targets had to be 'SMART' and did not have to relate to exercise, they could be related to smoking, or getting in touch with an estranged friend or family member outside of prison.

The second afternoon session looked at the ToC from the ASDC and applies it to participants' journey through the workshop. The session began by using the British Tour de France team as an example of the difference that a 1% improvement can make over time, explaining the small differences in everything the team did to progress from never having won a Tour de France in 2011 to winning four out of the next five from 2012 to 2016. This is then applied to participants' journeys, beginning with the Workshop, and identifying all the small changes they can make from now to achieve a long-term goal, from drinking more water, to becoming mentally stronger, to developing new skills and qualifications and eventually reducing reoffending.

The presentation on ToC was followed by a discussion on motivation, identifying what motivation meant to the participants, what they can do to stay motivated in achieving their goals, the importance of a routine in prison, identifying factors that may affect motivation and developing individual plans to keep on track. The final afternoon session in the first week was focused on the power of resilience, encouraging participants to identify any potential barriers to achieving their targets and how they might go about managing these, highlighting the importance of positive self-belief, communication and problem-solving skills, social support and self-control.

The second week's afternoon sessions aligned with existing organisations and programmes, starting with the Prisoners' Education Trust's (PET) 'Fit for Release' initiative, focusing on how sports-based learning can help prisoners engage in education, gain employment and desist from crime (Meek, Champion & Klier, 2012). The principles behind Fit for Release were aligned with LJ's story regarding how he enrolled onto a personal training qualification through the prison gym to prepare him for employment with Virgin Active on release, which was followed by asking participants about their own interests and where this might direct them in terms of skills and training opportunities in prison. This

session finished with a presentation and discussion of all the courses offered by the PET and how prisoners can sign up to them.

The second afternoon session in week two was focused on nutrition with information from Fuel Your Training and Food Matters, who were also delivering a pilot programme in HMP Wandsworth looking at the development of a healthy eating prison, aiming to improve prison meals and help prisoners make food choices that can boost their health and well-being. This session included consideration of what was available to buy on the prison canteen sheet and which options could be used to make healthy meals, putting prisoners in greater control of their nutrition rather than relying on prison meals alone to give them sustenance. The penultimate afternoon session was supported by the Centre for entrepreneurs Ltd., promoting the role of entrepreneurship in breaking the cycle of offending. Participants were shown a template business plan and given advice on how to start their own business in a personal area of interest. The final session was used to take the T2 physiological measures, which were shared with the group, and there was an opportunity for everyone to revisit the targets they had set at the start of the workshop and share their progress with the group. Throughout the second week participants were encouraged to engage with organisations and programmes to seek opportunities for further education and employment opportunities following completion of the workshop. ASDC also have strong links with the workshops and sign posted participants who expressed an interest in engaging with sport and exercise initiatives inside prison or on release.

***Supporters day.*** In the context of the workshops, a ‘supporter’ is someone either inside or outside of the prison who is close to the participant and would be a suitable person to share goals with and offer encouragement to achieve these goals. In recognition of the need to include a stronger community element to the workshops, as highlighted by the ToC, the initial proposal for the Workshops aimed to host a supporters’ day at the end of each

fortnight. The supporters' day was a chance to invite supporters from outside of the prison to come into the prison and watch or participate in a workout delivered by the participants, followed by a graduation ceremony in which participants receive a CW t-shirt and book in recognition of their commitment to the workshop. Unfortunately, due to the amount of resource required to organise and support these days, it was not feasible to deliver them for every workshop. Instead, the prison agreed to host one final supporters' day, which took place following completion of the final workshop session. This meant that not all participants were able to take part in the family day, instead LJ chose a selection of participants who he felt had achieved the most throughout the workshop. These included those who saw the greatest improvement on their measures of well-being, those who experienced the greatest positive change in terms of engagement with the workshops and those who saw the greatest increase in their fitness. The supporters' day provided participants with an opportunity to demonstrate what they had learnt to their close friends and family through the delivery of a workout, as well as interacting with them in an informal, positive and tactile way which many would not have had an opportunity to do whilst inside prison.

### **Data gathering**

*Surveys.* Participants who completed the workshop were given a T2 survey on the penultimate day and asked to bring the completed version on the final day ( $n = 77$ ), which resulted in a lack of T2 data from participants who dropped out at the start of the workshop. Completion rates for T2 surveys was exceptional, and none of the questions had more than 10% of the responses missing. T3 data was much more difficult to obtain, with high rates of prisoner movement, particularly on the remand wings where the first workshops had taken place over six months prior. Initially, surveys were handed to one prisoner from each workshop and they were asked to distribute to those who had been on the workshop, who could then either hand them back to the designated prisoner or return to an officer who would

pass them onto a named member of staff in prison management. Twelve follow-up surveys were collected in this way, and only one of these was returned to the staff member. To obtain the remaining follow-up surveys a request was made to prison management to identify which participants were still in the prison along with their cell number, this information was used to go to each cell individually and speak to the prisoners to ask if they could complete the T3 survey. The prisoners were asked when would be a suitable time to return for collection, and on returning to each cell a hundred percent of the surveys had been completed, which meant that T3 data was obtained for all participants who were still in the prison at this time ( $n = 36$ ).

*Interviews.* Participant interviews were conducted in two phases; inside the prison (on the wings, in workshops and in the canteen) at T3, and through the legal visits suite three months post T3. Permission was obtained from prison management and security to record the interviews using a voice recorder, and all recordings were reviewed by a member of prison management to ensure that there were no safety concerns before they were taken outside of the prison.

Whilst conducting interviews inside the prison the researcher was accompanied by LJ who held keys, which eased movement around the prison. At least one participant from each cohort across the workshops was approached on the wing and asked if they were happy to be interviewed at a time that suited them, the researcher then returned with LJ at a suitable time, and the interviews were conducted between the researcher and participant in a private room or space away from anyone else. Twelve interviews of between 15-35 minutes in length were completed inside the prison. Conducting interviews inside the prison allowed for greater numbers of participants to be reached in a relatively short space of time, producing a valuable data set. However, there were limitations to this approach in terms of bias and suitability of the interview setting. Firstly, there was potential for selection bias as the selection process for interviewees was based on an opportunity sample of participants who were known to LJ,

secondly, there was a possibility of response bias from interviewees who were aware that LJ was close by. In terms of the interview setting, even relatively private spaces within the prison are not free from distraction, and interviewees were sometimes visibly distracted by noises external to the interview.

In recognition of the limitations surrounding the first phase of interviews, a second phase was conducted through the legal visits suite within the prison, managed by the researcher. A list of prisoners who were still in the prison at T3 was obtained from prison management and reviewed, identifying those who had not yet been interviewed and any who had missed a session during the workshop without reason (according to the register), and were therefore deemed to be less engaged. The researcher approached these individuals when gathering T3 surveys inside the prison, and obtained their permission in principle to participate in the interviews. The names of nine participants who had agreed to be interviewed were provided to the legal visits team who arranged a series of back to back interviews in one-hour slots over two days, as there is a maximum of five slots per day. Permission was obtained from prison security to record the interviews on a voice recorder. Interviewees were collected from their cell by prison staff and brought to the legal visits suite according to the interview schedule. The legal visits suite consists of individual rooms in a quiet space within the prison, free from distraction. Each room contains chairs separated by a table, and there is a machine to buy hot and cold drinks. Unfortunately, the participants were not made aware of the purpose of the interviews and believed them to be legal visits, which resulted in two participants failing to attend. The remaining seven interviewees attended the suite and were put at ease when arriving to find that the interviews were regarding their experience of Cell Workout.

Although it is challenging to conduct an interview entirely free of bias, the second phase of interviews had minimal association with LJ to lessen response bias, and participants

who were seen to be less engaged were targeted to try and provide a more representative sample. The atmosphere in the interviews conducted in the legal visits suite was much more relaxed than those in other areas of the prison, the interviews were undisturbed and interviewees' responses appeared more considered and in-depth. On completion of each interview all of the interviewees noted how much they had enjoyed the opportunity to talk openly about their experiences of Cell Workout, and about their health-related behaviours in general.

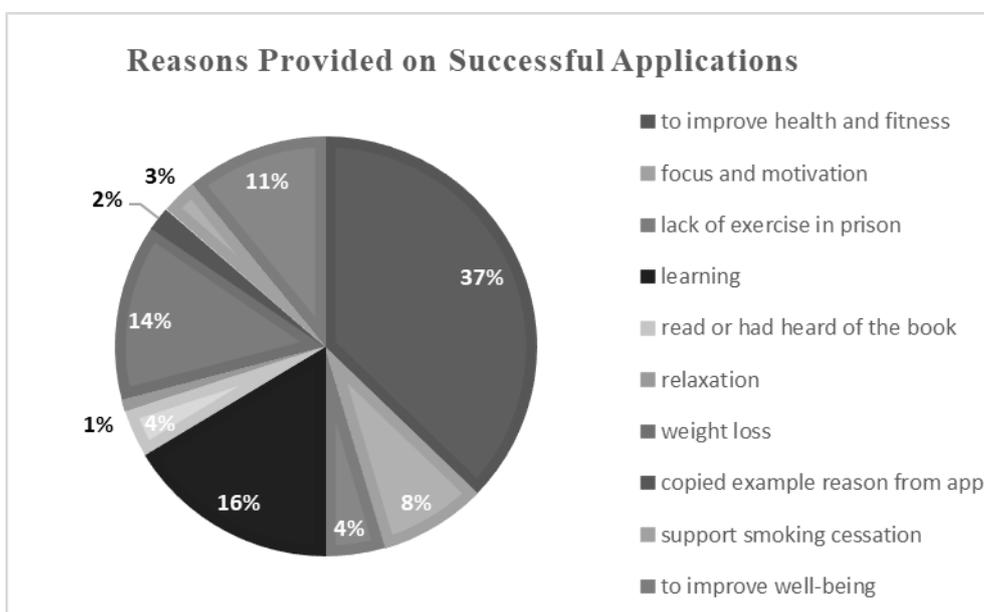
**Analysis.** The evaluation included both quantitative and qualitative methods of analysis. Responses to surveys were quantitatively analysed through predictive analytics software, SPSS, allowing for conclusions to be drawn around the impact of the workshops on types of motivation, level of psychological need, physical health, mental health and smoking behaviours. The outcomes also informed the validation of the measures used to ensure they are fit for purpose, enabling the survey to be refined for use on future participants of the CW Workshops, which is an ongoing process. Face to face interviews and qualitative responses on the surveys were qualitatively analysed using Braun & Clarke's (2006) approach to thematic analysis to establish where the strengths and weaknesses of the workshops lie, facilitated through NVivo software (for more information on thematic analysis please see the data analysis section of Study II).

## **12. Findings**

### **12.1.1. Reasons for applying**

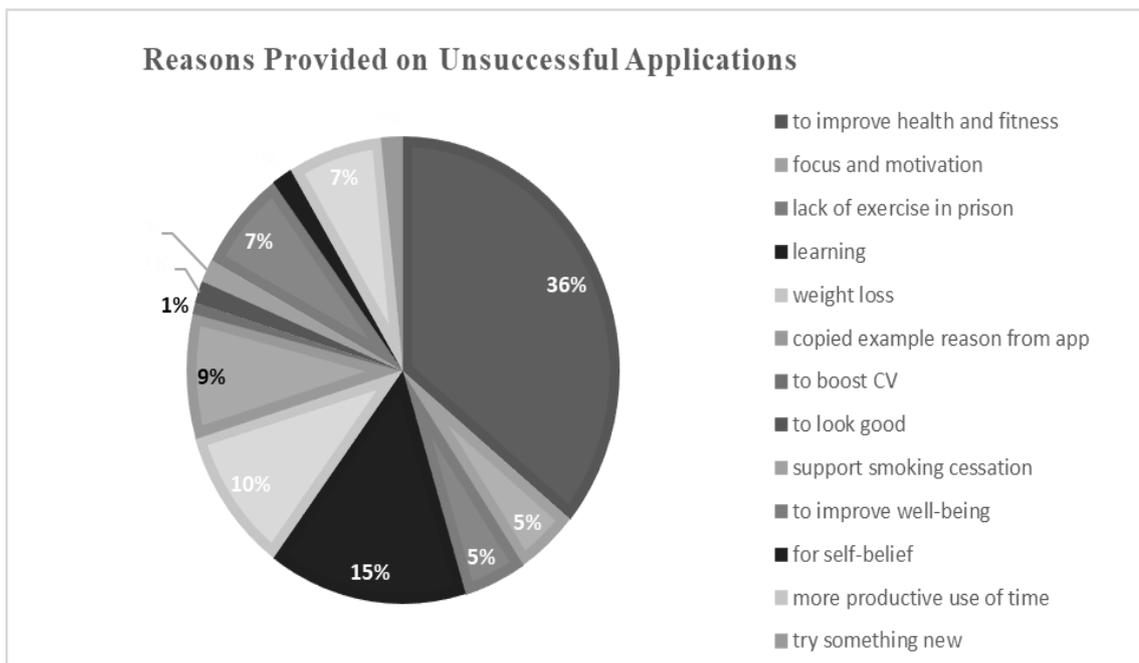
Interest in the workshops was high, with a total of 86 prisoners expressing an interest in the first workshop. Applications from prisoners were centred on four key themes; fitness, health, learning and weight loss (Figures 4 and 5). Many applicants highlighted the lack of access to the prison gym as a barrier to them exercising, others expressed an interest in

learning how to exercise more effectively, whilst some did not exercise at all and wanted to feel healthier whilst inside prison. The focus on health was in relation to well-being, rather than physical health, some applicants wanted to cope better with stress and others wanted to improve confidence. Finally, weight loss played a key role in applicant's reasons to engage with the workshop, although it should also be noted that this was one of the example reasons provided on the application form. For a table of successful applicant's reasons for applying please see [Appendix N](#).



*Figure 4* Pie chart of reasons for participation given by successful applicants

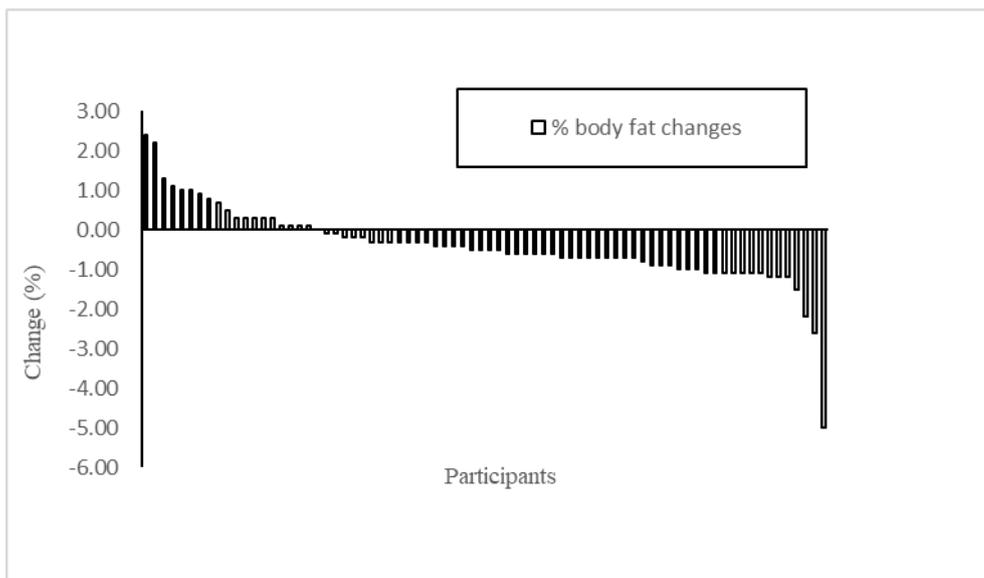
Unsuccessful applications were very similar in terms of their top four reasons for applying, but overall they included more sentences that were copied directly from the application form, and more external reasons related to giving them something to do.



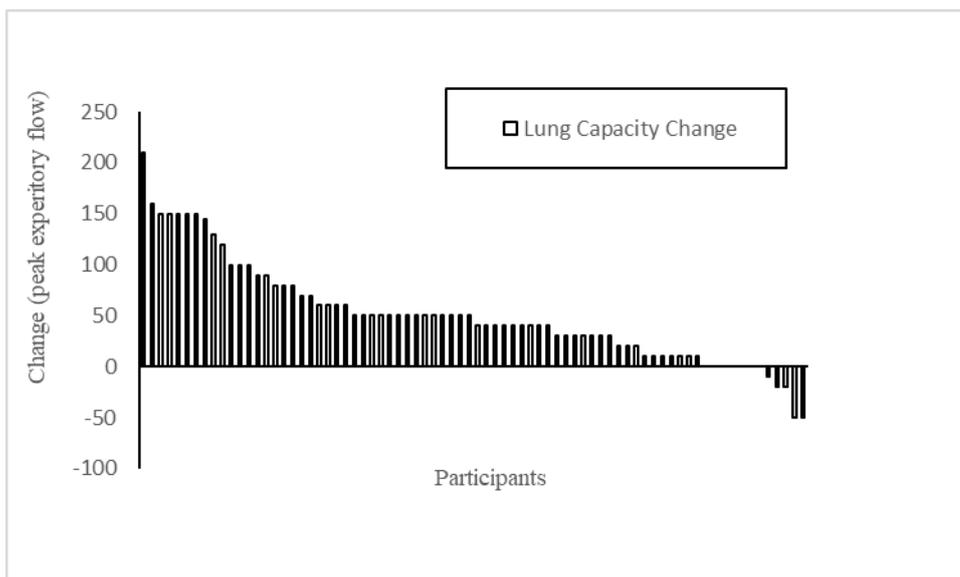
*Figure 5* Pie chart of reasons for participation given by unsuccessful applicants

### 12.1.2. Physiological outcomes

Wilcoxon's signed rank tests were performed to compare mean scores for participants' T1 and T2 physiological measures, with eight of the measures showing a significant positive improvement. Specifically, body weight ( $Z = -1.932, p < .053$ ), body fat percentage ( $Z = -3.832, p < .000$ ), basal metabolic rate ( $Z = -2.183, p < .029$ ) and bone density ( $Z = -2.250, p < .024$ ) had all decreased. Whilst water level percentage ( $Z = -2.351, p < .019$ ), muscle mass ( $Z = -2.881, p < .004$ ) and lung capacity ( $Z = 6.654, p < .000$ ) had all increased. Of all participants who provided both the T1 and T2 measurements, 41 recorded some weight loss and 56 recorded a decrease in body fat (Figure 6), whilst 64 of the participants increased their lung capacity (Figure 7).



*Figure 6* Chart showing changes in participants' body fat percentage from the start to the end of the workshop



*Figure 7* Chart showing changes in participants' lung capacity from the start to the end of the workshop

Although the remaining three physiological variables did not see a significant change they did all move in a positive direction across the fortnight, with heart rate and pulse rate

decreasing ( $Z = -1.885, p < .059$  and  $Z = -1.164, p < .244$ , respectively) and blood oxygen levels increasing ( $Z = -.772, p < .440$ ).

A series of further tests indicated that there were no significant differences between smokers and non-smokers in terms of changes in physiological scores from T1 to T2.

### **12.1.3. Behavioural Change**

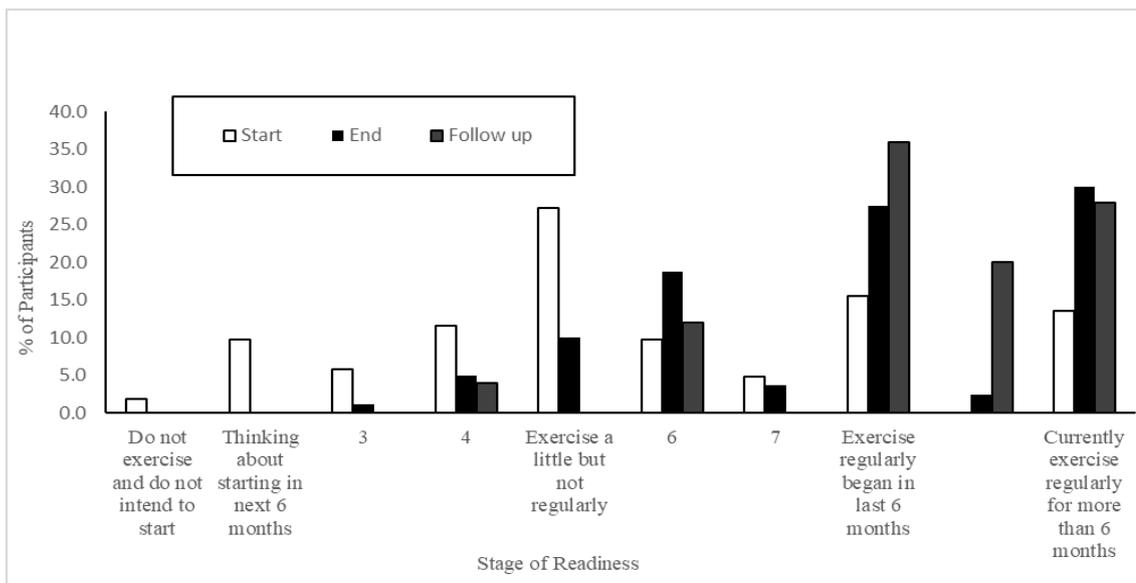
#### **Exercise behaviours**

##### ***Readiness to exercise***

All participants identified their current exercise behaviours and intentions using a “readiness to exercise ladder” at T1, T2 and T3. This ladder is reflective of the Transtheoretical Model of Behaviour Change (TTM; Prochaska & DiClemente, 1983), which identifies the processes required to promote long-term behavioural change.

Mean scores on the readiness to exercise ladder were compared across all three time points to identify any significant changes. The Friedman test revealed significant differences in scores across the time points ( $\chi^2(2) = 15.750, p < 0.000$ ). Post-hoc analysis with Wilcoxon signed-rank tests was conducted with a Bonferroni correction applied, resulting in a significance level set at  $p < 0.017$ .

Median scores for readiness to exercise at T1, T2 and T3 were 5.72, 7.63 and 8.36, respectively. There was a significant difference between T1 and T2 scores ( $Z = -5.648, p < 0.000$ ), and the T1 and T3 scores ( $Z = -3.559, p < 0.000$ ), but not between T2 and T3 scores.



*Figure 8* Chart showing participants' mean scores on the readiness to exercise ladder at start, end and follow-up

According to the TTM, participants' exercise behaviours had progressed from the preparation stage at T1, to the action stage at T2, which was maintained at T3.

### ***Exercise type***

As part of the T1 survey participants were asked about the most recent exercise they had engaged in whilst inside prison, if any. Approximately half of all participants provided an answer to this question, giving a total of 52 responses as outlined in Figure 9. Some responses included more than one form of exercise so in these instances both were recorded.

The most popular form of exercise was solitary anaerobic exercise, with a typical response being *“following my own routine using weights in the gym”*. Some body weight exercises were being performed in the cell, the majority of these were press ups, with two responses including sit ups, *“Doing push ups and abs regularly in my cell”*, and just one respondent was engaging in aerobic exercise in their cell in the form of burpees. Aside from this one instance of in-cell burpees, aerobic exercise was being performed in three ways;

using machines in the gym “*rowing machine and cycle machine*“; running or brisk walking in the yard “*Brisk walking around the exercise yard for the whole period*“; and playing football.

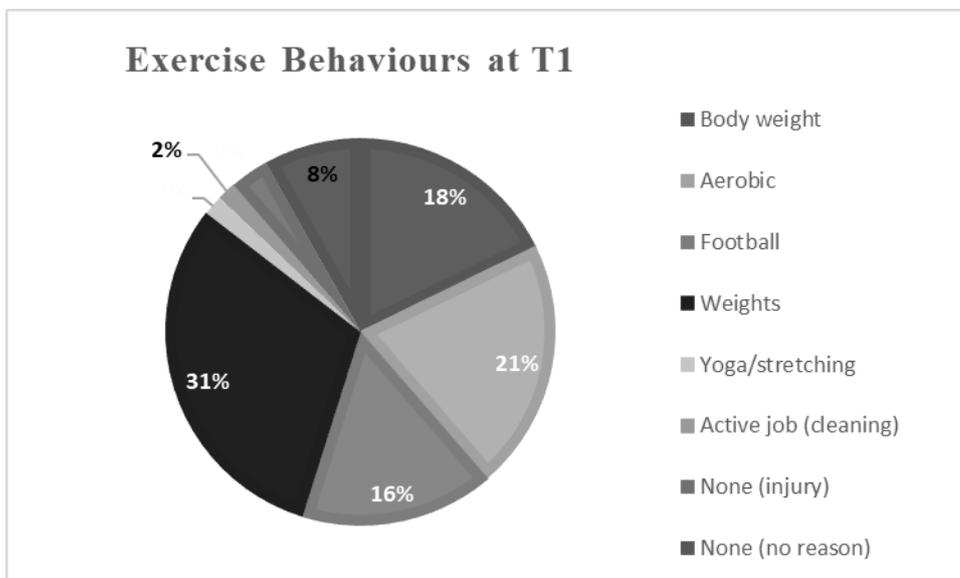


Figure 9 Pie chart showing the type of exercise participants engaged in at T1

The location of prisoners’ exercise at T1 and T3 is shown in Figure 11. There were two instances of exercise on the wing, one involving spinning bikes, and the other was a regular circuit class between three prisoners. It is worth noting that all wings operate differently and with different facilities, so these options would not be available to all prisoners. Much of the exercise performed was solitary, either in the cell or at the gym “*Following my own routine using weights (on my own)*”, with a fifth of respondents playing football, and three instances of group exercise, two of these were in the gym “*Group exercise classes run by the gym*” and the other on the wing.

All but five of those who completed a T3 survey provided a response to the question about their exercise behaviours since completing the Cell Workout Workshop, giving 31 responses in total. The most substantial shifts in participants’ exercise behaviours were a

clear drop in the number who exercised using weights, from 36% at the start to 13% of responses, and increases in the amount of body weight exercises and aerobic forms of exercise, from 25% to 58% of responses. The type of body weight and aerobic exercises participants were engaging in at T3 are reflective of the exercise taught to them through the workshops and in the book, with many referring directly to the workshops and book as their source of information.

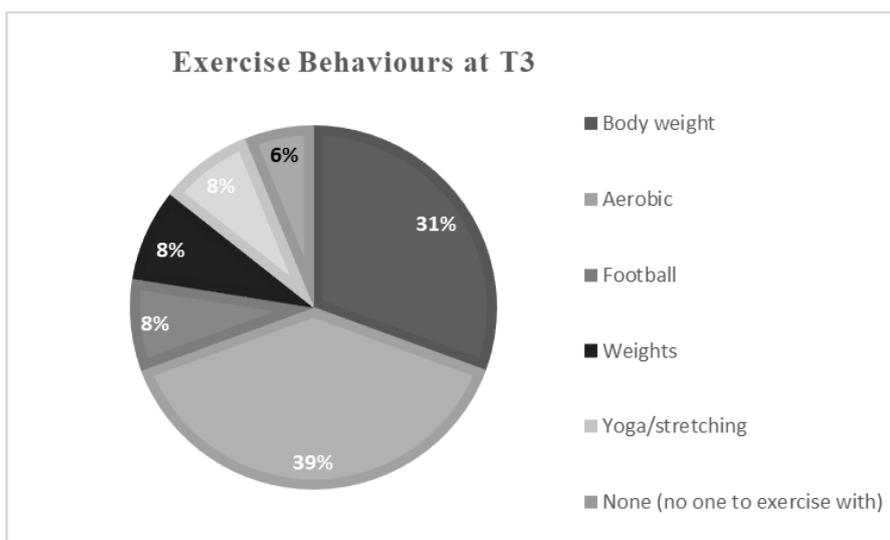


Figure 10 Pie chart showing the type of exercise participants engaged in at T3

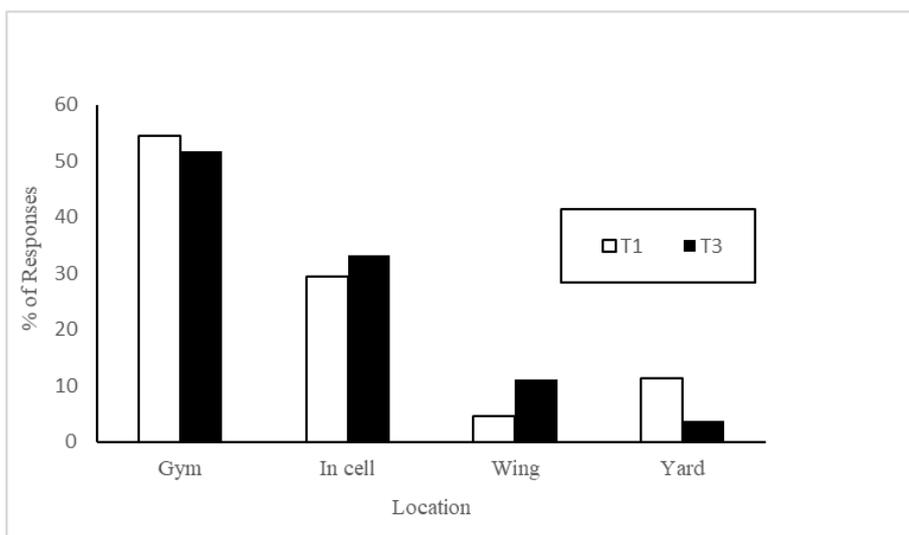
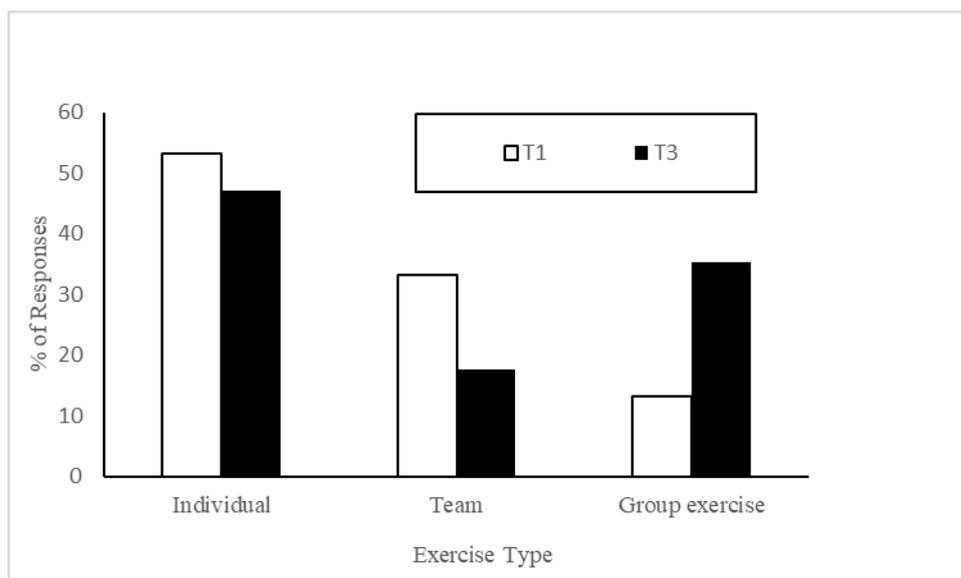


Figure 11 Bar chart showing the location of participants' exercise in the prison at T1 and T3



*Figure 12* Bar chart showing the social nature of participants' exercise in the prison before the workshop and at follow-up

There was a notable increase in the number of prisoners exercising in groups from T1 to T3 (Figure 12). Although the exercises taught in the workshops can be performed in a cell there was only a slight increase in those who reported exercising in their cell, and the number of participants using the gym to exercise remained the same (Figure 11). It is important to consider that access to the gym is variable and relies on factors often outside of the prisoners' control, so although it appears that the number of prisoners attending the gym did not increase, this does not mean that there was a lack of interest.

Before starting the workshop eight participants were known not to exercise at all, this was either due to injury, or no reason was given. At follow-up, three participants were no longer engaging in exercise, all stating that this was because they felt they had no one to exercise with, which was essential for them in terms of motivation, *"No one to do it with, so sometimes ain't got the motivation to see it through"*, *"I need classes to actively engage to workout in a group I need support and motivation"*.

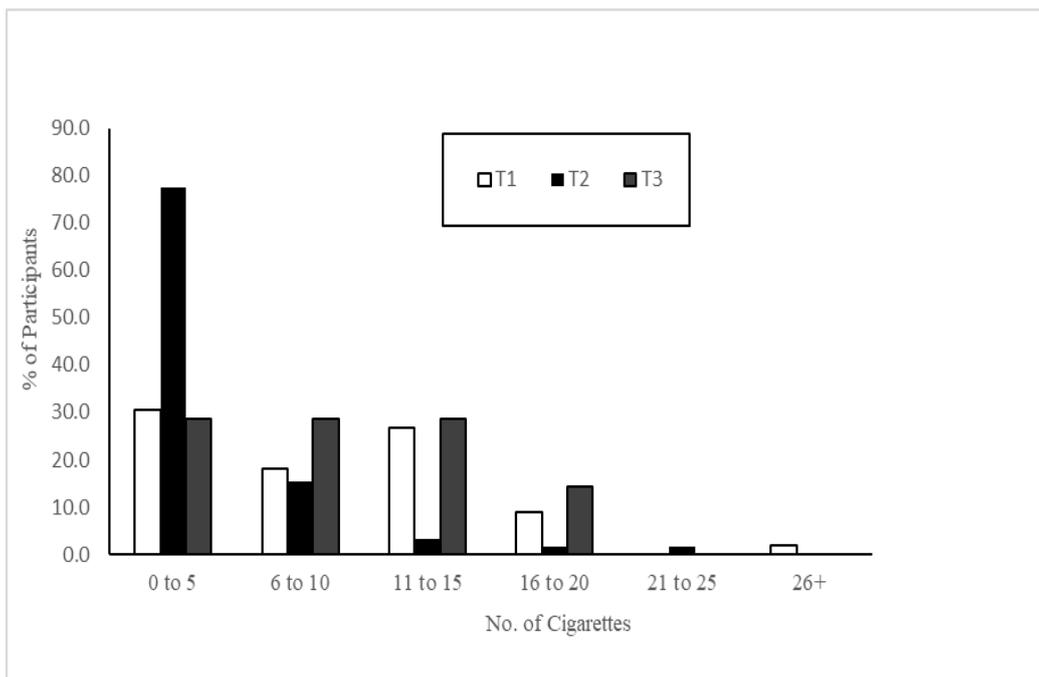
When asked which of the exercises they would be most likely to continue with following the workshops most participants said they would try and do them all, and exercises that were least likely to be engaged with were varied, with many being due to injury.

### **Smoking behaviours**

Although the workshops' content did not cover smoking cessation it was considered important to measure the impact of the workshops on smoking behaviours, particularly with the pending prison-wide smoking ban. All smokers (59% of total participants) who took part in the workshops were asked how many cigarettes they smoked per day, as well as completing the modified Cigarette Evaluation Questionnaire (mCEQ), and rating their readiness to use physical activity to support smoking cessation. Data was collected at T1 ( $N = 53$ ), T2 ( $N = 43$ ) and T3 ( $N = 13$ ).

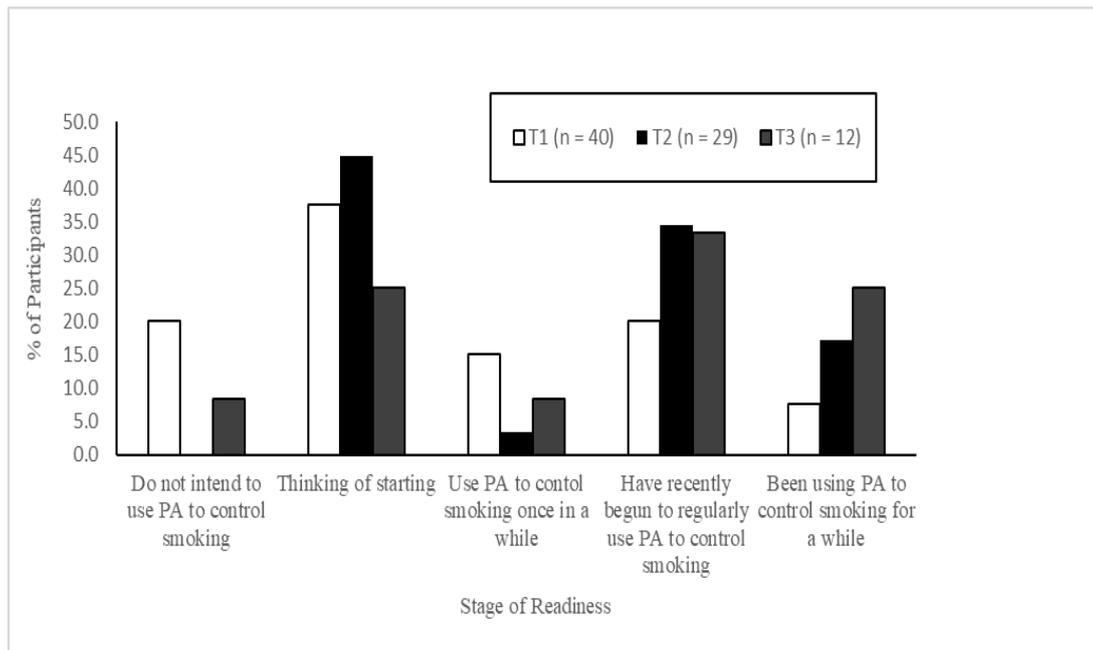
Firstly, T1 and T2 scores were compared against one another to test the immediate impact of the two-week workshop on smoking behaviours, revealing that the number of cigarettes smoked had decreased significantly ( $Z = -4.494$ ,  $p < .000007$ ). However, the number of cigarettes had increased significantly again from T2 to T3 ( $Z = -2.201$ ,  $p = 0.028$ ; Figure 13).

The data from the mCEQ revealed that the satisfaction of smoking tobacco reduced significantly from T1 to T2 ( $Z = -2.488$ ,  $p < .013$ ), but unfortunately this had increased again at T3, although not significantly. Furthermore, cigarettes made participants significantly more nauseous at T2 ( $Z = -2.008$ ,  $p < .045$ ), and this stayed at a high level at T3, although this was not significantly different to T1 scores.



*Figure 13* Chart showing number of cigarettes smoked per day as self-reported by smokers at T1, T2 and T3

Participants' readiness to use physical activity (PA) to support smoking cessation saw a significant increase from T1 to T2 ( $Z = -2.952, p < .003$ ), and this continued to increase at T3, although not significantly. At T1, smokers were in the preparation stage of using PA to support smoking cessation ( $M = 2.56$ ), and at T2 they had progressed to an action stage ( $M = 3.31$ ) which was maintained at T3 according to the readiness ladder ( $M = 3.42$ ; Figure 14). Evidence of smokers being in the action stage at T2 is supported by the significant drop in the number of cigarettes smoked per day, but unfortunately at T3 smokers could no longer be considered in the action stage despite their scores on the readiness ladder, because the number of cigarettes smoked per day had increased and therefore their actions to reduce the risk associated with smoking were no longer present.



*Figure 14* Chart to show smokers' readiness to use physical activity to support smoking cessation as measured using a readiness ladder at T1, T2 and T3

Further analysis of responses to the health-related quality of life revealed that non-smokers had significantly higher scores of well-being at T1 than smokers ( $U = 318.500$ ,  $p = .009$ ,  $r = .31$ ). The daily diaries also revealed that many smokers were struggling to keep up with the exercises and attributed this to their smoking behaviours, stating that this had prompted them to cut down on the number of cigarettes they smoked or to attempt quitting altogether (See [Appendix O](#) for diary extracts).

The daily diaries also highlighted an increase in daily water intake and earlier bed times, with participants finding it easier to fall asleep and experiencing a better quality of sleep which prepared them for the following day ([Appendix O](#)).

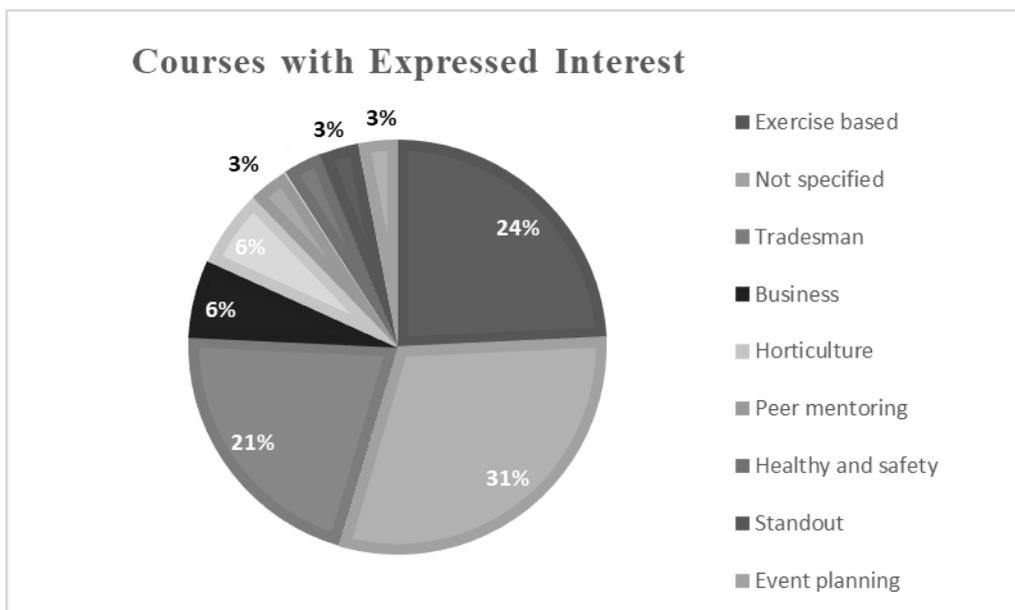
### **Engagement in education**

At T2 workshops participants were asked whether they would be applying to any courses or employment opportunities as a result of being on the workshop. Of the 65

responses, 24 said they would not be signing up to anything, either because they were shortly leaving prison, they already had a job, they were not aware of anything suitable for them on offer in the prison “*No, because I don't think any will be as good*”, “*If there is any more courses I would like to know so I could sign up*”, or they were unable to because of restrictions in the prison “*Unfortunately on D Wing we are not allowed free flow and aren't allowed to education or physical courses or any for that matter*”. A further five were unsure, “*At the time I do not know but maybe in few weeks time I will reach a decision*” and eight said they would not be signing up to anything but did not provide any reason as to why.

There were 37 different courses that participants expressed an interest in signing up to (see figure 15). The high volume of participants who were looking to engage with sports based educational courses is perhaps reflective of the demographic that would apply to be on the workshops in the first place, but still demonstrates a clear demand for such courses. Unspecified responses expressed an interest in signing up to a course, but without further detail, such as “*All courses that are available, the more the better!*” and “*Any that I get the opportunity to do. There is no end to the knowledge.*” There were also several participants who were interested in engaging in education through the Distance Learning or Open University courses which were presented to them during the workshops by a representation from the Prisoners' Education Trust (PET).

At T3, 29 participants provided responses about their engagement in educational courses since completing the workshop. Twenty of these said they were not signed up to any courses, with six saying this was because they were employed in the prison, “*I work in the education department so I'm busy helping the staff every morning*”, or “*I have a lot of jobs in the prison.*” Two participants felt it was not the right time for them, another two said there was nothing of interest to them on offer, and a further two were due to leave the prison shortly, whilst the remaining eight did not provide a reason.



*Figure 15* Pie chart of courses that participants expressed an interest in signing up to at the end of the workshops

According to the survey responses at follow-up, nine participants had engaged in distance learning courses, including Business Admin, Maths, Criminology, Plumbing, Social Care, Accountancy and Sports Coaching, and three participants were engaged in recovery support services, provided by the Forward Trust and Stepping Stones. Official data kindly provided by the Prisoners' Education Trust (PET) demonstrated that 18 participants from the workshops applied for courses with the PET, and 16 of those went on to enrol in funded courses.

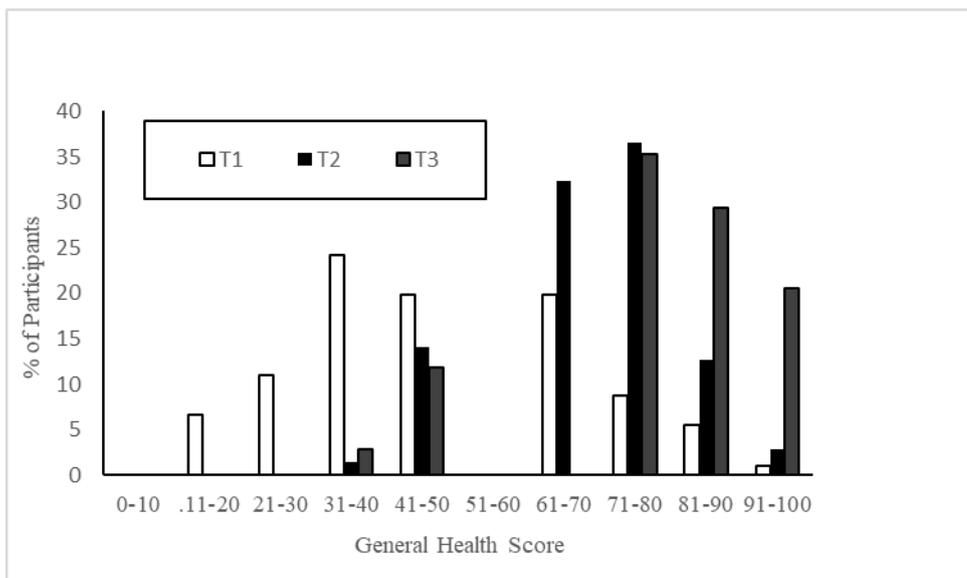
#### 12.1.4. Health and well-being

##### Health-related quality of life

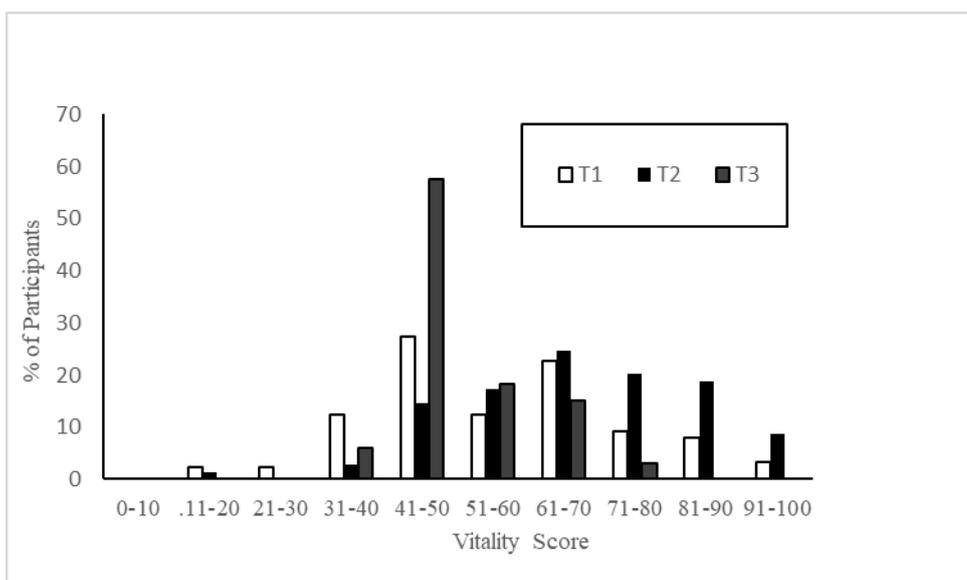
The impact of the workshops on participants' health and well-being was measured using survey responses across the five domains on the HRQL and across qualitative survey responses and interviews. Analyses were conducted to test for any differences in HRQL across the three time points. Significant differences in scores were found for three of the five domains; vitality ( $\chi^2(2) = 23.395, p < 0.000$ ), emotional well-being ( $\chi^2(2) = 35.880, p = 0.00$ ) and general health ( $\chi^2(2) = 28.116, p < 0.000$ ). The remaining two domains of Physical Functioning and Social Functioning both revealed high median scores across all three time points, with no significant changes.

Median general health scores at T1, T2 and T3 were 56.25, 68.75 and 81.25, respectively. There were significant differences between scores for general health at all three time points; increasing from T1 to T2 ( $Z = -5.936, p = 0.001$ ), increasing from T1 to T3 ( $Z = -4.309, p = 0.000016$ ) and increasing from T2 to T3 ( $Z = -2.584, p = 0.009782$ ; see Figure 16). Interestingly, when participants were split into smokers vs. non-smokers, general health did not increase at follow-up for smokers, only non-smokers.

Median vitality scores at T1, T2 and T3 were 59.38, 75 and 50, respectively. There were no significant differences between T1 and T3 scores for vitality ( $Z = -2.124, p = 0.034$ ). However, scores had increased significantly from the T1 to T2 ( $Z = -3.426, p = 0.001$ ) and decreased significantly from T2 to T3 ( $Z = -4.215, p = 0.000025$ ; Figure 17).



*Figure 16* Bar chart showing participants' self-reported scores of general health as measured on the health-related quality of life at T1, T2 and T3



*Figure 17* Chart showing participants' self-reported scores of vitality as measured on the health-related quality of life at T1, T2 and T3

Median emotional well-being scores at T1, T2 and T3 were 75, 85 and 40, respectively. There were significant differences between scores for emotional well-being at all three time points; increasing from T1 to T2 ( $Z = -5.230, p = 0.001$ ), decreasing from T1 to T3 ( $Z = -4.412, p = 0.00001$ ) and decreasing from T2 to T3 ( $Z = -4.468, p = 0.000008$ ; Figure

18). These reductions in emotional well-being are of concern and implications for this will be considered in the discussion.

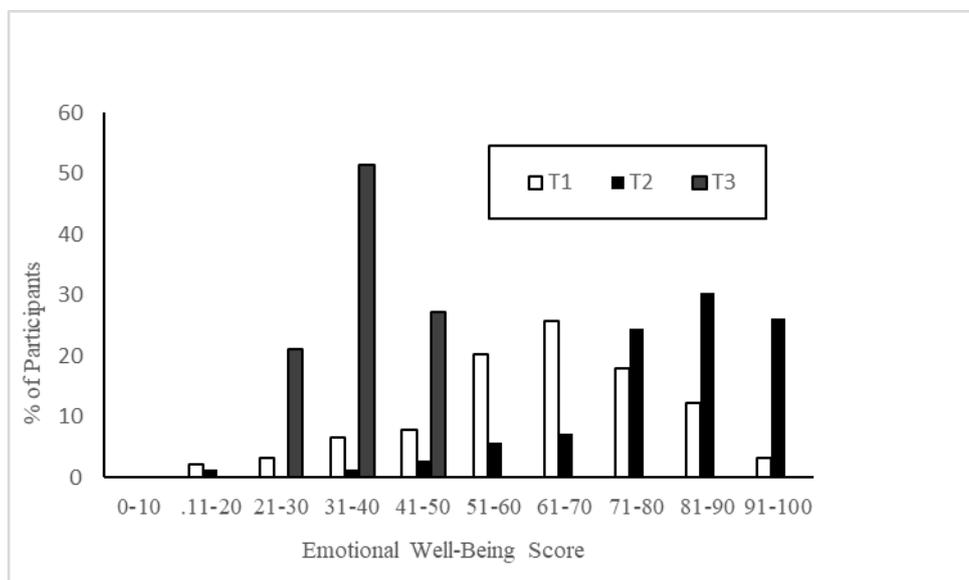


Figure 18 Chart showing participants' self-reported scores of well-being as measured on the health-related quality of life at T1, T2 and T3

### Qualitative responses

Responses from T2 and T3 surveys highlight the positive impact that the workshops had on physical and mental well-being overall, with increases in general mood and fitness being named as long-term impacts. These increases in well-being are often associated with a greater ability to deal with daily life inside prison, giving participants more control over their lives inside prison, which is essential for well-being, *“it has kept me going mentally and helped me with my time”*; *“it has definitely given me more structure in my day to day life”*.

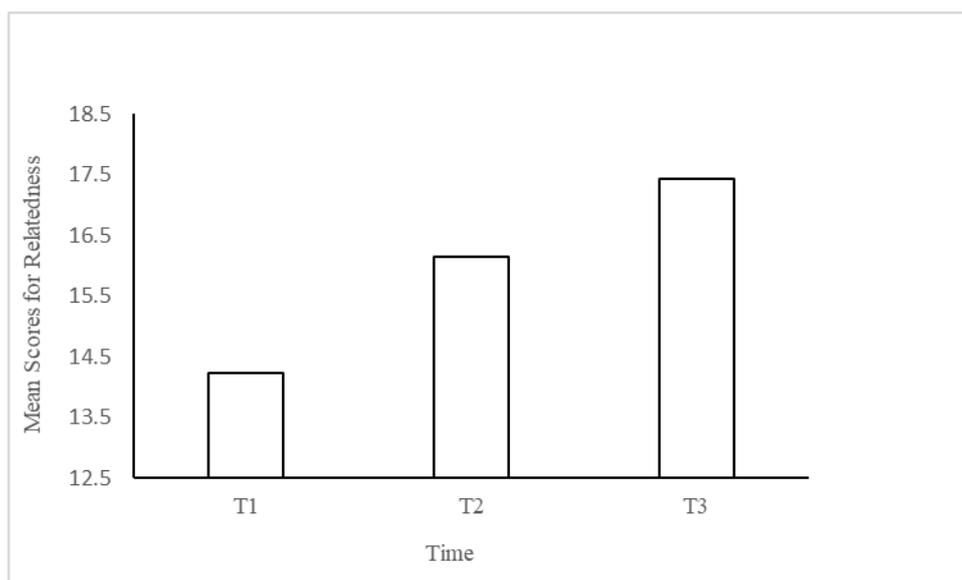
One of the key themes that emerged from the survey responses and interviews was that the workshops had prompted participants to start looking ahead and planning for the future in positive ways, which is suggestive of long-term behavioural change, *“[The workshop] has made me want to follow-up the plans that I have in mind”*, *“[The workshop]*

*is making me think of ideas of how I can turn things around like LJ.*” For more responses outlining behavioural changes please see Appendix D.

### 12.1.5. Basic Psychological Needs for Exercise

#### Relatedness

Measures of relatedness in relation to exercise on the Basic Psychological Needs for Exercise Scale (BPNES) increased significantly from T1 to T2 ( $Z = -3.634, p < 0.000$ ) and remained significantly higher at T3 than at T1 ( $Z = -3.044, p = 0.002$ ; Figure 19). These findings demonstrate the long-term impact of the workshops on participants’ feelings of relatedness towards those that they exercise with.



*Figure 19* Bar chart showing participants’ scores of relatedness for exercise on the BPNES at T1, T2 and T3

Thematic analysis of interviews supported by survey responses revealed four sub-themes that underpinned participants’ sense of relatedness, namely, the trainer, gratefulness, training in a group, and supporters.

### *The Trainer*

Throughout the workshops the trainer, LJ, made a point of highlighting that everyone was there to exercise, regardless of why they were in prison or what had happened to them previously, and this was common ground that participants could all use to build a connection through. A face to face interview between the researcher and LJ explored the ways in which he supported a sense of relatedness through his delivery of the workshops.

*“One thing we can all relate to right now is to get a bit fitter, no one was getting gym so everyone’s there for a fitness boost, and then everything else got tied into it.” (LJ)*

It was also important for LJ to minimise any feeling of hierarchy, and to present himself as an individual on the same level as the participants.

*“I could be thought of as the famous LJ, but when people get to know me and we have a bit of a relationship I humanise it, I bring it back to some sort of realisation that I’m not perfect, everyone has flaws, but all I’m trying to say is that I’ve tried hard with this thing.” (LJ)*

The aims of the workshops go beyond exercising behaviours into healthy behaviour change in general, and LJ’s story presented him as a positive figure outside of exercise, demonstrating behaviours that are desirable if one is to be healthy.

*“I turned it into a positive journey, but I just knew I didn’t wana be back there, it wasn’t for me... I said, ‘look, these were my steps, you’ve all got to realise, without sounding clichéd, you’ve all gotta realise what you wana do, you’ve got time on your hands to get qualified, to get stuck into something, to spend your time wisely.’” (LJ)*

Participants' responses to the surveys and interviews reflect a strong admiration and respect for LJ and what he has achieved, as well as his approach to delivering the workshops (for more extracts see [Appendix P](#)).

*“I just love the whole story behind LJ's journey. He is an inspiration for all prisoners and to a certain degree a beacon of hope.” (Survey response)*

### ***Gratefulness***

The appreciation from the participants to be given an opportunity to engage in the workshops was profound and there was a recognition that places on the workshops were limited, with HMP Wandsworth being the only prison that had hosted them. This feeling of belonging to an exclusive group appeared to strengthen the sense of connectedness, but many participants were also keen to highlight how important it would be for others to experience the benefits of the workshop.

*“I'm so grateful to have been a partaker of the Cell Workout programme. It has really changed my life and I'm so grateful.” (Survey response)*

*“I'd heard about it and then I applied I had to push to get on it as well as it was very selective.” (Interview)*

### ***Training in a group***

The final sub-theme underpinning participants' sense of relatedness was the opportunity to exercise in a group. There was a strong sense of team spirit and camaraderie, the groups supported one another and motivated each other to work harder and achieve more than they felt they would have alone. Some also mentioned the social benefits outside of exercise, such as having the opportunity to bond with others who are interested in exercise, and communicating with others more effectively ([Appendix P](#)).

*“I enjoyed the team bonding and atmosphere in sessions. The group mentality made me push harder in training” (Survey response)*

*“I enjoyed the team spirit, I was lucky to have a nice group and we all encouraged and pushed each other to do well regardless of what level we were” (Interview)*

### **Supporters**

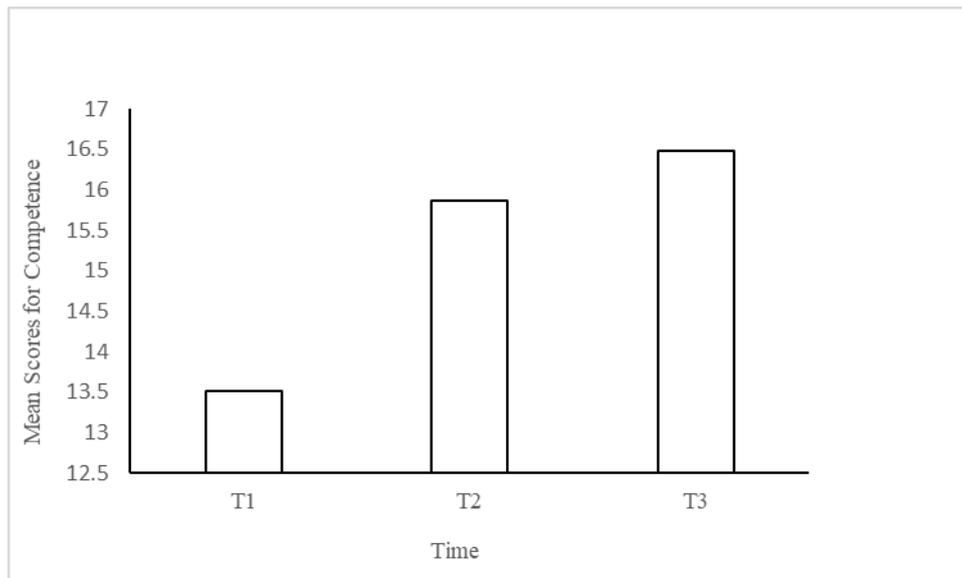
The inclusion of supporters through the Supporters’ Day and goal-sharing provides external recognition which was highly valued by participants who engaged with this aspect of the workshops. The researcher was present at the Supporters’ Day and spoke with participants and families, where it was apparent that this opportunity was cherished, particularly for those with children or close family who could attend. It also provided an opportunity to encourage those outside of prison to engage in healthy behaviours.

*“he was kind enough to do a nice thing [supporter’s day] and got our family involved so, my mum- my mum’s got cancer and she got involved, as much as she could, so that was nice to see” (Interview)*

*“I was telling [my wife] at the family day [to exercise more], cause she don’t find time to go to the gym, so I said “do it in the kitchen” you know, choose five exercises or six exercises. So yeah I’m trying to tell her to do it” (Interview)*

### **Competence**

Measures of competence in relation to exercise increased significantly from T1 to T2 ( $Z = -3.135, p = 0.002$ ) and remained significantly higher at T3 than at T1 ( $Z = -3.177, p = 0.001$ ; Figure 20). These findings demonstrate the long-term impact of the workshops on participants’ sense of competence in relation to exercise, which is important for long-term behavioural change.



*Figure 20* Bar chart showing participants' scores of competence for exercise on the BPNES at T1, T2 and T3

Thematic analysis of interviews supported by survey responses revealed two sub-themes that underpinned participants' sense of competence, namely, challenge and achievement, and a supportive learning environment.

### ***Challenge and achievement***

There was an overwhelming sense that the most enjoyable aspect of the workouts was the challenge associated with it, despite how hard the exercises were and the physical pain that some experienced, the participants relished the opportunity to push themselves. The responses highlighted a great sense of achievement as a result of completing an activity which at first appeared almost impossible to some, and the increased competence as the exercises became easier to perform (please see [Appendix Q](#) for full table of quotes supporting this sub-theme).

Seven participants noted that the least enjoyable part of the workouts were the sprints (eight sets of sprinting on the spot for twenty seconds at a time with a ten second rest in

between) because they were so difficult, with some admitting that this was due to poor fitness levels.

*“[I least enjoyed] the sprints - but only because they were hard!” (Survey response)*

*“Cardio is poor so I found [the sprints] hard” (Survey response)*

Some noted the sprints as the least *and* most enjoyable aspect, because the intensity was so high that the reward when finishing was greater. Similarly, some found the intensity of the first session too much to keep up with, with one participant suggesting the workouts should be tailored to individual needs.

*“[I least enjoyed] The first session. Was incredibly hard to keep up” (Survey response)*

*“It was too intense to start with. Over a longer period of time - it needed therefore to be more tailored to the individual's capacity and need.” (Survey response)*

It is important to note that the feedback above was taken from T2 surveys that were completed by those who finished the workshop and there were twenty-eight in total who did not complete a T2 survey, in most cases this is because they did not complete the workshop. According to interviews with fellow prisoners, participants who had dropped out revealed that they had done so because the workouts were too hard, with some of these attending the first workout and not returning.

*“Once [participants who dropped out] arrived at the start of the session they wouldn't leave they just wouldn't come back the next day.” (Interview)*

Correlational analysis of the survey data also found that those with low levels of exercise competence at the start of the workshops had poorer general health, and those with higher heart rates and lower blood oxygen levels at the start had lower levels of perceived

competence for exercise at the end of the workshop, demonstrating that poor health is associated with a lack of perceived competence for exercise. Therefore, those with low levels of perceived competence for exercise are likely to be the ones who benefit most from engaging in the workshops, and as such, further support to promote competence should be provided to these individuals.

### ***Supportive learning environment***

A key theme in relation to feedback from the workouts was the enjoyment associated with the opportunity to learn a variety of new exercises that participants could apply themselves, in the form of exercise that can be performed in a confined space. LJ's practical teaching style and use of language was pivotal in making it easy for participants to understand how to perform the exercises, and the variety of exercises kept participants engaged. Furthermore, the flexibility of the exercises in terms of adapting them to reflect individual abilities made it easy for all participants to engage with the exercises. As a result, this acquisition of knowledge appeared useful and enjoyable to all participants, whether they were already exercising in their cell to some extent or had not been engaged in exercise inside prison at all (see [Appendix Q](#) for additional quotes).

*“[I enjoyed] The exercises in combination with LJ his explanations so you know exactly what to do and what it is for” (Survey response)*

*“I found that the information coupled with the workout was very informative and I gained a lot of knowledge due to the fact the instructor LJ was very adequate in terms of presentation and it was an easy environment to learn” (Survey response)*

The extract below from an interview with LJ highlights how he aimed to create a learning environment that reflected his own learning style.

*“I wanted to make these sessions [interactive], with conversations and with people’s education and learning abilities and learning history, I fit that criteria, I’m not the one to sit down with a pen and pad and “now do this piece of work” I wouldn’t engage in that, but with the questions I was asking, relevant questions, anyone could answer, you know “what do you think mindset is? Give me your wildest guess!” Just anything to get it whirring in their heads, you know I’d get opinions write them down, give a definition, give out handouts, ask “does anyone else want to read out this handout now?” It might sound like basic stuff though but you know, sometimes, that’s the best way to learn something basic. The whole workshop, I’ve catered for myself.” (LJ)*

As with the fitness sessions, participants thoroughly enjoyed the learning that was associated with the afternoons, particularly the learning environment which was created through open and informal group discussions, clear explanations, and information that was relatable and engaging, with many finding the nutritional information particularly useful.

*“This afternoon was the best so far for me, it really hit the nail on the head for me of where and how I want to get the most out of my sentence. The sign posting was so easy to use and understand and I know that for me is what I need for me to move to my next stage”(Survey response)*

*“[I most enjoyed] the open style learning. It never felt like ‘you and them ’” (Survey response)*

*“I found the afternoon class really positive, I really liked how easy it was to put into practice the things which we learnt. I liked how the class on goal and target setting was presented it was easy to follow and made a lot of sense” (Survey response)*

The opportunity for learning across the morning and afternoon sessions was also highlighted by many as the most useful aspect of the workshops overall.

*“Overall, I gained a lot of knowledge, awareness and exposure to do with my health. How to live a healthy life” (Survey response)*

*“Finding out about mindset, future employment and education opportunities [was most useful overall]” (Survey response)*

Despite this open approach to learning there were some participants who struggled to engage with the afternoons, citing personal reasons such as *“I’m easily distracted”*, and *“because it’s theory and I’m more of a practical person.”* Furthermore, three participants stated that the afternoons did not teach them anything new.

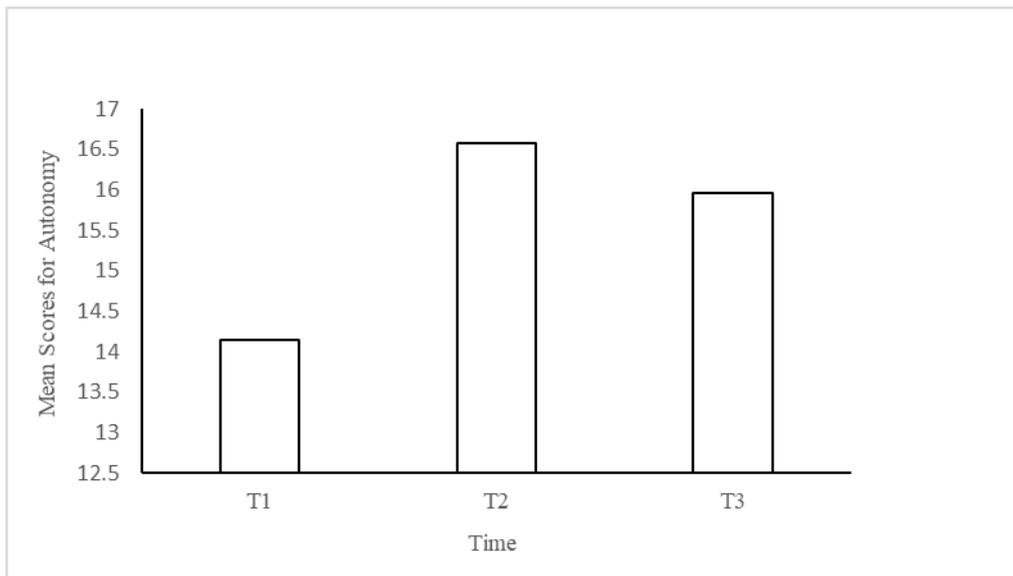
*“The theory part I found the least enjoyable, only because I am already schooled in that sort of thing” (Survey response)*

*“I already know most of what I was taught in the afternoons” (Survey response)*

*“It is not about not liking it, just, I have done it before” (Survey response)*

### **Autonomy**

Measures of autonomy in relation to exercise increased significantly from T1 to T2 ( $Z = -3.796, p < 0.000$ ; Figure 21), and continued to increase at T3, although not significantly. However, at T3, measures of autonomy had begun to *decrease*, and although this was not a significant decrease the importance of this finding cannot be understated.



*Figure 21* Bar chart showing participants' scores of autonomy for exercise on the BPNES at T1, T2 and T3

Thematic analysis of interviews supported by survey responses revealed that a sense of control over healthy behaviours was the key theme that underpinned participants' sense of autonomy. Consistency was identified as a key factor in the workshops' ability to support prisoners' autonomy to engage in exercise. Although the workshops were also subject to the regime, very few planned sessions were missed entirely. This increase in certainty with regards to what the following day or week was going to entail enabled participants to plan ahead and feel in control of their time, giving them greater focus and empowering them to cope more effectively during times when they were not able to leave their cell, such as across the weekend.

*“Over the weekend I seemed to be much more active as opposed to just laying down doing nothing.” (Diary extract)*

Discussions between the researcher and prisoners during periods of data collection revealed that many participants who were employed in the prison before taking part in their workshop were not able to go back to their jobs at the end of the fortnight, either because

their role had been taken by another prisoner in the meantime or due to miscommunications with the activities team who manage the list of prisoners who should be unlocked each day. This led to some prisoners being locked in their cell for much of the day as a direct result of engaging in the workshop, which is in stark contrast to the consistency of the workshops and may well have contributed to poor levels of autonomy at follow-up.

Participants were asked if there was anything they would choose to change about the workshops, with the overwhelming response being to extend the length of time that they run for, or to provide ongoing support once the workshop ends.

*“I wish it could be longer. I just want more of it, which is a good thing. I loved it.”*

*“I would recommend it should be 8-12 weeks to have the continuity as I and the others could very easily stop exercising as because the group sessions is over and many of us could be easily stop workout for different reasons, one of the reasons could be joint pain from lack of exercise previously.”*

*“To be honest I'd just like it to be longer, 2 weeks isn't enough.”*

*“I thought the course could be longer, maybe 4 weeks instead of 2 weeks, as I was just getting into it properly in the second week, hahahaha!”*

*“The only thing I would change about the course is I would make it an ongoing thing and not just two weeks, it's just not enough. It needs to be something more fixed as an exercise and education course.”*

*“To check up on people 4-6 weeks after the course has finished to see how they are doing. To have a session with people who have done the course to run the session if the cell workout teacher is not about.”*

*“I would make the course longer. Maybe have bigger classes in a larger area and I would do it outside at times if weather was ok and if it was possible.”*

*“It would be nice to exercise in fresh air.”*

### **Control over healthy behaviours**

LJ identifies the need for prisoners to take control of their own behaviours to promote well-being and highlights the importance of this through his own experiences.

*“How good are you at problem solving? I didn’t realise I was any good at it until you know what...People make excuses “the food’s shit”, “there’s no gym”, honestly, ok, that’s fine, but look at the alternatives... I get it, everyone’s a moaner, you know, you’re inside... but what can you do? I had to constantly find solutions to barriers I was coming up against.”*  
(LJ)

The clear majority of those who were interviewed were not aware that the workshops included discussion based sessions in the afternoon. Despite this, they were incredibly well received, with many in the interviews revealing that they found the afternoons of greater personal benefit than the morning workouts. Feedback on the afternoon sessions reflect strong emerging themes of motivation, determination and a sense of self-confidence that participants gained from engaging in these sessions. The first topic regarding mind-set and how to move from a “fixed” mind-set to a “growth” mind-set was frequently identified as a highlight, with many participants identifying strongly with this terminology, challenging their own thought processes and gaining a sense of autonomy as a result, which is crucial for behavioural change (for table of extracts reflective of perceived autonomy see [Appendix R](#)).

*“I enjoy learning about how exercise can put you in a positive mindset. The evening workshop made me realise that I can achieve anything I want with hard work and determination” (Survey response)*

*“I loved the bit about being stuck in the same mindset, which was so true for me. Time for a change in my mindset” (Survey response)*

Participants’ survey responses stated that one of the most useful elements of the workshops overall was that it gave them the tools to engage in exercise whilst in prison, with many referring to the Cell Workout book as a key enabler for this.

*“The learning ability to continue training in my cell when the course is over [was the most useful aspect]” (Survey response)*

*“Well now I have the book I intend to write out my own week by week routine by selecting exercises out of the book and mixing them up to have a full body work out” (Survey response)*

Perceived autonomy support was also measured quantitatively through the Sport Climate Questionnaire, with a mean score of 6.8 out of a possible 7 ( $N = 68$ ). Participants felt strongly that they were given choices and options, they felt understood and listened to, their perspective was taken into consideration, and LJ showed confidence in their ability.

*“I found LJ very easy to get on with and he made it very clear when telling us what to do. Overall I enjoyed all of it.” (Survey response)*

### **Autonomous behaviours**

In line with SDT it is important to distinguish between perceived autonomy for a behaviour as a basic need and behaving autonomously, with the latter being a product of internalising one’s motivations for a behaviour and thus experiencing satisfaction of the basic needs. Outcomes from the workshops indicate that participants were feeling more autonomous in their behaviours through changes in their motives for exercise and a

recognition of the ways exercise could benefit them personally, suggesting internalisation of exercise motivation.

### *Aligned with self and values*

According to Self-Determination Theory, to promote long-term behavioural change our reasons for engaging in a new behaviour should be more internalised and in line with our own values and beliefs. Participants completed the MPEMM at T1 and T2, which identified their reasons for exercising. These responses revealed that, overall, reasons for exercise had become more internalised across the workshop, with analysis revealing that most internal reasons for exercise were significantly more salient for participants at T2, including *Socialising* ( $Z = -3.388, p = 0.001$ ), *Revitalisation* ( $Z = -3.022, p = 0.003$ ), *Strength & Health* ( $Z = -2.383, p = 0.017$ ), and *Competition & challenge* ( $Z = -3.189, p = 0.001$ ). The only internal motive which did not see a significant increase was *Interest* ( $Z = -1.862, p = 0.063$ ), although it did increase, participants identified relatively highly with interest as a key motive at T1 ( $M = 3.65$ ), so a significant increase was less likely. Motives for exercise which were regulated by more external processes did not see significant increases, namely *Amotivation* ( $Z = -1.431, p = 0.153$ ), *Weight* ( $Z = -1.328, p = 0.184$ ), and *Appearance* ( $Z = -.393, p = 0.694$ ). These changes are very positive in terms of behavioural change and demonstrate participants' progression across the continuum of self-determination from controlling to more autonomous forms of exercise motivation.

The workshops gave participants a clear sense of motivation to engage in healthy behaviours, whether that be exercise, education or adopting a positive mindset generally. There was also an increased self-awareness associated with the change in mindset, with many participants identifying a need to take greater control of their own behaviours. Some refer to the workshops as “re-igniting” their drive to be healthy, suggesting that the workshops were

not presenting new concepts or behaviours, but highlighting the personal importance of ones which have diminished over time (for more supporting extracts please see [Appendix R](#)).

*“You have to change your mindset yourself, no one else can do that for you.” (Survey response)*

*“[The workshops gave me] motivation. I kind of lost it but the classes gave me the chance to get back into it, that kick start I needed.” (Survey response)*

*“I wouldn't say it has changed me but I would say it's re-lit my desire and motivation to do something with my time.” (Survey response)*

*“I think that the Cell Workout Workshop was a very good way to get motivation into starting to getting a routine together that could help get over the stress that inmates go through whilst in prison. It helps you to communicate with other inmates as well as promotes good health or at the least makes you think about making some lifestyle changes.” (Survey response)*

### ***Personal benefits of exercise***

Participants acknowledged the positive impact that the workouts had on their well-being. Although physical improvements were highlighted by some, in particular the satisfaction associated with monitoring their progress through their physiological measures, it was the impact on mental well-being which received the greatest attention. Participants referred to feeling good within themselves, having more energy and being less stressed and more positive in general ([Appendix R](#)).

*“I enjoyed all the exercises during the workshop. The reason is that I felt like coming back into my body and that's exactly what my body has been missing. I feel really good within me.” (Survey response)*

*“It gave me something to occupy my mind and give me something to look forward to. I also enjoyed how it challenged me and made me feel much better health-wise and how mentally I felt less stressed out and more positive about everything in general” (Survey response)*

### **12.1.6. Disengagement**

#### **Young Offenders**

The third workshop consisted of young offenders (YOs; 18-21 years) only, who were all on remand within the prison, meaning they had not yet been sentenced and had no opportunity for free-flow, spending up to 23 hours a day in their cells. Unfortunately, the engagement level from this cohort was very poor, and the decision was made to discontinue the workshop after the first week. Many of the YOs were unlocked from their cell and then did not go down to the workshop and were not escorted. The Senior Officer on the wing advised that any activity with the YOs would require more intense support, and in a prison dedicated to YOs it would be normal practice to escort prisoners from their cell to activities and back, however, there was limited resource available to make this possible in HMP Wandsworth. Implications for this and suggestions for future workshops to engage YOs are presented in the discussion of this evaluation.

#### **Non-completers**

Using quantitative analysis software, comparisons were made between T1 measurements of those who completed the workshops (completers) and those who dropped out (non-completers), to identify any significant factors that may indicate why some participants were more likely to drop out. A series of Wilcoxon signed-rank tests revealed

three significant differences between the two groups, with non-completers being younger than completers ( $U = 839.500$ ,  $p = .009$ ), and having significantly lower levels of vitality ( $U = 868.500$ ,  $p = .023$ ) and emotional well-being ( $U = 879.500$ ,  $p = .024$ ), however, these differences were no longer significant when the cohort of young offenders (YOs) was controlled for. Although the analysis only included five YOs, this finding demonstrates a clear difference in the levels of mental well-being between these YOs and other prisoners, which is of concern.

Interestingly, when YOs were controlled for, the only significant difference between completers and non-completers was that the former were more likely to exercise for reasons of revitalisation ( $U = 670.000$ ,  $p = .049$ ). This finding suggests that participants who recognised exercise as a way to experience increases in energy through autonomous means were more likely to stay engaged with the workshop.

#### **12.1.7. Workshop delivery**

It is important for practitioners and researchers who are not familiar with prisons to understand and appreciate the structural and cultural factors that operate within a prison, should they wish to engage with prisoners or prison staff effectively. The methodology section of this evaluation paints an idyllic picture of how the workshops were delivered, but prisons are unpredictable environments that can be difficult to navigate without a good understanding of how they operate. As part of the present evaluation LJ was interviewed following the delivery of the workshops to understand and reflect on his experience of managing their delivery inside a prison from a practical perspective. Qualitative analysis of this interview highlighted four themes that were key to successful workshop delivery namely, respect, autonomy, the prison regime, and flexibility. Please see [Appendix S](#) for quotes to support each theme.

### ***Respect***

There was a clear mutual respect between the prisoners and LJ, and throughout his time at HMP Wandsworth he continually reflected on his own experience of being a prisoner, acting with empathy and making reasonable allowances for the impact of prison life on prisoners' moods and behaviours. At the same time, LJ was mindful of confidentiality and security, and found the prisoners to be equally as respectful of this.

As well as creating a strong rapport with the prisoners, LJ recognised the importance of developing and maintaining positive relationships with prison staff wherever possible. Before the workshops began LJ was introduced to a Senior Officer who kindly provided office space on the first wing that he would be working on and introduced LJ to the officers on that wing in the morning of the first workshop.

### ***Autonomy***

The practical delivery of the workshops was managed solely by LJ, from their promotion to the selection process and delivery. The most crucial factor that allowed LJ to deliver the workshops autonomously was that he "held keys", meaning he had a set of keys that allowed him to move around the prison freely, without these he believes it would not have been possible to deliver the workshops.

### ***Prison regime***

Although not all prisons operate in the same way - indeed, not all wings within the same prison operate in the same way - there are many commonalities between prisons. Prisons operate according to a 'regime', which is the daily timetable of prisoners' activity. The regime may differ depending on the prisoner, the wing, or the day of the week, but it is strict and must be adhered to for staff and prisoner safety. During his time as a prisoner, LJ experienced first-hand the unpredictable nature of prisons and the many issues which impact

on the regime, such as staffing levels or security breaches, which often resulting in “lockdown”, meaning prisoners were locked in their cells. Much of the general feedback from participants reflected the unavailability of some sessions due to the prison regime.

*“Sometimes there were inconsistencies in scheduling but at no fault of LJ.” (Survey response)*

*“The sessions weren't always on due to nowhere to have it due to no staff.” (Survey response)*

*“Never really got to do much due to lockdown and staff.” (Survey response)*

Although LJ was given the privilege of “holding keys” which meant he could navigate through the prison and onto different wings autonomously, only prison officers are able to unlock prisoners’ cells. This meant that his relationship and communication with wing officers was vital in ensuring participants were let out of their cells to attend the workshops. It was also imperative to respect that any activity involving prisoners must fit with the regime, which meant working with the wing officers to understand the times that cells would be locked and unlocked each day. On some wings, there was no “free-flow”, which meant none of the prisoners were engaged in regular education or employment within the prison during the day, and therefore would be kept in their cells during working hours. On these wings, LJ had to identify which prisoners would be participating in the workshop for the next fortnight and let the officers know, so that they could let them out of their cell in the mornings, allow them back in before lunch, let them out again after lunch, and back in again when the afternoon session was finished.

If a wing had free-flow, meaning the majority of the prisoners were involved in education or employment throughout the prison, then an “activities” team of officers would be given a list of those who should be let out in the morning and afternoon. Because of the

volume of prisoners on free-flow, the activities team would also need to know who attended each workshop session and who was back in their cell afterwards, which meant keeping a strict register and returning it to an officer whenever it was taken.

### ***Flexibility***

A great deal of flexibility was required with regards to the way each session was delivered. The availability of space and restrictions on time, including sessions that were missed entirely, meant that the content of the workshops had to be adapted. The initial workshops were delivered on the wing, in a room on the ground floor which was originally three cells that had been knocked through to make a long narrow space. On some wings, the only available space that was granted was so small that the group had to be divided into two for the purpose of the workout, with these being delivered back to back. Each space that was proposed to be used for the workshops had to be risk-assessed in advance, which sometimes meant that a suitable space could not be used at all.

## **12.2. Study III Discussion**

### **12.2.1. Behavioural change**

***Exercise.*** The findings from the CW Workshops highlighted two key factors in terms of behavioural change, namely, increased readiness to exercise in line with the TTM and positive changes in exercise behaviours. With respect to the increase in readiness to exercise it is perhaps unsurprising that participants were already in the preparation stage (rather than the preceding stages of pre-contemplation or contemplation) before starting the workshop, as they had all volunteered to take part, which indicates that at the very least they were already contemplating exercise engagement. Progressing from the preparation to the action stage requires self and social liberation, and the significant changes in participants' exercise ladder scores from T1 to T2 indicate that the workshops were supportive of these processes.

According to the TTM this shows that participants believed in their ability to change and as a result made a commitment to exercise, they also recognised that their social network was more supportive of engaging in exercise as a healthy behaviour, rather than not exercising at all. It is very encouraging that participants remained in the action stage at follow-up, which suggests that for the most part they had continued to engage in some form of exercise despite the structural barriers within the prison identified in Study II. Unfortunately, the long-term exercise behaviours of those who were released from prison is not known, and this is likely to pose the biggest challenge to continued engagement. To maximise the likelihood of continued exercise engagement on release participants need to be in the final stage of behavioural change according to the TTM, which is the maintenance stage. The maintenance stage requires stimulus control, counter conditioning and helping relationships to be sustained. Stimulus control involves cues and reminders to encourage exercise, rather than unhealthy behaviours, counter conditioning is the substitution of unhealthy ways of thinking for healthy ones, and helping relationship should be found in others who are supportive of exercise. These supportive factors highlight the important of creating and maintaining a supportive environment following completion of a SBI if prisoners are to engage in long-term exercise both inside prison and following release.

Changes in exercise type from more solitary, anaerobic exercise, to group-based, aerobic exercise may have positive implications for prisoners' psychological well-being. As highlighted in Study I, anxiety is a prevalent issue for prisoners (Ministry of Justice, 2012b), even amongst those who are mentally well (Cohen, Tyrell and Smith, 1991), and research suggests that aerobic exercise may be more effective at reducing state anxiety than anaerobic exercise (Raglin, 1997). Furthermore, many prisoners reported continued engagement in the high-intensity aerobic exercises performed in the Workshops, which has also been shown to cause more *rapid* reductions in measures of anxiety than anaerobic exercise (Broman-Fulks et

al., 2004). Given the research, it may be the case that high-intensity aerobic exercise, such as that performed in the morning workouts during the Cell Workout workshops, is well suited to the promotion of prisoners' well-being. This is not to say that other forms of exercise are less beneficial however, and further research into exercise type, intensity and frequency in prisons is needed.

**Smoking.** The mean scores for the cigarette evaluation questionnaire and the number of cigarettes smoked per day show that at T3 many smokers had reverted back to the smoking behaviours they had engaged in before the workshop. Furthermore, general health did not increase at T3 for smokers, although it did for non-smokers. This suggests that some of the more negative experiences associated with smoking that had developed across the course of the workshop began to lessen over time, with no long-term impact, and it could also be that falling back into smoking behaviours was related to poorer general health. Although it is important to be mindful of the limited data collected at T3 it is possible that the high intensity and frequency of the exercises in the workshops were able to compound the negative impact of participants' experiences of smoking and increased participants' self-efficacy to quit smoking, which is a key determinant of successful cessation (Taylor & Thompson, 2014). Then, once the workshops finished and participants no longer engaged in the same level of PA, their self-efficacy for PA and the efficacy of PA to help them quite smoking was negatively affected, which would impact on the likelihood of using PA to support cessation (Everson-Hock, Taylor & Ussher, 2010). Smokers also noted that exercising with non-smokers who appeared to be much fitter gave them more motivation to quit, but following completion of the workshops they may have spent less time with their peers, which is likely to have reduced the positive impact of peer support that has been highlighted by research (Gottlieb & Baker, 1986). These findings indicate that an intensive SBI like the CW Workshops is effective to support smoking cessation in the short-term but perhaps creates

unrealistic levels of self-efficacy and peer support which cannot be maintained in the long-term. Despite the increase in cigarettes smoked at T3 there were some longer term positive changes, as participants' readiness to use PA to support cessation, and the nausea experienced when smoking, both remained elevated. This suggests that there is some utility in the use of SBIs to support smoking cessation.

According to the readiness ladder smokers were in the action stage at T2, and the TTM suggests that in this stage individuals need to use counter conditioning, stimulus control and a helping relationship to move into the maintenance stage and long-term behavioural change. For counter conditioning smokers need to adopt a substitute to smoking, in the case of participants on the workshop this could be using exercise as an immediate way of controlling cravings, or nicotine replacement therapy from the prison healthcare team. Although many participants had already begun to identify with exercise as a means of supporting cessation it may help to promote the efficacy of exercise to support smoking cessation throughout the Workshop, using specific and relevant examples and continued measures of personal health benefits, such as increased lung capacity. Stimulus control involves the management of one's environment to support behavioural change, which may mean moving away from those who smoke, or managing the triggers which are likely to lead to smoking. Arguably, the smoking ban may provide a means of controlling the environment to a certain extent, making cigarettes much harder to obtain. Finally, helping relationships include ongoing support to quit smoking altogether, which may come from significant others inside or outside of the prison, as well as the healthcare team. Smokers from the workshops who are attempting to quit smoking should use this opportunity to engage with one another and create a positive social network that uses exercise and healthy behaviours as a common ground. Finally, the difference between smokers and non-smokers in terms of emotional well-being is notable, and although it is not known whether smokers have lower well-being, or

whether lower well-being causes prisoners to smoke, this finding highlights the importance of engaging smokers in programmes to promote well-being, particularly considering the imminent smoking ban.

**Education.** The timing of the presentation from the Prisoners' Education Trust appeared to have an impact on participants' receptiveness to the information. Through interviews, some participants claimed that they had heard of distance learning but had not engaged with the information presented to them before. The timeliness of information presentation is crucial, particularly in the prison environment. Prisoners are required to complete numeracy and literacy assessments when they first arrive in prison, and often this is the time that details of any available educational courses are presented to them. The first few weeks or months in prison can be a very tough time, coming to terms with a sentence and adjusting to the prison environment, with practical adaptation not taking place for some time (Harvey, 2007). Therefore, this is unlikely to be the optimum time to provide key information for rehabilitation. Following the morning workouts participants reported feeling energised and focused, this may contribute to greater levels of engagement with information presented in the afternoons. The Behavioural Insights Team (BIT) are a government institution dedicated to the application of behavioural sciences across the policy community, and they outline four simple ways to encourage a behaviour, namely, make it Easy, Attractive, Social and Timely (EAST; Service et al., 2014). Part of the BIT's recommendations emphasise the importance of presenting information to people when they are most likely to be receptive (make it timely), and the outcomes of the present study suggest that for many prisoners this may be following engagement in aerobic exercise and in the company of a supportive learning environment. For a comprehensive review of implications for policy and practice from the CW workshops based on the EAST framework please see Baumer (2018). Future research should look to explore the relative impact of exercise and group dynamics on

prisoners' level of engagement with information being presented to them, and contact time with prisoners is limited it is vital to understand the context in which it will be best received.

### **12.2.2. Health outcomes**

The health domains of Physical Functioning and Social Functioning were the only two not to see significant changes at any time point. The physical functioning domain measured participants' ability to complete moderate intensity activities such as picking up a stack of books or walking around a football pitch twice, and as all participants had to complete a physical activity readiness questionnaire (PAR-Q) and fitness assessment prior to engagement, it was unlikely that any of them would be restricted in such activities.

Furthermore, the wealth of physiological measures included in the evaluation can provide more in-depth data reflecting changes in participants' physical functioning, so this is not of great concern. With regards to social functioning this domain only consisted of one item as the other item was deemed inappropriate for prisoners, as such, greater attention was paid to social functioning through the survey and interview responses.

The significant decreases in vitality and emotional well-being from T2 to T3 are of concern, and although there was no control group to ascertain whether decreases in emotional well-being and vitality were experienced by prisoners who had not engaged in the workshops at all, these findings do suggest that a lack of long-term support has had a detrimental effect on some aspects of the participants' lives in prison. Research in line with SDT has shown that vitality and well-being are outcomes of autonomous behaviour (Deci & Ryan, 2000; and Nix et al., 1999), which indicates that prisoners' health outcomes at T3 are reflective of a lack of engagement in autonomous behaviours. This is supported by the finding that some participants who had a job in the prison before the workshops did not have their position held for them, which meant that when the workshop finished they spent most of their day in their

cell. Other prisoners who had adapted practically and found ways that they could exercise on the wings had this opportunity revoked. According to SDT, autonomous behaviour is underpinned by the basic needs, and as such, any effort by prisons to promote health should include the creation of an autonomy supportive environment which will promote vitality and well-being, and increase prisoners' motivation to engage in healthy behaviours. The following sections will highlight how the basic needs can be satisfied through engagement with a SBI, creating an autonomy supportive space to support prisoners' well-being.

### **12.2.3. Need satisfaction**

*Supporting relatedness.* Woods et al. (2017b) emphasise the importance of consulting service users in the development of prison SBIs, and as an ex-prisoner, LJ occupies a unique position allowing him to use his experience to inform the development of the workshops and create a programme which considers how best to promote prisoners' motivation. By using the first group theory session to educate the participants in his own experiences, LJ could quickly establish a level of rapport and understanding with other prisoners that may take others a substantial amount of time to develop, and the depth of this relationship is clear from the high esteem with which participants described him. Aside from this, LJ's determination, drive and success in achieving his goals, not just in relation to fitness but also in terms of education and employment, resulted in participants looking to his achievements as a model for their own behaviours. Participants' high levels of engagement and specific references to LJ, as well as their distancing of CW to the prison as a whole, seem to support Rowe & Soppitt's (2014) finding that prisoners' motivation to desist as part of a programme was higher when they felt that the programme and staff were working outside of the boundaries of mainstream offender management. However, some participants of the CW Workshops did feel that this same level of rapport would be possible with a trainer who was not an ex-prisoner, and it was LJ's conduct rather than his background which strengthened the sense of connectedness. Although

it may be possible that such a level of rapport could be developed by any individual, whether this connection would be as quick to develop if LJ had not been an ex-prisoner is debateable. Woods et al. (2017b) note that time invested by facilitators of SBIs to relationship building, including one-to-one sessions, has a positive impact on social abilities, allowing participants to feel more open and trusting, they also note the importance of providing support post-release, acting as referees or helping them to engage family members in sporting activities. Although the workshops only ran for a fortnight each, there was a noteworthy amount of contact time between the participants and LJ, including one-to-one sessions at the start of the workshop. LJ also acted as a point of reference for some participants when they were released, and was able to signpost participants' family members to organisations such as the Prince's Trust, who provided support for those wishing to engage in community sports. These features are likely to have contributed to the strong relationship between LJ and participants, with increases in participants' well-being.

Despite substantial amounts of contact time between prisoners and prison staff there do seem to be barriers to developing positive and trusting relationships, which Woods et al. attribute to the impact of power imbalance and inability of staff to support prisoners post-release (Woods et al., 2017b). Participants in Study II perceived some prison staff to be aggravators of the structural barriers to being healthy in prison, which has an overall detrimental effect on motivation and well-being. Although CW was a positive intervention which was funded by the National Offender Management Service and supported by prison management, it was viewed by participants as being entirely external to the prison, which could serve to thwart the relationship between staff and prisoners even further. It is also important to note that although many adult prisoners connected well with LJ, this would not be the case for all adult prisoners. LJ presents a hyper-masculine image with a muscular physique and good sporting ability, which may well have alienated some prisoners and

prevented them from applying to the workshops in the first place, thus, it is important to ensure that a diverse range of figures are provided in the context of sport in prisons, increasing the likelihood that prisoners will feel a sense of connectedness. Research is needed to explore the factors which constitute an effective figure of relatedness for prisoners' health behaviours, focusing on behaviours and skills which can be adopted by prison staff to try and minimise strained relationships and ease the tension experienced by prisoners and staff alike.

Although LJ was leading the workshops, the items measuring perceived autonomy for exercise referred to perceptions of other participants or those who they currently exercise with, suggesting that the sense of social support and camaraderie increased throughout the workshops, which is noted for its importance in promoting prisoners' well-being through sport (Parker et al., 2014; and Meek and Lewis, 2014). Participants also noted that they could communicate more effectively with others through the workshops, which Woods et al. (2017b) highlight as a benefit of training in a group in prisons. It is noteworthy that this sense of relatedness remained with participants at T3 despite a lack of formal follow-up support from the workshop, which highlights the positive impact that the workshops had in developing supportive relationships. Research suggests that the basic need of relatedness as outlined by SDT is also closely connected to a feeling of security (López-Rodríguez & Hidalgo, 2014), as supported by Bowlby's attachment theory which suggests that a secure attachment is related to feelings of safety and protection (Bowlby, 1970). This is of salience in the prison context where personal safety is continuously at risk through deprivation of security. As Sykes' would posit, prisoners respond to this deprivation through adaptive behaviours which mirror the criminal behaviours from outside of the prison. Thus, developing a strong sense of relatedness with LJ and others in the group may also have served to minimise the pains resulting from the deprivation of security, allowing participants to adapt positively and engage with the workshops physically and emotionally. De Viggiani

(2012) notes that this opportunity to 'let the front down' is very rare in prison, but that such close friendships provide valuable companionship and support. However, Haslam, Jetten, Postmes & Haslam (2009) recognise the negative impact of leaving an "in-group" on individual's sense of social identity, resulting in negative psychological consequences, as shown by the drop in emotional well-being. And since the workshops were only a fortnight long without much follow-up support, this source of participants' new identity was taken away not long after it was created. As Woods et al. (2017b) argue, relevant providers need to act with due responsibility to ensure this identity can continue, throughout prison and following release.

The positive impact of involving supporters from outside of the prison also had a positive impact on participants, and the supporters' day in particular was valued by those who were able to attend. Comfort (2007) has explored the impact of imprisonment on female partners, describing them as 'quasi-inmates' and emphasising the importance of considering their well-being as well as the well-being of prisoners. This is an area which is receiving increasing attention, and opportunities for prisoners to portray a positive identity to meaningful others in their lives, such as the supporters' day, are highlighted by Woods et al. for their positive impact on well-being (p. 156, Woods et al., 2017b).

***Mentor support.*** The detrimental effect that a lack of long-term support can have on prisoners is evident through the findings of this study, as is the potential for long-term engagement with healthy behaviours by developing a sense of connectedness to a positive individual or group. Unfortunately, the scope of the workshops in Wandsworth were limited in terms of the available resource to support their delivery, which meant that ongoing support following completion and focused support for participants during the workshops was not possible. There were overwhelming requests from participants to make the workshops longer, which is understandable given the certainty and stimulation they provided. However, the

workshops in HMP Wandsworth ran for six months, even if all participants had engaged throughout the fortnight they would have reached 105 prisoners in total, which is less than 7% of the total population. Given findings at follow-up regarding the significant reduction in scores of well-being and vitality, the decrease in scores of exercise autonomy, the diminished positive impact on smoking behaviours, the differences between expressions of interest and educational courses signed up to, and the lack of engagement from YOs, there is a strong case for the provision of more resource and ongoing support if future workshops are to promote long-term behavioural change.

As this evaluation has demonstrated, the position that LJ occupies as an ex-prisoner has a huge impact on his ability to engage with prisoners and gain their respect in a short space of time, as well as playing a pivotal role in the promotion of participants' motivation. Therefore, if future workshops are to maintain this element of relatedness then they should continue to employ ex-prisoners and perhaps serving prisoners in their delivery. Prisoners operate in prisons in England and Wales as mentors under various schemes, including the Samaritan's highly successful Prison Listeners' Scheme, which trains prisoners to provide emotional support to other prisoners. Future workshops could operate a similar approach by employing highly-motivated serving prisoners who have completed the workshops to provide support to other participants through the workshop and following completion, as well as providing additional resource to support the daily management of the workshops which would allow for LJ to devote more time to engaging with participants individually. To strengthen a sense of relatedness further, consideration should also be given to bringing participants from previous workshops who have been since been released back into the prison to share stories of success and how the workshop supported them. For widening participation in sport and exercise it is important to provide a diverse range of mentors, including those do not embody the hegemonic masculinity of the prison gym that is seen in gym orderlies, but

who do exhibit a positive masculinity of using exercise as a positive challenge to support oneself mentally and physically in prison.

As discussed earlier in relation to readiness to exercise, the Transtheoretical Model of Behaviour Change (TTM) posits that for individuals to maintain behavioural change there is a need to find support from others who encourage healthy behaviours, as well as the use of reminders that encourage healthy behaviours, and substitutes for unhealthy actions. Mentors could provide support and a regular reminder that engaging in exercise and other healthy behaviours is beneficial to well-being, as well as providing suggestions for being healthy as an alternative to unhealthy behaviours, such as new ideas for food options on the canteen sheet, positive programmes to engage with in the prison, or a source of positive conversation rather than engaging in unhealthy and negative thoughts. Studies have shown that physical activity adherence tends to decline after six months, (Lowther, Mutrie and Scott, 2002; Harland et al., 1999), so this may be the ideal time for mentors to provide more intense support and follow-up. It is also important to note that readiness to exercise, exercise competence, relatedness and readiness to use PA to quit smoking all remained high at follow-up, which demonstrates that prisoners are motivated to continue engaging in healthy behaviours, but they need a means through which to do so.

By employing a serving prisoner as a mentor, the workshops provide more figures who are engaged in healthy behaviours for participants to relate to, thus increasing the likelihood that they will feel a sense of connectedness. Furthermore, these mentors could look to identify those who drop out altogether and engage with them whilst the workshop is ongoing, to establish reasons for non-engagement and understanding whether anything can be done to bring them back into the workshop. In terms of logistics in the prison, mentors understand the prison regime which will help with the daily management of the workshops and the development of relationships with prison staff which is so vital to their success. The

inclusion of a mentor role also provides a goal for participants who are motivated and wish to challenge themselves further following completion of the workshop, with mentors themselves developing skills related to communication, leadership and problem solving, establishing high levels of autonomy and competence, and employability skills which can prepare them after release. Although CW was just two weeks long, long-term ‘through the gate’ support is integral to SBIs (Woods et al., 2017b), and shorter interventions such as these workshops should be seen as a ‘launch pad’ of sorts to motivate prisoners to engage in other positive opportunities in the prison. Mentor support can facilitate this transition as well as provide support through the gate, as is seen with existing programmes such as Switchback, who have a strong record of reducing reoffending. Nonetheless, such approaches require careful consideration of existing organisations such as probation and community rehabilitation companies (CRCs) and must be executed with sufficient support in place, as it may be detrimental to prisoners to offer through the gate support if it cannot be provided in an effective way.

*Young Offenders.* The purpose of the CW workshops is to promote prisoners’ motivation to engage in healthy behaviours, reaching those who may not be formally diagnosed with mental health problems but need support to manage their well-being whilst in prison. There is a need for such approaches amongst the youth estate, with a prevalence of mental health needs which are often undiagnosed and untreated (Fazel, Doll & Langstrom, 2008; Harrington & Bailey, 2006; Chitsabesan et al., 2006). Despite these needs, and the research demonstrating the benefits of sport and exercise on mental health, the Salford Needs Assessment Schedule for Adolescents (SNASA; Kroll et al., 1999) which is often used to assess young offenders’ mental health needs, does not take the management and promotion of physical healthcare into consideration. Meek & Lewis’ (2012) review of HMIP reports revealed that only twenty-two per cent of young offender institutions were integrating healthy

living initiatives into PE programmes, compared with over fifty per cent of the adult estate, and just sixteen per cent of all establishments were providing PE programmes specifically aimed at improving mental health. Unfortunately, the workshops in Wandsworth were unable to engage the YOs, and the uncertainty and lack of purposeful activity that goes with their remand status played a pivotal role in this. This observation is made more concerning when considering that in 2016 ten per cent of remand prisoners were subsequently acquitted, and fourteen per cent received a non-custodial sentence (Prison Reform Trust, 2017), thus, more should be done to mitigate the potentially harmful impact of prison on remand prisoners, particularly younger and more vulnerable prisoners. If researchers follow the consensus that as individuals get older they will encounter more opportunities to engage in the process of desistance, regardless of anything else, then this suggests that there is little point attempting to engage young prisoners. However, as the present research has shown, young prisoners do have a willingness to engage in the desistance process in some form, and the CW Workshops appeared to provide some support for this. Maruna (2001) suggests that an individual's level of motivation is key to ensuring they experience particular life events as a means to engage in desistance, and Giordano, Cernkovich & Rudolph's (2002) "theory of cognitive transformation" suggests that prisoners need an openness to change, exposure and reaction to turning points, or "hooks for change"; envisioning of a "replacement self"; and a change with respect to how deviant behaviour is viewed. Previous research into YOIs has demonstrated that this openness to change and "hook for change" can be fostered through the supportive environment of a SBI, creating a positive masculinity which young prisoners can aspire to as a replacement self (Meek, 2014). However, the prison environment must be adequate to support provision of SBIs, and as demonstrated by the CW Workshops, younger prisoners need greater support to ensure they are engaged. If the adult estate cannot provide the support

needed to engage these young prisoners then they are not suitable to house them, regardless of their sentence type.

Future workshops should look to focus on YOs and recognise the different needs and considerations that this entails. Support is required to ensure that YOs are not distracted when moving around the prison, and the afternoon sessions could be shorter in length, delivered in smaller groups using more practical and tailored examples to keep participants engaged. Furthermore, it is possible that LJ, being in his late twenties, is seen as less of a figure of relatedness for the YOs, so perhaps using ex-prisoners or highly motivated serving prisoners who are closer in age to the YOs will promote a greater sense of relatedness and more engagement.

***Supporting competence.*** Participants of the workshops reflected a diverse range of abilities, including prisoners who did not already engage in any formal exercise. Therefore, it was key that the workshops catered for the varying levels of confidence and ability reflected in each cohort, and there are strong indications that this was the case, with many participants experiencing a supportive environment which allowed their self-efficacy to develop. Deci (1975) proposes several social-contextual events which are essential for supporting competence and enhancing intrinsic motivation. These include feedback, communications, optimal challenges, and freedom from demeaning evaluations. To support competence from a practical perspective, the design of the workouts presented optimal challenges by allowed for varying levels of ability to engage, with basic, standard and advanced options presented. Whilst the cardio elements of the workouts, such as the sprints that each session begins with, could be adapted for anyone's abilities, as they allowed participants to speed up or down, or bring their knees higher or lower, depending on their fitness. Furthermore, the "winner" was not as apparent as it would be in a competitive race, as everyone remains static, reducing the competitive element and freeing participants from demeaning evaluations. Feedback and

communications were provided through the supportive figure of LJ, and the camaraderie of the group, adapting to encourage those who struggled and push those who could do more. A key opportunity for challenge and feedback was presented on the final day of the workshops, where each participant was encouraged to deliver their own 5-minute workout to the rest of the group. Ratings of perceived competence remained significantly higher at T3, which indicates that the Workshops were effective at supporting participants' competence.

Nonetheless, feedback from participants who completed the workshops, in particular their reflections of those who dropped out in the first week, indicate that the initial workouts are very demanding and may not have been optimal for all those taking part. Therefore, although many participants savoured the opportunity to challenge themselves by completing the intense workouts, perceived competence with regards to exercise may have been much lower for those who were not able to perform the workouts to a desired level.

Those who struggle most with the workouts are likely to be the ones who do not already exercise regularly and have poorer fitness levels, which is supported by lower readiness to exercise and physical functioning scores for non-completers. However, these individuals arguably stand to gain the most from the workshops in terms of being introduced to a new behaviour that can improve their fitness and give them the autonomy to support them through their daily lives in prison. Although the workshops did support varying abilities to a certain extent by offering 'basic' options, it is probable that, within the context of the first workout in a group of male prisoners who may not be familiar with one another, many participants will have strived to achieve and maintain a masculine image which requires full engagement with the exercises. This may have become more salient when LJ also performed the 'standard' option, as anything less than this could be perceived as a failure. Thus, in recognition of the masculinity which may dominate the initial workouts, workouts in the first session may be better placed with demonstrations of the basic version as standard, as

performed by LJ, with the option to increase the difficulty for those who wish to do so. To ensure competence levels are maintained across the group those who are more capable should continue to feel challenged, one way to achieve this is to increase the difficulty of the exercises throughout the workshop, with LJ beginning to perform the standard exercises rather than the easier versions towards the end of the first week, as well as offering advanced options to those who want to challenge themselves further. At this point, those who were less capable at the start of the workshops will have had more of an opportunity to perform the exercises successfully, therefore increasing their self-efficacy and the likelihood of them continuing to engage with the workouts, even if this means performing the easy version of an exercise. Furthermore, the interviews and survey feedback suggest that as the workshops progress, with increased opportunities for group discussion and a greater sense of peer support, the masculinity within the group focuses more on teamwork and perceived effort, rather than individual achievement, which suggests there is even greater support to continue with the exercises regardless of ability. This staged approach to the workouts in terms of intensity and difficulty may provide more opportunities for the group to engage with the exercises at a level they perceive to be acceptable, not just in relation to their own abilities but also in the context of the group, thus increasing perceived competence for exercise and supporting internalisation of motivation which is crucial for long-term behavioural change.

It is also important to acknowledge that even the basic versions of the exercises may be far beyond some prisoners' capabilities, perhaps because of injury or illness. These prisoners should be identified through completion of the PAR-Q at the start of the workshop and referred to the prison's healthcare team, with a view to engage in remedial fitness classes which are more reflective of their abilities until such time that they can engage with more intense workouts. Alternatively, prisons may wish to adopt remedial focused workshops which are designed to engage those with particularly poor fitness levels or injuries, providing

an exercise environment which is supportive of their individual needs whilst still providing some challenge.

Creating a supportive environment was also key in promoting engagement within group sessions where discussions played a central role, ensuring that all members of the group felt comfortable and able to contribute. With respect to this, the environment in which participants had their T2 physiological measurements would benefit from adjustment, as it is likely that some participants would have experienced the public sharing of outcomes as demeaning, which is counterintuitive to supporting competence. Additionally, interviews and survey feedback highlighted a subset of participants who believed that they did not learn anything new in the afternoon motivational discussions, therefore the content did not engage them or challenge their perspectives. To rectify this, the workshops could look to include optional additional learning material that can be completed outside of the workshops. This content should be relevant to the prisoners and encourage forward planning, such as devising a food diary that is optimal for their exercise goals based on the food available on the prison canteen sheet, or working on a business plan in an area that reflects their own interests. Woods et al. (2017b) have highlighted the importance of accountability to and for others as an important element of SBIs, particularly in the form of a “sports mentor”, to this end, participants who feel they are not challenged by the workshop content could be encouraged to take their learning a step further and use it to support others in a mentoring role.

***Intensity measure.*** Although the CW workouts were generally very tough and exertion levels were high, no measure of exercise intensity was completed. The review of exercise intensity measures in Study I creates the case for applying perceived exertion as an effective measure of intensity which is less prone to confounding variables. For future workshops, measures of perceived exertion should be taken at T1, T2 and T3 using Borg’s 15-grade scale of ratings for perceived exertion (the Ratings of Perceived Exertion scale;

Borg, 1970). This addition will aim to strengthen conclusions around engagement and motivation in relation to the intensity of the exercises, allow for more accurate monitoring of how challenging the workouts are, and contribute to the growing body of research adopting this method to establish more accurate comparisons.

***Supporting autonomy.*** Participation in the Cell Workout Workshops was entirely voluntary, and there were no consequences for prisoners who did not apply, or even those who decided to drop out of the course at any point. In terms of the workouts, all exercises were performed individually and participants could perform them at their own pace. This element of choice and the diversity offered by the exercises in CW fits with Woods et al.'s (2017b) theme "in their hands", which highlights the importance of allowing prisoners to exercise an element of empowerment and autonomy. The body weight high intensity exercises performed as part of CW were also very popular outside of prison at the time of delivery, and the importance of providing an offering to prisoners which is reflected outside of prison is also emphasised in Woods et al.'s theme. Participants of the workshops had less choice in terms of which exercises were performed, as the majority were chosen by LJ, however, this was somewhat necessary to ensure that all parts of the body were targeted throughout the workshop and that a wide variety of new exercises were taught. Perhaps the greatest means of promoting autonomy for exercise amongst the participants is the Cell Workout book. The book is a tool which enables prisoners to engage in autonomous exercise, regardless of whether they are let out of their cell onto the wing, or to go to the gym, allowing them to regain some control over their exercise behaviours in prison.

Increases in perceived autonomy from T1 to T2 and high scores of perceived autonomy provide support for the efficacy of the workshops to support participants' autonomy, which is recognised throughout the literature as being integral to increasing prisoners' motivation for exercise (Andrews & Andrews, 2003; Meek and Lewis, 2012 &

2014; Biddle, Fox, Boutcher & Faulkner, 2000; Sloan, Gough & Conner, 2010). However, perceived autonomy did begin to decrease at T3. Despite the Cell Workout name indicating that the exercises taught can be performed in the confines of a cell, the interviews revealed many reasons why some participants prefer not to do this, centred on the structural barriers of prison which are outlined in Study II. This includes sharing a cell with someone who they do not feel comfortable exercising in front of, or not knowing when they are likely to get their next shower. Therefore, prisoners remained reliant on prison management and staff to let them out of their cell to access spaces that were suitable for exercise. Just as a decision to exercise should be free from pressure for autonomy to be satisfied, if the decision to exercise is thwarted by factors outside of a prisoners' control, this is likely to result in ill-being and other maladaptive outcomes (Bartholomew et al., 2011), which is supported by outcomes in Study II which associate structural barriers to being healthy with feelings of mental and emotional strain in prisoners. One participant did exercise in his cell following the workshops because it was preferable to the peer pressure and competition experienced in the gym, and this highlights the importance of being mindful of the range of exercise opportunities that are accessible to prisoners. Supporting prisoners' autonomy to exercise is not solely based on increasing opportunities to go to the gym, and more effort needs to be paid to supporting autonomy by making it easier for prisoners to engage in group exercise in spaces on the wing.

Prisoners also need structure to their lives to help them get through the day (Woods et al., 2017b), and newly established daily structures such as the one provided by the workshops have been shown to facilitate an improved sense of purpose and meaning (Ryff & Keyes, 1995). However, following completion of the workshops the prison regime had ultimate control over prisoners' daily lives, and as such, there was uncertainty each day with regards to which activities they were able to engage in, an uncertainty which was heightened for those on wings with no free-flow and epitomised for prisoners on remand. The feedback from

participants regarding engagement in healthy behaviours outside of exercise was also of concern, as it implied that some prisoners felt they could not engage in education and employment simultaneously. There should be an understanding around prisoners' needs to balance employment commitments and the impact this may have on the chances for them to engage in programmes which will support them following release. There are clear benefits of employment, in terms of teaching commitment, professionalism, and providing a routine, but this should not be to the detriment of other key rehabilitative opportunities. Future workshops should be mindful of cultural practices within different prisons and the impact these might have on prisoners' capability to engage with the workshops, whilst prison departments need to adopt a more joined-up approach to support prisoner rehabilitation.

#### **12.2.4. Autonomous behaviours**

In the context of SDT, motivation is at its most resilient and long-lasting when an individual experiences autonomous engagement in a given behaviour, indicating that the basic needs have been satisfied and behaviour is experienced through an internal locus of causality. Analysis of responses to the MPEMM revealed that participants' motives for exercise became significantly more internalised from T1 to T2, which is a strong indication that they felt increasingly autonomous in their exercise behaviours. Increases in vitality as a health domain are also an indicator that participants' exercise behaviours were more in line with their personal values, as the satisfaction that we feel when performing an activity that is in pursuit of our own goals (also known as eudaimonia) is underpinned by feelings of vitality (Waterman, 1993; and Ryff, 1995). Furthermore, there is a lot to be concluded from the exercise motivations that did *not* see a significant increase from the start to the end of the workshop, as these were reflective of external reasons, this includes no increases in amotivation, or reasons for exercise that involve losing weight and improving appearance. In terms of behavioural change and promoting well-being it is promising that participants'

motives for exercise revealed such a strong shift towards internalisation after just a two-week period, but this may be a result of the intense environment of the workshops, and decreases in perceived autonomy at T3 suggest that the strength of these motives may have decreased.

Future research should consider long-term changes in exercise motivation facilitated by SBIs, focusing on what happens to prisoners' motives when they are no longer directly engaged and what can be done to maintain internal motivation.

Participants referred to feeling good within themselves, having more energy, and being less stressed and more positive in general at T2. This increase in energy supports Nix et al.'s (1999) research into the relationship between autonomous behaviours and exercise, and plays a pivotal role in prisoners' experiences of the workshops as well as being a key determinant of non-completers. Understanding that prisoners are more likely to remain engaged with a SBI if they identify with exercise as a means of enhancing personal energy is an important finding, as it highlights a key value that is personal to prisoners' motivation and can help to inform future efforts to engage prisoners in exercise as a means of improving well-being. This finding may also be the key determinant in distinguishing between prisoners who aspire to an adaptive or maladaptive exercise culture, as outlined in Study II, which in turn may help identify those who aspire to an adaptive or maladaptive masculinity in general. Thus, sport may be a novel way of identifying prisoners who are disengaged and continuously trying to prove their worth to others, as well as providing a means through which these maladaptive behaviours can be challenged.

Participants' increased motivation to exercise for reasons of interest from T1 to T2 are in line with the novelty of body weight training that the workshops provided. Participants were amazed at the range of exercises that could be performed without equipment and this kept them engaged and wanting to learn more. This desire to engage with different stimuli is in line with Berlyne, Crow, Salapatek & Lewis' (1963) idea of 'collative motivation' which

drives autonomous behaviours (as explored in Study I). This is an important finding in terms of prisoners' exercise motivation, as it supports the proposed structure of the MPEMM that indicates interest rather than enjoyment to be a key intrinsic motive. Interest is also associated with outcomes of revitalisation, which again is supported by increases in revitalisation from T1 to T2. Further research should look to include happiness as an outcome measure for prison SBIs alongside revitalisation, to determine whether there is a distinction between the two.

#### **12.2.5. Logistical considerations**

*The prison regime.* Woods et al. (2017b) highlight the paucity of research that considers stakeholders' perceptions of how SBIs can contribute to prisoners' well-being, and LJ's accounts of development and delivery can help to address this gap somewhat, as well as informing the delivery of future prison-based interventions. Liebling (2002) recognises that each prison has its own environment which must be taken into consideration in the delivery of programmes, whilst other researchers highlight the different "milieus" which exist within prisons, affecting social interactions and norms (Johnsen, 2001; and Maruna & Toch, 2005). However, there are commonalities between prisons that can be understood to ease delivery, and LJ's account highlights the need to appreciate the prison regime and the staff that manage it. Safety is paramount in any prison, and therefore, any attempt to engage prisoners must recognise this and be flexible in their delivery to fit with the requirements of the regime.

The regime also plays a central role in the process of data gathering and is a consideration that any prison researcher or practitioner must be mindful of. Timely requests to prison management and a great deal of flexibility is needed to ensure that the impact of inevitable delays is minimised, particularly with respect to follow-up data which can be difficult to obtain, but as the present study has shown, can be valuable to understanding impact. There are also significant benefits of collaborative working between prisoners or ex-

prisoners and academics to overcome structural barriers and create a deeper understanding of ‘what works’ inside prison, as the present research has demonstrated. The Prison University Partnerships in Learning (PUPiL) network as created by the Prisoners’ Education Trust, highlights best practice in terms of collaborative working between prisons and universities and is a great source of further information on such partnerships ([www.prisonerseducation.org.uk/pupil](http://www.prisonerseducation.org.uk/pupil)).

*Sample bias.* As the CW workshops at HMP Wandsworth were a pilot, the majority of the selection for the workshops was based on an opportunity sample of prisoners who were willing and available to engage in the workshops, which was indicated by the submission of an application form or expression of interest to LJ or a prison officer. This selection process may also account for differences in ethnicity between the general population and workshop participants, as non-British white prisoners may be somewhat segregated in the prison due to language and cultural barriers, which would almost certainly be an issue when approaching LJ directly, and may also affect how likely it is that officers will consider them when making recommendations. The high levels of relatedness between LJ and the workshop participants plays a key role in the promotion of motivation, however, this must be considered in the context of participants’ ethnicity, as a white-British Londoner, LJ reflects the dominant ethnicity and cultural background of the participants, which contrasts with the overrepresented non-white population in English prisons who represent 12% of the general population and 25% of the prison population (Ministry of Justice, 2017b).

As all participants were volunteers to the workshop it is likely they were in the preparation stage for exercise at least, and already possessed a certain level of motivation to exercise and be healthy. Arguably, those who are most in need of participation in the workshops are those who would not put themselves forwards. In future workshops, with more

time and resource, a fairer selection process is required, with monitoring of any possible impact this may have on levels of relatedness and overall motivation.

*Staff engagement.* The CW workshops were delivered in HMP Wandsworth as part of a grant which funded a significant number of programmes designed to reduce reoffending. As such, all communication with prison staff was initially conducted through the team responsible for managing the grant. This approach meant that, unfortunately, some key members of prison staff were not made aware of the workshops in advance. This was particularly problematic in the case of the Physical Education (PE) department, who were experiencing a disconcerting period with regards to their job roles, often being deployed onto wings due to staff shortages, which left them unable to open the gym for prisoners. By failing to engage the PE staff prior to delivery of the workshops there was uncertainty and suspicion regarding the intent and purpose of CW, which led to a hostile environment and a lack of support from the PE Department as a whole.

The workshops were not designed to replace the essential work that is delivered by prison PE Departments, on the contrary, this evaluation has demonstrated how imperative it is for prisoners to engage in physical activity to support them during their time in prison. Furthermore, there are positive effects of group exercise on prisoners' motivation and well-being that cannot be achieved by exercising alone in a cell, and some participants have noted that this group environment is essential for them to exercise at all, whilst participants who did not do any cardiovascular exercise prior to the workshops are now looking to attend the gym wherever possible. Thus, the workshops have driven an even greater need for exercise amongst its participants, which the PE Department should play a key role in supporting and delivering.

Delivering the CW workshops in various rooms and spaces across the prison required a lot of effort and resulted in the loss of some valuable workshop delivery time, therefore it is not a sustainable approach. To support the sustainability of future SBIs the ideal space for them to be delivered is in the PE Department, as this is a risk assessed area that should be large enough to accommodate a group workout. Furthermore, PE Departments often have outside spaces that could be used for workouts, which responds to the feedback of some participants who would have liked an opportunity to exercise outside.

Although LJ played a key role in the delivery of the workshops, there is a danger that presenting all workshops as external to prison management will increase the divide between and prisoners and staff that can exist, promoting an “us versus them” culture. It is important for the good of the prison culture that PE staff’s roles are not usurped. These members of staff often have a great rapport with prisoners and given the uncertainty around their job roles at present SBIs could provide a key opportunity to engage PE staff in prisoner rehabilitation by employing them to deliver workouts alongside prisoner mentors. By employing mentors to support PE staff in the delivery of SBIs the element of relatedness is retained somewhat, and in the context of CW this can be promoted further by focusing the exercises on the book written by LJ and promoting his story as a means of motivation.

### **12.3. Study III Conclusions**

The pilot of the Cell Workout Workshops was a positive programme promoting engagement in healthy behaviours in a way that is attractive and appropriate for prisoners. Although the principles of the Cell Workout book are to exercise within the confines of one’s cell, the workshops actually highlighted a need for many prisoners to be part of a group in order to feel motivated enough to exercise, and engagement in the workshops increased participants’ engagement in group exercise outside of the workshops wherever possible. There was also a shift in prisoners’ exercise behaviours from weight-based training

(anaerobic) to cardiovascular exercise (aerobic), which research suggests may have positive implications on well-being, particularly in terms of reducing anxiety. Furthermore, prisoners began to identify with exercise as an essential tool for their well-being, rather than just a means for improving physical fitness, and related their exercise behaviours to increased levels of energy. The constant negotiation of risk which takes place throughout the prison has a negative impact on prisoners' energy levels, but participants recognised that following the morning exercises they experienced an increase in vitality which supported their autonomous management of daily life in the prison, even throughout the weekend when they spent substantial periods of time in their cell.

The acquisition of new information that is personally relevant was very important throughout the workshops, whether this be related to fitness or formal education. Information was delivered through simple messages in a supportive learning environment with group discussion and no hierarchy, giving ample opportunity to relate the information back to the individual and understand how it could be applied personally. The learning environment with increased engagement levels led to high interest in further education opportunities, many of these relating to sport and exercise, demonstrating a clear demand for sports-based education in prison.

The significant decrease in follow-up measures of emotional well-being and vitality, and the decline in autonomy for exercise, are reflective of the negative impact that can be had when a positive prison-based intervention is followed by a lack of purposeful activity. With more time and resource the workshops should seek to utilise prison PE Instructors, using their knowledge and ability to engage prisoners to deliver workshops alongside serving prisoners. This partnership will work to engage participants during and following completion of the workshop, tackling the issue of non-completers and providing more social support to engage them from the outset, as well as creating a stronger social bond between completers,

supporting one another to achieve new goals, engage in regular group workouts, and acting as positive figures of relatedness to support long-term behavioural change.

The present study emphasised the need for prisoners to receive continued engagement and support that is relevant to their interests following an intensive programme such as the CW Workshops, which requires effective communication across all prison departments to engage prisoners at the right time before motivation decreases. More natural experiments such as this are needed to inform the prison service about prisoners' motivations to engage in healthy behaviours, and to highlight the far-reaching positive impact that sports-based interventions can have on prisoners' well-being.

## 13. Chapter 5 - Overarching Discussion

### 13.1. Summary of research and findings

This thesis sought to develop a comprehensive understanding of male prisoners' motivation to engage in exercise, and the subsequent well-being outcomes of exercise behaviours. This was achieved primarily through the theoretical framework of Deci and Ryan's Self-Determination Theory (SDT; 1985). The following concluding discussion considers the theoretical and practical implications of adopting SDT as a framework to shape an understanding of male prisoners' exercise motivations, and the importance of recognising the role of prison management in changing the overall culture of the prison to be supportive of positive masculinities and to maximise well-being through exercise.

Study I tested the suitability of SDT as an appropriate framework for understanding male prisoners' exercise motivations. This quantitative study included the development of a scale for identifying male prisoners' individual motives for exercise, known as the Male Prisoners' Exercise Motivation Measure (MPEMM), based on a sample of male prisoners who were engaged in a sports based intervention ( $n = 89$ ). The MPEMM consisted of seven factors reflective of internal and external motives for exercise; amotivation, weight, appearance, affiliation, revitalisation, strength & health, competition & challenge, and interest & enjoyment. The development of the MPEMM supported the hypothesis that male prisoners' motives for exercise were different in structure from that of existing exercise motivation measures, and provided a basis on which to understand the key individual motives for male prisoners' exercise engagement. Furthermore, the MPEMM was employed alongside measures of the basic psychological needs for exercise and psychological well-being to provide support for two key premises of SDT; the presence of a self-determination continuum, and the principle of basic psychological need satisfaction to support personal well-being.

The qualitative approach of Study II built on the findings of Study I to identify the main structural and cultural factors that influence prisoners' individual motives for exercise. Face to face interviews with twenty-two prisoners were conducted to explore prisoners' experiences of exercise and engaging in other healthy behaviours, both inside and outside prison. The theoretical backdrop of SDT and emerging relationships from Study I guided the identification of themes through a thematic analysis on the interview data, and this process shaped an understanding of how structural and cultural factors influence male prisoners' experiences of exercise. Study II concludes that male prisoners aspire to adaptive and maladaptive masculine ideals that are created in response to the experience of being in prison and the overarching prison culture that exists within in it, and the direction of these aspirations is greatly influenced by social factors, either inside or outside of the prison. In relation to exercise, these ideals shape adaptive and maladaptive exercise cultures, with important implications on prisoners' well-being outcomes. Adaptive exercise cultures enable prisoners to identify with exercise as a means of gaining the personal "energy" needed to manage the inherent tension that exists in prison, therefore, it is reflective of individual motives that support the basic psychological needs, such as using exercise as a means of engaging in positive challenge (competence) and gaining control over their physical and mental health (autonomy), viewing prison an opportunity to improve health, and valuing the social aspects of exercise to increase motivation and make it more enjoyable (relatedness). On the other hand, maladaptive exercise cultures foster a negative hegemonic masculinity which centres on exclusivity and solitary exercise, driven by individual motives that thwart the basic psychological needs and exacerbate the mental and emotional strain of prison, such as gaining muscle to fit the physical masculine ideal, exercising purely to look good to others, and competitiveness that focuses on winning. These masculine ideals shape prisoners' perspectives on the structural barriers to exercise that exist in prison, with maladaptive

masculinities framing them as absolute barriers that cannot be overcome, and adaptive masculinities mitigating these barriers somewhat by looking for alternatives and regaining some sense of control where possible.

The final study adopted a mixed methods approach to evaluate a sports-based intervention (SBI) in an adult male prison, known as the Cell Workout (CW) Workshops. The evaluation aimed to address what works in terms of increasing prisoners' individual exercise motivation and overcoming structural and cultural barriers to exercise, providing practical application for the findings of studies I and II. Data was collected at three time points; prior to commencing the workshop ( $n = 105$ ), on completion of the workshop ( $n = 78$ ), and between 2-6 months follow-up ( $n = 34$ ). An extensive set of measures including interviews, daily diaries and open-ended survey questions identified various means through which the CW Workshops were able to support prisoners' basic psychological needs for exercise, and in turn promote individual motivation and foster an adaptive exercise culture. Drawing on the positive outcomes of the CW Workshops, the evaluation provides a detailed understanding of how SBIs in prison can maximise prisoners' motivation to engage in exercise for the good of their physical and psychological well-being, leading to engagement in further healthy behaviours. In terms of overcoming structural and cultural barriers to exercise, the intensive environment of the two-week workshops were able to foster an adaptive masculinity which mitigated such barriers to a certain extent by promoting prisoners' motivation to engage in alternative behaviours, such as exercising in their cell or using the canteen sheet to make healthy food choices. However, outside of the intense support provided in the workshops, structural factors, particularly the inconsistent nature of access to exercise in prison, did play a key role in diminishing prisoners' sense of autonomy, leading to reduced engagement in exercise and other healthy behaviours.

### **13.2. Importance in understanding prisoners' exercise motivation**

The main focus of the present research is prisoners' exercise motivation, therefore, the value of these research findings is best understood through the functional significance of exercise motives. As highlighted in the rationale for Study II, understanding prisoners' motives for exercise can answer four key questions, namely; how motives influence exercise participation, which exercises may be undertaken, what the resulting affective responses to exercise are, and how engaging in exercise may in turn influence exercise motives (Markland and Hardy, 1993). Findings from throughout the present research can be applied from the perspective of SDT to frame answers to these four questions.

Firstly, prisoners' motives for exercise have been shown to have a direct impact on participation, which is demonstrated well in Study III, with the exercise motive of revitalisation being the key distinguishing variable between those who completed the CW Workshops and those who dropped out. The findings from Study I demonstrate how important revitalisation is for prisoners' well-being, with measures of vitality being significantly related to emotional well-being and the satisfaction of all three BPNs for exercise, and revitalisation motives correlating significantly with the BPNs for exercise and general health. This importance is echoed in Study II as interviewees express an acute awareness of their energy levels daily, often feeling lethargic in response to the lived experience of prison, and not knowing of any methods for increasing energy when depleted. Therefore, it seems imperative that prisoners can identify with exercise as a means for giving them the personal energy and capability needed to manage prison life daily to maximise well-being from exercise.

The present research has also highlighted difficulties with engaging prisoners in exercise within their cell, with multiple barriers perceived, particularly by those who were not regular exercisers prior to engagement with the CW workshops. Although intrinsic reasons

for exercise were found to be common motives for prisoners in the present research, it is arguable that the affect associated with exercise that drives these motives is somewhat lost when exercising in the confines of a cell, so even intrinsic forms of motivation fail to promote exercise engagement in the prison cell. Studies II and III provide some insight into this, with interviewees identifying the presence of a cell mate, lack of access to a shower following exercise, and limited space, as key reasons for not engaging in exercising in the cell. Some explained they would only resort to a workout in their cell if they had not been let out for several days, suggesting it was a last resort when no alternatives were available. Therefore, it appears that for exercise participation to have any hope of transcending the structural barriers imposed by the regime, motives for exercise must reflect identified regulation at the very least, and regular cell-based exercise is likely to require more integrated forms of regulation. However, follow-up data from Study III has shown that even when prisoners' readiness to exercise remained elevated, their levels of emotional well-being, vitality and autonomy, had all decreased. Thus, the adaptive masculinity and internalised motivation, which so many participants seemed to adopt through the supportive learning environment of the workshops, was seemingly thwarted by structural barriers over time. The most obvious of these barriers being access to a sufficient space for group exercise, with inconsistency in messages and a lack of respect or support from prison staff when delivering these messages, greatly contributing to the overall culture of tension.

On this basis then, without changes in the cultural approach to exercise promotion across the prison, it may be unreasonable to expect a SBI in prison to promote prisoners' motivation to such an extent that they engage in intensive cell-based exercises on a regular basis, particularly in the case of those who were not regular exercisers to begin with. An approach to exercise participation that focuses on cell-based exercise also raises moral questions in terms of its potential to justify limited access to exercise spaces outside of the

cell. Nevertheless, following the workshops, participants who exercised for somewhat internal reasons, particularly for the benefit on their psychological well-being and general mobility, did tend to engage in gentler forms of cell-based exercise to achieve this, such as performing stretches in the morning and during advertisement breaks when watching television, or performing a set of press ups when they were unable to leave the cell, using variations they had learnt in the workshops to ensure they remained challenging. Yet, these lesser forms of exercise were not adequate to mitigate the decline in emotional well-being, vitality and perceived autonomy at follow-up. So, promoting the internalisation of motives for exercise may increase participation in some forms of gentler or less frequent cell-based exercise, but access to exercise spaces outside of the cell is important for ensuring long-term engagement in exercise that can promote well-being.

The second question that an understanding of prisoners' exercise motivation can answer is how motives can influence the choice of exercise, which, in the context of the present research, seemed to have a direct impact on the third question of what the resulting affective responses to exercise are. Recognising the type of exercise behaviours and resulting affective responses that are reflective of internal motives is important to support the promotion of long-term exercise engagement to maximise prisoners' well-being. An exploration of prisoners' exercise behaviours before the CW workshops supported the findings from much of the previous prison research which highlights the prevalence of competitive, anaerobic forms of exercise amongst male prisoners, and the potential for this to promote a toxic hegemonic masculinity which hinders the potential positive affect of exercise engagement. Engagement in such forms of exercise behaviours are regulated by external reasons such as wanting to look good to others, reflective of the maladaptive exercise culture identified in Study II. CW Workshop participants however experienced the positive affect of engaging with group-based aerobic exercise, thus beginning to identify with exercise as a

means of managing their mental well-being that they had not experienced when focusing on anaerobic forms of exercise. So, those with more internal reasons for exercise seemed to favour group-based aerobic forms of exercise, whilst external reasons were a motivator for solitary weight-based training. These differing motives are also likely to impact on the location choice for exercise, with those who are externally motivated and aspire to a maladaptive exercise culture preferring the environment of the gym with its weights and the opportunities for masculine displays that it presents. Whilst those who are driven by more internal motives aspire to an adaptive exercise culture of engaging in a positive challenge and valuing social benefits, and are likely to be less concerned with accessing the gym or its equipment, instead being satisfied with spaces on the wing or in the exercise yard that allow for group-based exercise. On face value such a conclusion may raise some problematic questions about prison gyms and their utility for promoting prisoners' psychological well-being, but it is important to recognise the potential within prison gyms to promote an adaptive exercise culture if afforded the opportunity to do so. It is vital for prisons to recognise that exercise through access to the gym alone may not be enough to promote well-being, and that supporting internal reasons for exercise, such as a means of control over health and enhancing vitality, should be encouraged alongside promotion of appropriate forms of exercise.

The final question that an understanding of prisoners' individual exercise motivations can answer is whether engagement in exercise has a reciprocal effect on motives, which can be explored by looking at participants' responses to the MPEMM on completion of the CW Workshops. Throughout the two-week workshop participants' motives for exercise became more internalised, reflected by a stronger identification with identified and intrinsic reasons, and no notable increases in identification with external reasons such as amotivation, weight loss and appearance. This is a useful finding for evaluating the effectiveness of the CW

Workshops in internalising exercise motivation, which, according to SDT, is conducive to improvements in social functioning and personal well-being. Study III is able to identify multiple ways in which prisoners' exercise motives became more self-determined throughout the workshops by using the BPNs as a framework, but further research is needed to fully understand the relative importance of each element, and how this might work across different contexts. Through the adoption of a measure such as the MPEMM it is possible to identify changes in prisoners' individual motives for exercise, which allows us to recognise prisoners' values in relation to exercise, and how participation in various forms of sport in prison may influence these values. Understanding which sports can align with personal values that support an adaptive and positive masculinity is key to informing the assessment and development of SBIs, in turn, improving prisoners' wellbeing through exercise.

As outlined above, there is value in identifying individual exercise motives as facilitated by measures such as the MPEMM, but because SDT is concerned with *perception*, measures like the MPEMM reflect self-reported reasons for acting, rather than the underlying causes for acting. Thus, it can be difficult to understand the real causes behind prisoners' reasons for exercising or not exercising without considering the relative influence of socio-environmental factors that can influence actions and prevent engagement. In recognition of the need for such a comprehensive representation of factors related to prisoners' exercise motivation, findings from all three studies combine to identify the individual, structural and cultural influences at play. Overall, this thesis demonstrates the importance of examining the *quality* of prisoners' exercise motivation to better inform approaches to promote wellbeing through exercise. In other words, this thesis supports the application of SDT as a framework to demonstrate the link between reasons for exercise that are reflective of an internal perceived locus of causality, increased well-being, and long-term behavioural change for exercise, as well as identifying the socio-environmental factors which support or hinder this

internalisation, thus informing how best to promote male prisoners' well-being through exercise.

### **13.3. Nuances in the application of SDT as a framework for understanding prisoners' exercise motivation**

Self-Determination Theory provides a relatively straight forward and accessible framework for understanding human motivation, but through its application across different contexts there are nuances that arise within this framework. For example, there are several exercise motivation measures which have been created based on the self-determination continuum of SDT, but the factor structure varies from one measure to the next. A possible justification for these structural variances is differences in the demographics of the populations on which they were developed and tested, such as age, income, occupation, and geographical location, as well as differences in current exercise behaviours and sociocultural influences, all of which are likely to have an impact on exercise motives to varying extents. Such differences provide the rationale for developing and refining individual psychometric measures for different populations, just as the present thesis found it justifiable to develop a specific measure for male prisoners' exercise motivation. However, the three existing exercise motivation measures used in the present research appeared to present themselves as applicable to a more general population, despite being tested solely on populations with somewhat high levels of exercise engagement. The use of a factor structure that maps directly onto the regulatory styles of motivation in the self-determination continuum, as seen in the Sport Motivation Scale (SMS-28; a measure of sport motivation developed for use with athletes), should arguably be reserved for application to so-called athletes who have greater insight into their motives for exercise, and these measures should provide a clear definition of the parameters for their application. Exercise motivation measures that are structured

according to individual motives, such as the EMI-II and the MPA, appear to be more phenomenologically accessible to those who would not be considered athletes, although this is not to say they would not be suitable for application to athletes as well. It appears that there is a distinct lack of studies which have explored the validity and reliability of multiple exercise motivation measures on the same population, or a specific measure on multiple populations. Thus, greater focus on different populations and their relative demographics is needed, across varying levels of exercise engagement, as this will help to identify which approach works best when structuring an exercise motivation measure for different populations based on SDT.

Key to the application of SDT as a framework for any population is the identification of individual motives, but this process relies heavily on the accuracy of responses, often gathered through quantitative measures such as the MPEMM. The development of the MPEMM revealed an apparent lack of identification with reasons for exercise that were related to affiliation and socialising amongst male prisoners, but subsequent interviews in Study II made it clear that spending time with others was an important motive for exercising. This outcome may have been due to the impact of the CW workshops on participants' motives, but it is likely that there was also an element of social desirability bias at play. The potential for social desirability bias is an issue in the application of any psychometric measure, and measures designed for use on the prison population should be mindful of the specific sociocultural influences which may impact responses. Masculine ideals and how these shape male prisoners' beliefs are a critical consideration when wording items, it is likely that some prisoners will not wish to appear vulnerable, even when completing an anonymous survey, thus, any item which may imply vulnerability is subject to response bias. Furthermore, prisoner discourse and the proximity of their social influences should be taken into consideration. For example, prisoners may not refer to fellow prisoners as "friends",

thus, an item which attempts to identify socially driven motives inside prison may be better placed referring to other prisoners as merely “people”, with the suggestion that these interactions are occurring as part of daily life. Conversely, when trying to identify influences from significant others more specific wording may be more appropriate, such as “family and/or close friends” or “those closest to me”. Based on findings from Study II, possible items that could be added to the MPEMM may include, “To show my friends and family I am doing well”, or “to get healthier so I can spend more time with people closest to me outside of prison”, which reflect prisoners’ identification with loved ones as a motivator for being healthy. Whilst possible external items could be “To spend time outside of my cell”, or “Because it’s the only thing that is available to do”. Trying to identify those who aspire to a maladaptive masculinity through a psychometric measure is likely to be tough, and although it is unlikely that bias will ever be eliminated altogether, when developing a psychometric measure for use on the prison population it is imperative to spend time trying to understand the culture that exists within it. This should be achieved through more qualitative means, using this understanding to identify any discrepancies that may exist between item responses and actual behaviours, and refining the measure to reflect the specific discourse and influences of the prison environment.

A further nuance in the application of SDT to exercise in general, is the extent to which exercise motivation should be internalised for optimal regulation of motives that will support long-term engagement and improved well-being. There is a dearth of research into the relationship between integrated regulation and exercise, which is likely exacerbated by the fact that many exercise motivation measures do not include items that measure integrated regulation. The SMS-28 is one of the few exercise motivation measures to include a subscale of integrated regulation, but as this measure was developed for athletes it stands to reason that it would include highly internalised motives for exercise, and perhaps for those who would

not be considered athletes such a subscale is not necessary. Since research has argued that identified regulation is a better predictor of initial engagement in physical activity than intrinsic regulation, perhaps reasons for exercise that are of personal value are sufficient to promote continued exercise behaviours following completion of a SBI. However, intrinsic forms of motivation are still a better predictor of long-term adherence, suggesting that intrinsic reasons are needed to overcome barriers. In relation to the male prisoner population, the present research has highlighted the importance of exercising for the identified reason of revitalisation as a means of managing daily life in the prison and as a predictor of adherence. This supports the notion that a *somewhat* internal perceived locus of causality may be sufficient for maximising well-being through exercise in the prison environment to a certain extent, as this increases prisoners' autonomy over the external factors of tension and structural barriers which are so prevalent, however, whether this is sufficient to overcome structural barriers is unlikely. Considering these findings perhaps there is some value in exploring the impact of identified motives that elicit intrinsic responses to identify the relevant impact of these on exercise adherence and well-being outcomes, such as exercising for the enjoyment of competition, or the fun of being with other people. It is possible that such

An important consideration in relation to the application of SDT is the recognition of trait-like perceptions of behavioural regulation, framed as causality orientations (Deci & Ryan, 1985b), which reflect an individual's propensity to experience behaviours as autonomy or control orientated. These orientations are influenced by global contextual supports and early experiences of psychological need support, which may have implications for the promotion of prisoners' basic needs across different situations in the prison. This causality orientation plays the role of a compensatory form of regulation which individuals fall back into in response to contextual factors that thwart the psychological needs, thus, there is

potential for a prisoner to fall back into a controlled form of behavioural regulation in response to barriers, which has negative implications for well-being outcomes. This becomes increasingly important in prison where a plethora of contextual factors exist that can negatively influence motivation, such as inconsistent access to activities or feeling distanced from significant others. The focus of the present research was on factors that influence exercise behaviours in prison, therefore the interest was domain-specific and the causality orientation of participants was not deemed as relevant as the perceived locus of causality for exercise behaviours specifically. However, in the context of interventions aimed at improving individual prisoners' well-being there may be value in identifying prisoners' causal orientation through a measure such as the general causality orientations scale (Deci & Ryan, 1985b). Understanding prisoners' causality orientations may help to identify those who are at greater risk from poor well-being in response to a lack of consistent support for psychological needs across different contexts in the prison. It is also worth noting that an individual's causal orientation is partly influenced by their global contextual supports, so, future research should consider whether engagement with a SBI in prison which supports psychological needs for exercise has the potential to impact on a prisoners' causal orientation, thus increasing their resilience to situations which prevent satisfaction of psychological needs in other areas of the prison. It may be that the contextual experience of exercise has a greater impact on prisoners' causal orientation than it would for an individual in the general population, as prisoners have fewer contexts in which to experience need satisfaction or thwarting.

#### **13.4. Practical means of promoting prisoners' well-being through exercise**

As emphasised by Woods et al.'s (2017a), the application of behaviour change theories to test interventions can facilitate the development of practical guidelines for prisons to use when seeking to promote prisoners' well-being through SBIs. Thus, through the lens of SDT, the present research can outline several practical means of maximising well-being

outcomes for prisoners through exercise engagement that can be adopted on an operational level by prison staff, be used to shape management decisions within prisons, or to inform policy makers on a national scale.

#### **13.4.1. Identifying motives for exercise**

The development of the MPEMM has methodological, theoretical and practical implications. The methodological contribution is a new instrument with which to assess exercise motivation in prisoners, and theoretically it provides comprehensive support for the application of SDT assumptions to understand prisoners' exercise motivations. In practical terms, application of the MPEMM confirmed the premise that promoting internalisation of motivation leads to improved well-being, thus, the measure can be used to assess the effectiveness of existing SBIs in prison by measuring their influence on perceived reasons for exercise. But aside from this direct application of the MPEMM, it may hold further practical utility as a means of implicating which type of masculine ideal prisoners aspire to, and therefore whether they appear to be adopting an adaptive masculinity, or a maladaptive masculinity.

The present research has identified a possible link between the influence of masculine ideals on prisoners' general behaviours and their resulting exercise behaviours, suggesting that it may be possible to identify a prisoner's general behavioural motives by identifying their exercise motives. Exercise is an attractive activity to many male prisoners, and therefore, it is arguable that asking them to complete a survey which is related to exercise behaviours may yield a higher response rate and more reliable data than a survey which seems to question their general behavioural intentions or motives. So, a measure like the MPEMM could possibly be used to identify prisoners who adopt a maladaptive approach to prison life through disengagement and a continuous battle to prove themselves, and in turn,

refer such individuals to SBIs that challenge these maladaptive beliefs and promote engagement in exercise for adaptive means, with a possible positive impact on their general health related behaviours. There may also be value in applying the MPEMM to identify prisoners that fall into the category of amotivation, as this motive demonstrated a significant negative relationship with emotional well-being. Thus, the MPEMM may also be an important means of identifying prisoners who need greater psychological support, but are not engaged in any formal interventions. Arguably, responses to an exercise survey for those who do not engage in exercise may be difficult to obtain, however, even some of the voluntary participants of the CW Workshops expressed amotivation for exercise, so perhaps this could be a useful way to identify those who are experiencing a lack of intention or control for their behaviours but wish to become more motivated.

Research has demonstrated the importance of targeting health domains that are valued by participants (Rejeski & Mihalko, 2001), and specifically recognises the role of masculinity when framing health-promoting lifestyles for males, focusing on healthy practices that emphasise autonomy, action and appearance (Sloan, Gough & Conner, 2010). Thus, the use of measures such as the HRQL and the MPEMM are key to informing prisons of the specific values that should be emphasised when trying to engage prisoners in exercise. For example, as seen in Study III, initial reasons for exercise are often related to external motivators such as appearance, thus, promotion of SBIs to spark initial interest may wish to highlight the physical outcomes that can be achieved through participation. But, as adherence and well-being is related to more integrated motives, once prisoners are engaged it is important that the inherent enjoyment and growth of competencies that exercise can provide is promoted, particularly the ability of exercise to increase energy. Prison staff and management should be aware of prisoner discourse around health and well-being, and recognise that prisoners may identify with the term “energy” to express their state of psychological well-being. Thus, a key

message to be highlighted to male prisoners who are engaged in exercise is the potential for aerobic exercise to be used as a vital means of obtaining personal energy, through the adaptive motives of socialising, positive challenge and control over physical and mental health. Furthermore, for optimal well-being, exercise behaviours should be based on noncontingent self-esteem, but for this to happen one's basic needs must be satisfied when forming intentions. As the present study has found this is often not the case for prisoners, therefore, attempts must be made to internalise exercise motivations in line with positive values that promote an adaptive masculinity, rather than exercising to increase self-worth.

Although increases in energy were perceived as a positive outcome for many of the workshop participants, these individuals were already somewhat motivated to engage in exercise and aspired to an adaptive masculinity which manifested itself in a willingness to occupy their time positively. In contrast, some of the prisoners who did not engage in any exercise appeared to aspire to a maladaptive masculinity and did not show a willingness to use their time positively, characterised through the adoption of techniques that made time appear to pass by more quickly, such as sleeping for extended periods. There is a possibility that the latter category of prisoners would not be interested in engaging in an activity to increase personal energy, as this would be counterproductive to their approach for managing their time in prison. Because this subgroup of disengaged individuals is likely to identify with more maladaptive motives for their behaviours in comparison to the adaptive motives of who participated in the workshops, and these two concepts are thought to be explained by unique motivational factors, it is arguable that the MPEMM in its current form may not be suitable for identifying their motivation. Instead, there may be value in framing the motivation of this subgroup in terms of the research on *sedentary* individuals, applying measures of motivation for sedentary behaviour, rather than exercise behaviours, to inform approaches to challenge the values of sedentary prisoners and prompt them to engage in exercise. Once a prisoner is

engaged in exercise in any form, even if through an entirely external perceived locus of causality, then the MPEMM would be a more suitable tool for identifying the right approach to integrate their motivation further. In this context it is also important to recognise that a sub-group of prisoners will *choose* not to engage in exercise, and be satisfied constructing their masculinity in personal ways outside of exercise. However, due to the lack of lifestyle exercise that can be performed inside prison, it is arguable that all prisoners need to engage in some form of formal exercise to meet the minimum requirements to maintain good physical health. Therefore, future research should also consider this subgroup of sedentary prisoners who may adopt an adaptive masculinity to other areas of their lives, but have not developed an intention to exercise.

Moreover, there may also be value in exploring the impact of need thwarting on all prisoners' well-being in the context of exercise, as it is likely that prisoners' psychological needs are thwarted on a regular basis whether they choose to engage in exercise or remain sedentary, and this may have substantial consequences on the impact of need satisfaction. By creating an understanding of how prison impacts on prisoners' exercise motivations, and the resulting forms of adaptive and maladaptive exercise cultures, the present research provides a good foundation on which to explore the behaviours of sedentary prisoners and the impact of need thwarting. The psychometric measures available in these fields are yet to be applied to the prison population and therefore future research would do well to explore their application in this context.

If research is to find ways to diminish health inequalities in the general population, it is important to establish how best to promote prisoners' motivation to continue engaging in healthy behaviours following release into the community. In terms of exercise motivation as it is outlined in the present research this is a crucial consideration, as prisoners' key exercise motives appear to be developed in response to their experience of prison life. So, when the

mental and emotional strain of imprisonment is removed, and more opportunities for need satisfaction are presented in everyday life, prisoners may lose their key motivator for exercise and no longer feel that it is of great personal value to them. For many of the interviewees in Study II, engagement in formal exercise in prison was performed in response to the lack of lifestyle exercise which they participated in before prison. In these instances, it could be argued that there is no longer a need to engage in formal exercise for health benefits once released, and that exercise through leisure activities or active jobs, is sufficient. However, minimum requirements for exercise engagement are often not met, regardless of lifestyle exercise, and prison is arguably the ideal place to educate prisoners about levels of exercise that are needed to maintain well-being. Many interviewees also identified that barriers to exercise and being healthy in general outside of prison were focused on a lack of time and unhealthy leisure practices such as drinking alcohol or smoking, which often led to poor diet and a lack of motivation for exercise. Thus, it is important to introduce prisoners to means of exercising which are not time-intensive, and can easily fit into a daily routine. Bodyweight exercises like the ones introduced by the CW Workshops are ideal for this, and are arguably better suited to the home environment, where there is likely to be more space, and access to a shower. In terms of unhealthy habits, it could be beneficial to encourage prisoners to share their practices of healthy behaviours to friends and family outside of prison, through family days or sharing health goals. Although it is unrealistic to assume that any individual will abstain from all unhealthy behaviours, this may increase the chance of maintaining a social network of individuals who share healthy practices on release. Another way of maintaining contact with such a network of individuals is to utilise the growing health culture in the general population which focuses on healthy eating and exercise, and perhaps educate prisoners on means of accessing this culture on release through a directory of websites, phone applications and community leisure centres. Through this engagement, perhaps ex-prisoners

can begin to identify with reasons for maintaining their well-being outside of prison. It may also be useful to ensure that prisoners identify the socio-environmental factors which prevented them from making healthy choices outside of prison and their absence inside prison, recognising these as potential barriers on release. The abundance of barriers to being healthy outside of prison also strengthens the argument that prisoners should be afforded temporary release during their sentence, allowing them to exercise choice and control in a staged approach, and strengthen their self-efficacy to manage potential barriers. Although efforts to increase prisoners' autonomy in this way should be mindful of blurring boundaries between the social and behavioural norms of prison and the community (Shammas, 2017).

In contrast to the view that being released into the community may diminish prisoners' motivation for exercise, it is possible that those who experienced more integrated forms of global contextual support for their exercise motivations inside prison will respond positively to the increased opportunity for need satisfaction outside prison maintaining their exercise behaviours. However, it is also likely that these individuals would have already been engaged in exercise prior to prison. Gathering post-release data from prisoners is notoriously problematic, however, measures of causality orientations and domain-specific motives for exercise from prisoners during their sentence and following release may provide some valuable data that explores the relative contextual influence of prison on prisoners' exercise motives and behaviours. Such data may help to identify means of maintaining or promoting prisoners' propensity to experience healthy behaviours as integrated and increase the likelihood that they will continue to exercise regardless of context.

#### **13.4.2. Health-promoting prisons**

Results from Study III indicate that participants had continued to engage in exercise following completion of the workshops, despite a decrease in autonomy for exercise and

emotional well-being at this point. Furthermore, smokers' readiness to use physical activity to support smoking cessation also remained significantly higher at follow-up, despite the number of cigarettes smoked per day returning to the levels seen before the workshops. These findings suggest that participants' willingness to engage in exercise as a means of achieving positive well-being outcomes had not diminished, suggesting that the reversal of positive health behaviour changes may have been a result of structural barriers that were preventing engagement in optimal exercise behaviours. Further support for this suggestion is the finding that perceptions of competence and relatedness for exercise remained higher at follow-up than they had been before the workshops, with the sense of autonomy being the only psychological need that had diminished. Study II has indicated that a prisoner would need to experience considerable integration of their motivation to exercise if they were to continue their exercise engagement despite all structural barriers, and the literature advises that intrinsic motivation, such as enjoyment, is the best predictor of long-term exercise adherence. Exercise is not inherently enjoyable, therefore, SBIs must be creative if they are to encourage long-term engagement from prisoners through promotion of intrinsic reasons for exercise. It is likely that participants of the CW Workshops did find the workouts enjoyable to a certain extent and increases in intrinsic reasons for exercise on completion of the workshop support this notion. However, these motives were context specific, and although a participant may have enjoyed participating in group workouts in the CW Workshops, they may not feel the same enjoyment for exercising in their cell or even for solitary exercise in the gym. The adaptive exercise culture which participants began to aspire to through the CW Workshops was underpinned by satisfaction of the BPNs, and much of this was specific to the autonomy-supportive environment of the group. Since prison did not afford sufficient opportunities for basic need satisfaction in relation to exercise following engagement with the workshops, it is likely that many of the forms of exercise which prisoners did go on to engage in were not

regulated by the same intrinsic motives that were experienced during the workshops.

Therefore, it could be argued that only those who were intrinsically motivated to exercise before prison were likely to remain at such a level once the workshops were over, and even with respect to these highly motivated individuals, with continual thwarting of need satisfaction it may only be a matter of time before they begin to lean towards a propensity for experiencing exercise behaviours as control orientated.

Consequently, it is arguable that the intensive environment of a SBI such as the CW Workshops is sufficient to promote some prisoners' motivation to engage in exercise to a level that would promote long-term engagement, but that it is within the power of prison management to ensure that the positive impact of SBIs are harnessed effectively by creating an autonomy-supportive environment for prisoners through consistent access to challenging, group-based exercise following completion. This is in line with an environmental and policy approach as outlined by The Community Guide (Task Force on Community Preventive Services, 2002) which requires intensive management of physical and organisation structures over a long period of time, changing social networks and organisational norms and policies. An important element of this, as Heath et al. (2012) recognise, is for public health agencies (which prisons arguably are) to work in partnership with community organisations, such as CW. Although it is perhaps unreasonable to expect a prison to facilitate continued engagement in exercise at the frequency and intensity experienced throughout the workshops, there is evidence to indicate that more can be done to enable access on a consistent basis, and a whole-prison approach is needed to enable this. The type of exercise performed in the CW Workshops has demonstrated that the performance of exercise which promotes well-being is not restricted to the gym, and perhaps there is great value in promoting group exercise in risk-assessed spaces outside of the prison gym in terms of increasing engagement and promoting a positive masculinity. Firstly, this would allow prisoners who are contemplating exercise to

observe exercise practices and evaluate whether they would be interested in engaging, without having to attend the potentially intimidating environment of the gym, thus promoting inclusivity. Secondly, prisoners would be in control of their own exercise behaviours, elevating the sense of control over their health, and providing opportunities for leadership by guiding group exercises. Thirdly, this type of exercise does not require any equipment, so there would be no additional resource or equipment risk assessment and staff monitoring costs associated, and finally, exercise in communal spaces exposes other prisoners to positive and healthy behaviours on a regular basis, which could serve to challenge maladaptive behaviours and promote engagement in healthy practices across the prison.

Another important consideration for prison management when creating an autonomy-supportive exercise space is to ensure there is opportunity for prisoners to engage in a positive challenge that is optimal to their capabilities. Findings from the present research suggest that a SBI is arguably the ideal basis on which to increase prisoners' initial competence for exercise to a level which means they are comfortable exercising to their ability within that group. Once prisoners' competence is elevated, the exercise must be challenging enough for them to remain engaged. This presents another argument for allowing group-based exercise, where prisoners will push themselves to work harder in the presence of one another, and therefore elevate their sense of achievement, maintain self-perceived competence, and experience better physical and psychological health outcomes as a result of more intense exercise, an approach which has proved successful in community settings (Alves et al., 2004; DiLorenzo et al., 1999; Martins & Duarte, 2000; Sonstroem, 1997; and Weiss and Ebbeck, 1996).

The creation of an autonomy-supportive environment for exercise in a communal space in the prison which will be maintained through prisoners' behaviours alone is perhaps optimistic, and more applied research is needed to consider how this approach could be

maintained amongst the uncertainty of the prison regime and an ever-changing population. Furthermore, if one adopts Riciardelli et al.'s (2015) perception of masculinity in prisons as a constant negotiation of risk, then any approach to encourage continued engagement in exercise should look to address any risk to prisoners' masculinity that may exist in such areas. Once these are minimised, the environment is much better placed to enforce positive masculine ideals and coping mechanisms, rather than a form of masculinity which is adopted purely as a response to risk. Overall, however, there is strong evidence to show that the basis for challenging prisoners' toxic masculine ideals and introducing them to exercise as an effective means of adapting to prison life lies in the delivery of SBIs, and the present research made it evident that maintaining such an exercise culture requires substantial engagement from prison staff and management to ensure that prisoners' ability to make healthy choices is supported wherever feasible.

There are a number of practical changes that could be made to address structural barriers to engaging in healthy behaviours in prison, particularly focused on improving prisoners' ability to make healthy choices. Currently, prisoners' weekly spend on canteen items is restricted, and this budget differs depending on their level of IEP scheme. In the interests of prisoners' health, prison management should not be forcing prisoners to choose between healthy options on the canteen sheet, and behaviour should not be incentivised by opportunities to be healthy. There is no logical reason why prisoners should not be given an increased budget for healthy options on the canteen sheet such as tinned fish, fruit and vegetables, provided they do not make any unhealthy purchases at the same time. Prisoners should also not be forced to choose between employment and other educational or purposeful activities, and better management of activities is needed to ensure that prisoners who are employed in some capacity by the prison do not forfeit their position by choosing to engage in another positive activity. A logical approach to managing this would be to introduce more

job sharing across the prison, which would afford prisoners some time out of their job on a regular basis to engage in other activities, at the same time decreasing the number of prisoners who spend up to 23 hours a day in their cell by increasing the number of employment positions available. There also needs to be a greater priority from prison management of programme delivery, as it appears that many sports-based programmes suffer from a lack of resource. Effective management of any programme includes recognition of potential issues that may affect delivery, and in the context of a prison, this includes the potential impact of prisoners' behaviours. If prisoner behaviour affects delivery then there must be a plan in place to manage this effectively, without impacting negatively on all those involved. Furthermore, prisoners who would benefit most from engagement with healthy behaviours are arguably the same sub-group who would be most difficult to engage, therefore, effective planning and robust delivery should be a key component of an effective health-promoting approach.

It is imperative to remember that the present research features findings from one prison only, and that health cultures vary between prisons. Many positive case studies across the past decade have verified the efficacy of prison based SBIs, proving that a consistent autonomy-supportive approach to sport and exercise is possible within the confines of a prison that remains risk-averse. It is also important to note the differences that exist *within* prisons in terms of health cultures. One of the greatest structural barriers to being healthy in prison as perceived by the participants of the present research was related to inconsistent and seemingly inane rules which prevented engagement in group-based exercise. If one prison officer is satisfied that exercise can take place in a risk-assessed space on the wing, then it does not stand to reason that a different officer would not allow the same. In the same respect, if one prison allows the promotion of safe, cell-based exercise, then it seems unreasonable that this approach would be banned in a different prison of the same category.

The need for a consistent approach goes beyond exercise alone; perceptions of need satisfaction are contingent on social contexts, therefore, if a prisoner's motivation for health behaviours is to remain internalised then an autonomy-supportive approach must be adopted across as many areas of the prison as possible. Clear and accessible directions need to be given with regard to the health-related behaviours that prisons want to endorse, and how they wish to do this, with all staff reinforcing the same message. This includes full operational support for any external organisations who operate within the prison to promote healthy practices, and more specifically, a shared understanding of where and when prisoners can engage in group-based exercise. Similarly, if there is a change in prison management, this should not impact on the delivery of positive programmes, and there should be a minimum term of delivery applied to any prison-based programme with renewals based on empirically-driven outcomes, looking to maintain any initiative which promotes a culture of health and well-being. It is right that prisons prioritise the regime for safety reasons, but outside of these restrictions prisons should be consistent in their approach to promote an autonomy-supportive environment which leads to the development of more adaptive masculinities and a positive culture of behavioural change. This requires effective leadership as well as clear policy guidance from the Ministry of Justice (MoJ).

### **13.4.3. Prison gym**

It is clear from prisoners' accounts of their experience of exercise in prison that there is a particular sub-group who access the gym on a regular basis. This is greatly dependent on the wing they happen to be on, and is often regulated by the gym orderlies, who may manage attendance lists on behalf of the prison. Thus, equality amongst the mainstream prison population in relation to gym access remains an issue, despite the PE instruction's direction of "equality of access to PE programmes and resources to meet the requirements of all prisoners" (MoJ, 2011, 2.7). The PE instruction also states that "relevant information and

feedback... must be used to influence the future delivery and content of the PE programme to ensure that it reflects the needs of all prisoners. Good practices will demonstrate how individuals and different groups of prisoners have been encouraged, at their establishment, to partake in PE programmes” (MoJ, 2011). Thus, outcomes from research, such as the findings provided by the present research, with rare access to valuable data which demonstrates a comprehensive understanding of prisoner needs and best practice approaches to promoting engagement and well-being through exercise, should be used to directly inform future delivery and content.

Within its guidelines for delivery, the MoJ frames PE in terms of its potential to contribute to prisoners’ “physical, mental and social well-being” and to “promote healthy lifestyle opportunities” (MoJ, 2011). The present research has highlighted that these outcomes can be delivered outside of the prison gym, and that merely allowing prisoners to access the prison gym, where they predominantly perform weight-based exercises and enforce external motivators to exercise focused on appearance and competition, does not necessarily promote long-term engagement in healthy lifestyles, and may in some circumstances potentially have a negative impact on prisoners’ well-being. Thus, current measures of prisoners’ exercise engagement, which are based on the frequency of attendance to the gym, do not provide a true reflection of the extent to which prisoners are experiencing positive health (or other) outcomes from exercise, as highlighted in Meek’s 2018 review of prison sport (Meek, 2018). Prisons and the policies which underpin their governance have an obligation to ensure that PE departments in prisons are equipped with the resource to deliver sport and exercise in an autonomy-supportive environment. Meanwhile, PE departments have an obligation to engage in partnerships with external providers that can contribute to an autonomy-supportive environment. This includes opportunities for a figure of relatedness to engage with the prisoners through sport, sharing experiences of challenges and achievements,

and acting as a source of motivation, which research has shown to be better received when positioned outside of the prison management structure. Although gym orderlies may reflect a figure of relatedness to a certain extent, they are still limited in their ability to engage with other prisoners, and by embodying such a muscular physique they may alienate those who feel that weight training and intense exercise are beyond their capabilities. External providers can also offer prisoners a chance to develop competence and autonomy by engaging in activities delivered outside of the prison, either on temporary or permanent release. At present, prisons cannot provide much support “through the gate”, therefore they should complement the offerings of external partners by creating an environment which is conducive to behavioural change inside the prison, which includes engaging prisoners with organisations who can continue this journey after release.

There is an apparent anxiety that exists across prison PE Departments with respect to their futures in an ever-changing landscape of policy shifts and management restructuring, and this uncertainty often seems to provoke an unwillingness to engage with external providers, viewing them as competitors rather than partners. The CW Workshops increased prisoners’ desire to exercise, and there was no notable change in the number of prisoners who exercised in the gym at follow-up. Exercise exists in many forms, and in the general population where there is a wealth of opportunity to engage in exercise outside of conventional gyms, the number of people joining gyms continues to grow. Allowing prisoners to engage in exercise through external providers, or in spaces outside of the gym, is unlikely to have a negative effect on gym attendance, providing the gym offers an autonomy-supportive space. Challenging the exclusive, toxic masculinity that exists within many prison gyms may need to begin with the introduction of more aerobic, non-competitive, group-based forms of exercise. Where there is a dearth of interest in such exercise on the gym floor, SBIs can play a crucial role in changing perceptions and challenging values by offering

opportunities for personal development and highlighting the benefits of exercise from the perspective of an adaptive exercise culture. Engaging with external providers of SBIs may have many benefits, but this is not to say that prison PE Departments cannot deliver their own SBIs with effective results. Although the trainer of the CW Workshops shared some common ground with the participants as an ex-prisoner, many believed that this sense of relatedness could be felt with someone who had not been to prison, and that it was empathy, openness and friendliness that were more important in establishing this relationship. Research has already demonstrated that prison PE Instructors can develop a strong rapport with prisoners, presenting themselves as a figure of relatedness and embodying a positive, adaptive masculinity (Baumer & Meek, 2018). PEIs need to harness this potential and ensure inclusivity in terms of access to the gym, which includes ensuring that gym orderlies are not given complete autonomy over who attends the gym, and limiting the opportunity for masculine displays through sport by avoiding promotion of competition.

#### **13.4.4. Individual differences**

The findings from Study III highlight the importance of a supportive environment to satisfy prisoners' psychological needs for exercise. The foundations that are conducive to a supportive environment have been identified through the framework of the basic psychological needs, however, individual differences in participants are likely to impact on the effectiveness of these supporting factors to varying degrees. For example, a prisoner's cultural background and age are likely to have an impact on their values, and therefore the exercise motives they are most likely to identify with. These differences may also affect the extent to which a prisoner feels connected to a mentor, coach, or others in a group, and therefore their perceived sense of relatedness. It could be that, over time, prisoners are able to identify with reasons for exercise that are of personal importance, and that this may give them a sense of connectedness with others who value exercise, irrespective of age or cultural

values. However, prisoners who are not engaged in any form of exercise must be presented with a motive to prompt action, and if autonomy is to be maintained then presenting a figure who they can relate to, and who holds strong values towards exercise, has been shown to be a very effective means of prompting this initial engagement. In the case of the CW workshops the trainer shared common ground with participants based on his experiences as a prisoner. This proved to be key in generating interest in the workshops, and his achievements since prison meant that many participants sought to model his behaviours. However, the trainer shared the same ethnic background as many participants, despite this not being the dominant ethnicity of the general prison population. Furthermore, the trainer embodies a hyper-masculine physique, which is emphasised throughout the images in his book, *Cell Workout*. This image may be aspirational for some, but also poses risks in terms of alienating prisoners who do not aspire to such a muscular physique, and therefore may not feel a sense of connectedness for this reason. It is probable that prisoners who shared the same background as the trainer, aspire to the same images of masculinity, and particularly those who spoke English as their first language, were more likely to feel a sense of connectedness to the trainer, and were therefore more likely to apply for the workshop. In a similar sense, it was the young offenders who struggled the most to adhere to the workshops, and although many factors contributed to this it is possible that the presence of an individual who was closer in age and exhibiting positive exercise behaviours may have helped to promote their engagement.

Research has not focused on the characteristics that make for the strongest figure of relatedness for prisoners' exercise behaviours, so it is not clear whether it is more important for someone to exhibit strong values and demonstrate their passion for exercise, or whether it is more important for them to be of the same age or ethnic background. However, in the context of initial engagement it is likely to be important to present a diverse range of

individuals who exhibit positive exercise behaviours, thus increasing the likelihood of engagement from a diverse range of backgrounds. Employing a diverse group of prisoners to act as “mentors” through SBIs is one way of achieving this. In the context of prisons, it may be particularly important to employ prisoners for whom English is not their first language, as this represents a weighty portion of the population and it is possible that language barriers hinder any sense of connectedness. It is also important to consider the range of demographics across the prison and ensure that mentors are reflective of these, including age, ethnicity and religion.

With respect to competence, creating a supportive environment means ensuring a behaviour is optimal for an individual’s capabilities, therefore, it is also relevant to consider individual differences in perceptions of capability. As highlighted by Study II, masculinity is a critical factor in the creation of any exercise environment in prison, and it is likely that striving to achieve a masculine ideal which embodies physical prowess and ability means engaging at a level that is beyond one’s true capabilities. Thus, in the context of a hyper-masculine competitive environment it is perceivable that a prisoner will not be satisfied with performing at their perceived capability, and instead will strive for more given the pressures around them, resulting in almost guaranteed failure regardless of their achievements. So, for an environment to be truly supportive of competence an individual must be satisfied with performing to their capabilities, without undue pressure to reach unrealistic targets. For this reason, a prison gym that enforces a so-called toxic hegemonic masculinity is unlikely to provide a source of competence support for many attendees. The present research supports this notion by identifying that some prisoners did not attend the gym at all because they felt they were not fit enough or as physically capable as those who regularly attend the gym, therefore they would not be able to keep up and avoided the risk of emasculation by not exercising. However, outcomes from Study III with varying levels of capability across

participants demonstrated that exercising with others who are more physically capable does not have to thwart competence support. Participants' behaviours at follow-up demonstrated that in some instances an introduction to exercise through a SBI in prison is sufficient to increase prisoners' competence for exercise to a level which leads them to start attending the prison gym, despite the capabilities of others. The key question that should be considered then, is whether the prison gym itself can nurture an adaptive exercise culture which is supportive of prisoners' psychological needs, and negates the need for SBIs to introduce prisoners to exercise as a means of promoting well-being.

### **13.5. Limitations of research**

As the sample of prisoners who took part in the present research were voluntary participants of the CW Workshops in one prison the data is likely to have been subject to some bias. Firstly, the participants were all somewhat motivated to exercise as they had all expressed an interest in the workshops, which presents some sampling bias in terms of generalising findings to the prison population. Although the sample were still able to provide an insight into the factors that influence their exercise motivation, it is likely that the motives of those who are completely disengaged will differ somewhat, and future research should look to include these individuals through the lens of sedentary motivation research. Secondly, many of the participants were somewhat emotionally connected to the trainer and it is possible they felt an obligation to talk about their experiences of the workshop in a positive light, which may have influenced some of the findings from Study III. However, the qualitative data was gathered alongside various forms of quantitative data, some of which was arguably less prone to response bias, such as exercise motivation, which does not appear to have an obvious desired response. The researcher also spent considerable time in the prison observing the practices between participants and the trainer within the workshops and on the wings at various times throughout an eleven-month period, using this experience to

help confirm or refute any responses and patterns that emerged from the data. Also, the final seven interviews were conducted in the legal visits suite completely independently of the trainer, which may have helped to minimise any potential response bias to a certain degree. Thirdly, the ethnic and cultural background of the participants was not as diverse as the prison population, and this is likely to have had an effect on outcomes in terms of the efficacy of the workshops, need satisfaction, and experiences of prison life. Finally, the sample was taken from just one prison, and there are many between prison differences that are likely to influence the research outcomes in various ways, such as the category of the prison, leadership style, and importantly, the gender and profile of the prisoners. Although the findings were often supported by previous research, the specifics of the MPEMM and the model of prisoners' exercise behaviours developed in Study II need to be tested in other male prisons across different categories, with prisoners of more diverse ethnicities and cultures to ascertain the impact of these variables on the proposed findings. It is also worth noting that personal incentives for behaviours are thought to vary between gender, and therefore, it should be recognised that the present research focuses on male prisoners' reasons for exercise, and these are likely to differ from those of female prisoners. Development of an exercise motivation measure for female prisoners should be informed by qualitative approaches to create a broader pool of items than the MPEMM alone, to avoid excluding reasons which are specific to the female prison population.

As with any self-report measures, it is likely that there was some form of social desirability bias at play when completing the surveys. The potential for this has been noted in the development of the MPEMM, and appeared to play a role in terms of identifying with social motives for exercise. Such bias should also be considered in terms of well-being outcomes, as prisoners may wish to appear healthier or less healthy than they really are. To combat this, a relatively large set of well-being measures were applied that considered a

variety of health domains, and positive physiological outcomes provided some additional support for increases in well-being. It should also be noted that some domains of well-being and psychological needs decreased at follow-up, and others remained elevated, which suggests that any bias was not significantly influencing outcomes either way.

The lack of exercise motivation responses at follow-up also presents a limitation in terms of understanding any long-term behavioural changes. The surveys were of a considerable length, and time 1 and 2 surveys were presented to participants to be completed at convenient times whilst in their cell, with the workshops still in mind, to return in person at the next session. Follow-up data is notoriously difficult to obtain in prison research, and it was thought that if the 106 exercise motivation items were included in the survey at time 3 then the response rate would have been poor. Now that the refined MPEMM has been developed, future research is better placed to apply the measure as part of a more condensed survey in the hope of a good response rate at follow up.

## **13.6. Implications for future research**

### **13.6.1. Exercise type**

The present research argues that prisoners may experience greater psychological benefits from engaging in more aerobic forms of exercise than anaerobic exercise. However, it is important to acknowledge the exercise psychology literature on exercise type, intensity and duration, and the many differences that these variables can have on well-being outcomes. The CW Workshops were relatively high in intensity, frequency *and* duration, particularly compared with prisoners' usual exercise engagement. Further research should consider the psychological impact of varying types of aerobic exercise engagement in the context of

autonomy supportive interventions to ascertain whether these impact on need satisfaction or well-being outcomes.

### **13.6.2. Long-term outcomes**

Future research should aim to build on the foundation of this thesis by exploring the factors which influence prisoners' exercise behaviours in the long-term, both inside prison and following release. In terms of long-term changes whilst inside prison, there is value in understanding whether prisoners' causality orientations can become more autonomous or controlled over time, and whether engagement in exercise can influence this process. Such an understanding has substantial implications for prisoners' well-being outcomes across different contexts, and research should consider any socio-environmental factors, as well as considering whether type, frequency and intensity of exercise are of importance. With respect to exercise behaviours following release, it is important to understand what may happen to prisoners' motivation for exercise once the external influence of prison is removed, as this will help to inform approaches that emphasise enduring values. Thus, longitudinal research into prisoners' exercise motivation that applies the framework of SDT and measures such as the BPNES and MPEMM would provide some valuable information with which to develop an understanding of how best to promote prisoners' well-being through exercise throughout the prison and following release.

### **13.6.3. Factors influencing need satisfaction and need thwarting**

Findings from this research support the premise of SDT that a higher perceived sense of relatedness for exercise is related to more integrated forms of regulation for exercise behaviours, emotional well-being, and vitality. However, there were several ways in which participants' need for relatedness may have been supported, either through their relationship

with the trainer, through their relationships with others in the workshops, or improvements in their relationships with others who they exercise with outside of the workshops. Prisoners are known to be less likely to seek social support inside prison, thus, understanding what strengthens perceptions of relatedness could be crucial to promoting positive social engagement. Future research would do well to explore the variables that influence prisoners' sense of relatedness to another person, particularly with respect to the demographics of trainers, focusing on factors such as culture, age, and whether being an ex-prisoner or a member of staff makes a substantial difference.

It would also be of interest to explore outcomes for participants in a SBI who were obliged to engage, perhaps as part of their sentence plan. Research should consider the impact of mandatory engagement in comparison to voluntary participation, and whether prisoners can begin to identify with more integrated reasons for exercise over time despite mandatory engagement, what time frame is needed for such changes, and whether forced engagement has any long-term impact on perceptions of autonomy support and well-being outcomes. Similarly, it would be of value to consider the motives that underlie the behaviours of disengaged prisoners in a bid to challenge their values and promote exercise engagement, as an alternative to mandatory engagement. As discussed previously, such an approach may be better informed through the literature on sedentary individuals in community settings.

Although survey responses will have been influenced by exercise experiences in other spaces within the prison, the present research focused on exercise motivation in the context of a SBI which was designed to be autonomy supportive. There may be value in future research considering differences in need satisfaction and need thwarting for exercise across different spaces in the prison, particularly the prison gym, which has been framed as a somewhat toxic environment in terms of masculine ideals. As well-being outcomes are contingent on need satisfaction across all contexts of an individual's life, an understanding of how needs for

exercise can be thwarted or supported in different spaces within the prison would create a better understanding of how best to minimise negative influences and maximise well-being outcomes.

#### **14. Final conclusion**

This thesis has adopted a mixed methods approach to develop a comprehensive understanding of what motivates male prisoners to engage in exercise, and how best to promote prisoners' well-being through exercise. The initial study confirmed the suitability of the proposed theoretical framework, Self-Determination Theory (SDT; Deci & Ryan, 1985), as an appropriate lens through which to understand prisoners' individual exercise motives and their relationship to well-being outcomes, as well as identifying male prisoners' key individual exercise motives. Study II then provided an in-depth account of the structural and cultural influences that affect prisoners' engagement with exercise, and the subsequent impact of these on prisoners' well-being. The final study provided a practical account of how a sports-based intervention in prison can support the internalisation of prisoners' individual exercise motives through satisfaction of the basic needs for exercise, thus mitigating structural and cultural barriers to some extent. The thesis concludes by highlighting the importance of understanding prisoners' exercise motives and how this can be used to predict and influence well-being outcomes, as well as identifying the crucial role that prison management have to play in the promotion of prisoners' well-being through exercise by supporting an adaptive exercise culture which promotes autonomy, competence and relatedness.

In terms of prison research there appears to be a divide between sociologists (including criminologists) and psychologists. With the former producing insightful and crucial qualitative research into prison culture and the impact of prison as a lived experience, and the latter focusing more on empirical research to inform formal interventions to promote

desistance from crime. It is important that these two disciplines complement one another, and the present thesis offers a rare consideration of perspectives from both sides which combine to create a comprehensive understanding of how prisons can support prisoners' well-being through exercise.

This thesis makes various theoretical, methodological and practical contributions to the fields of psychology, criminology and prison research in general. Firstly, from a theoretical perspective there is support for the application of SDT as a robust theoretical framework that accounts for many of the nuances in prisoners' exercise behaviours. The concepts of basic need satisfaction and perceived locus of causality provide a strong basis on which to understand the impact of prisons as a controlling environment on prisoners' subsequent exercise behaviours, and engagement with further healthy behaviours. Furthermore, the thesis used SDT to present practical guidelines on how prisons can be supportive of the basic needs for exercise to promote an internalised locus of causality and improved well-being outcomes. These guidelines are underpinned by stakeholder perspectives and offer tangible proposals that can be applied in practice without the need for extensive clarification or excessive resource, extending the findings of this thesis beyond the reach of academia and creating real-world impact.

The development of the Male Prisoners' Exercise Motivation Measure (MPEMM) provided a methodological contribution which has utility in future research as an evaluative or exploratory tool and can also be used as an instrument by practitioners to identify means of promoting prisoners' well-being through exercise on an individual level. The underlying structure of the MPEMM identifies three key internal exercise motives, namely, revitalisation, interest, and positive challenge. These factors provide valuable insight into the exercise behaviours of male prisoners and can inform approaches to increase resilience to barriers and maximise well-being through sport, as well as having implications for informing

long-term behavioural change in further healthy behaviours. This thesis provides a theoretical and methodological framework which can be applied through sport as a means of exploring underlying prison cultures and understanding more about how they influence prisoners' well-being and engagement with positive activities, which may ultimately support desistance from crime.

This thesis provides a thorough understanding of sport in prisons through a widespread dataset which considers prisoner, staff and stakeholder perspectives, alongside extensive researcher observations. This approach has emphasised many distinctions in the lived experience of prison and informed suggestions regarding prisons' approach to promoting health. Firstly, the current method for measuring prisoner physical activity participation levels, which is reflected by attendance to the gym, is insufficient, as attendance to the gym may not be sufficient to promote well-being and may even be detrimental to psychological well-being. If prisons are to meet their objective of providing sport as a means for improving well-being then they need to provide more spaces for exercise which are supportive of autonomous behaviours, and challenge the toxic, hegemonic masculinity which currently dominates the gym. Prisons also need to be resilient in their approach to delivering healthy programmes and mindful of inconsistencies regarding access to engagement in healthy behaviours, ensuring that prisoners can make healthy choices regardless of behaviour, status or location.

There are many aspects of this research which would create a strong foundation on which to base future research studies. The concept of need thwarting may be of particular prevalence in the context of prisons, and future research may wish to explore the relative impact of need thwarting on prisoners' well-being and exercise motives, as distinct from the need satisfaction that this thesis focused on. The MPEMM requires more testing and refinement on different prison populations, including consideration of exercise motives for

young people in prison, young offenders and females, which will need to be supported by qualitative investigation to ensure all variables are considered. There is also a need for research to consider the long-term outcomes of sports-based interventions on prisoners' well-being and exercise motivation, throughout prison and post-release, as it would be of great value to understand the efficacy of such an approach to encourage desistance from crime. The current research only included one key figure of relatedness for participants to engage with, therefore it cannot make any conclusions surrounding the features that are most important for a perceived sense of relatedness. Lastly, future research should look to explore the impact of various trainers on prisoners' perceptions of relatedness for exercise, paying attention to any differences between ex-prisoners, prison staff, and trainers who are seen to be acting outside of the prison, as this could have important implications for maximising the effectiveness of future SBIs and improving staff-prisoner relationships.

In conclusion, this thesis offers a comprehensive understanding of male prisoners' individual exercise motives and how the structural and cultural influences of prison can influence these to hamper or promote well-being outcomes. This research offers numerous practical suggestions which prisons can adopt to maximise prisoners' well-being through exercise by supporting autonomous behaviours. Broadly, this comprises challenging the hegemonic masculinity of intra-competitiveness, exclusivity, and a continuous battle to prove oneself, and promoting an adaptive masculinity which is supportive of the basic psychological needs by using exercise as a means of gaining control over health, engaging in a positive challenge, and accessing valuable social support.

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## 16. Technical Appendices

### 16.1. Technical Appendix A. Missing values analysis

#### Data cleansing

The following section explains how data across measures of exercise motivation, HRQL and the readiness to exercise ladder were cleansed prior to analysis. Some of the domains on the HRQL are not discussed as part of the present study, but the data cleansing process for these measures is detailed here to avoid duplication later in the thesis.

#### Missing value analysis

Univariate statistics were obtained for responses to all items across the start and end surveys which were measured with ordinal data to highlight clear errors in responses or data entry. Variables with three or fewer extreme scores, either high or low, were highlighted and the cases checked to ensure these scores fit logically with the respondent's answers to similar items on the surveys. It was found that most extreme scores in these cases were provided by respondents who tended to give extreme scores for all the items in the surveys, and in the instances where respondents did not tend to give extreme scores for other variables, the response was in line with scores for similar items on the surveys. In addition to this the dataset was considered large enough to account for such small number of extreme scores without skewing the data, with only three items on the end surveys revealing standard deviations above 2.0<sup>20</sup>, and none of the items on the start surveys revealing standard

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<sup>20</sup> SMS - Did have good reasons now asking self whether to continue; EMI-II - I like trying to win physical activities; and EMI-II - Prevent an illness that runs in family

deviations above 2.0. There were no clear indications that any scores were entered in error so the extremes remained in the data set.

The amount of missing data is not the sole criterion by which problems with missing data should be assessed, as researchers Tabachnick and Fidell (2013) propose, it is how this data came to be missing and whether it follows a pattern which is of greater concern to research results, and answering these questions will highlight any issues with the data gathering procedure. To assess whether the missing data followed a pattern or were missing completely at random, Little's (1988) chi-square statistic was applied, known as Little's MCAR test. A non-significant result indicates that the data are missing completely at random.

Once missing data is confirmed to be missing completely at random there are several methods that can be applied to impute missing data in survey research depending on the nature of the missing observations, known as single imputation methods (Bennett, 2001). These approaches estimate the missing data based on responses to other items in the dataset. Firstly, the mean substitution method inputs the mean value calculated from other participants' scores on the same valuable. This approach is not recommended due to its underestimation of variance. A second approach is a regression method, which involves developing a regression equation based on the complete subject data for a given variable. However, this method also requires a calculation of weighting to ensure that the mean value is not always imputed, and this can become particularly complex, particularly given the size of the dataset in the present research. The method chosen as most appropriate and reliable for the present research is hot-deck imputation, which involves the replacement of missing values taken from other participants that have been identified as similar in terms of data observed. For the purpose of the exercise motivation measures participants' answers to

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similar items were also used to review the missing values. When participants did not provide any responses to a particular measure, such as exercise motivation or HRQL, then responses were not imputed, as without any indication of the participants' scores it would not have been possible to identify a similar participant.

### **Start surveys**

Little's MCAR test revealed that missing data from the complete start surveys did not follow a pattern ( $\chi^2(4290) = 2870.153, p = 1.00$ ), and the same was found when looking at the exercise motivation measures alone ( $\chi^2(1416) = 1146.662, p = 1.00$ ). Therefore, missing data in the start surveys was missing completely at random and did not signify any obvious issues with the measures or data gathering procedure, so the hot-deck method was applied to impute missing data where possible.

The readiness to exercise ladder at the start of the survey was missing 23% of responses, this is thought to be because the ladder was presented visually and perhaps it was not clear enough that respondents were required to circle the number on the ladder, as this was different from the required method of response for the rest of the questions on the surveys. The missing data from the readiness to exercise ladder was calculated based on responses from similar participants, and reviewed using responses to the participants' current physical activity level as indicated by a health MOT which was completed on the first day of the workshop.

Items from the start surveys with more than 10% of responses missing were somewhat varied in terms of the measures of motivation that they were obtained from; two came from the EMI-II and one from the RAND 36-Item Health Survey. One of the items on the EMI-II ("To help recover from an illness/injury") was missing from one of the versions of the start surveys, and the item from the RAND 36-Item Health Survey ("To what extent has

your physical health or emotional problems interfered with social interaction with others on the wing, staff, or friends and family?") was split between two pages on some of the versions of the start surveys, which accounts for the 14.4% and 10.3% of missing responses, respectively. The other two are "to stay flexible" and "to control my weight", with 14 and 10 responses missing, respectively. There are other items on the start survey which measure reasons for exercise related to weight, so these were used to review the missing data for the weight variable. However, there are no other survey questions which specifically ask about flexibility as a motivational factor, so to make an informed decision for the missing data on the flexibility variable the researcher identified similar respondents based on responses to variables which measured nimbleness as a motivational factor for exercise.

The remaining 11 variables with more than 10% of responses missing all came from the BPNES, with between 10-12 (10-13.4%) of responses missing, which is likely to reflect the way these items were presented. The questions measuring BPNES were grouped together and respondents were instructed to answer them with respect to the type of exercise they most recently engaged with whilst in prison. Nine of the respondents who have not answered the items measuring BPNES have scored 5 or lower on the 'readiness to exercise' ladder, which indicates that they do not currently exercise often, if at all. Therefore, it could be the case that these individuals felt the questions did not apply to them and so chose not to respond to them. Further support for this is shown by the response rate to the BPNES in the end surveys, which had a maximum of 4 (5.7%) responses missing from any one of the items. The instructions for the BPNES questions do state that if "*you do not currently exercise then circle the '1'*", but this could easily have been missed and on reflection could have been made clearer.

### **End surveys**

Little's MCAR test revealed that missing data from the complete end surveys did not follow a pattern ( $\chi^2(4645) = 2101.744, p = 1.00$ ). Therefore, missing data in the end surveys was also missing completely at random and so the hot-deck method was applied to impute missing data where possible.

None of the items on the end surveys had more than 10% of the responses missing, in fact, the highest number of missing responses for an item was 6 (8.6%). Perhaps this was foreseeable as those who completed the end surveys were engaged in the workshops throughout the fortnight, and could be considered more likely to engage with the surveys in more depth.

Table 1 provides a summary of the missing data in the start and end surveys before and after imputing missing data. The increased amount of missing data in the end surveys is reflective of the twenty-two participants that provided a start survey but no end survey.

Table 1.0 *Summary of missing values and imputed values across all items in start and end surveys*

<i>Summary of missing data across start and end surveys before and after imputing missing data</i>						
		Complete %	Complete total	Incomplete %	Incomplete total	Total variables
<i>Before imputing missing data</i>						
Start surveys						
	Cases	20.95%	22	79.05%	83	140
	Values	79.28%	12819	20.72%	3351	
End surveys						
	Cases	13.33%	14	87.67%	91	167
	Values	62.09%	10888	37.91%	6647	
<i>After imputing missing data</i>						
		Complete %	Complete total	Incomplete %	Incomplete total	Total variables
Start surveys						
	Cases	66.67%	70	33.33%	35	140
	Values	87.03%	12794	12.97%	1906	
End surveys						
	Cases	50.00%	35	50.00%	35	153
	Values	94.79%	10152	5.20%	558	

## 16.2. Technical Appendix B. Analytical approach

### Analytical approach

The most appropriate and commonly applied method used in the social sciences to understand the variability among observed variables and reduce them down into a more parsimonious model is factor analysis (Rummel, 1970). According to Ford, MacCallum and Tait (1986) there are four key questions to be addressed when conducting a factor analytic study, namely; which factor model is to be used; how many factors are to be retained; what method of rotation will be applied; and how should the factor solution be interpreted? In line with the recommendation from Weiss (1976), the present study will provide a rationale behind the decisions to each of these four questions as they arise in the analysis, and interpretation of any results will be consistent with these decisions.

There are two types of factor analysis model; common factor analysis and components analysis (Ford et al., 1986). In simplistic terms these two models can be explained through the definition of components and common factors; components are real factors that can be directly derived from a study's data, whereas common factors are estimated from the data and are therefore hypothetical (Kline, 2000). Considering the complex nature of human behaviour, one should not expect a factor to be perfectly defined by the variables which explain it, even with a near perfect measure of behaviour there will be some unexplained variance, or common variance. Variance which results from the tools we use to measure behaviour is known as unique variance, and can be split into error variance (as explained by the reliability of a test) and specific variance (specific to a particular test, such

as the content and form of the items). From a psychometric perspective then, it would clearly be useful to separate common variance from unique variance, but this is not as straightforward in practice. As Kline explains, common variance is reflective of the variance that a variable would have in common with a domain of abilities, but effectively these domains, such as verbal ability, cannot be precisely defined (Kline, 2000). Although components analysis explains each factor by accounting for all the variance in each variable, the “noise” caused by unique variance means that the results of this approach will change with each new application of the test. To account for nuances in human behaviour, which is the essence of psychology, one must try to understand the most likely cause of the common variance in a factor.

From a statistical perspective, although both types of factor analysis attempt to reduce a set of observed variables down to a smaller number of variables, components analysis does this by accounting for as much variance as possible (common, specific and error; Ford et al., 1986; Rummel, 1970), which dilutes the common variance in the analyses thus making it less likely that any latent variables can be accurately identified. Whereas common factor analysis *divides* the variance within a variable into common and unique variance (unique variance is specific and error variance combined), which allows for identification of any covariance between variables because of underlying (latent) factors, as quantified by the common variance.

### 16.3. Technical Appendix C. Minimising error variance

#### Minimising error variance across original exercise motivation measures

The test of reliability resulted in the removal of two subscales for the Revised Motivation for Physical Activity Measure (MPAM-R) measure, namely, *appearance* (.763) and *social* (.760). A review of the three remaining subscales led to the removal of one item from the *fitness* subscale (“I want to have more energy”) to bring it from .875 to .891, and the remaining two subscales also showed good internal consistency; *competence* (.901), and *interest* (.841). The item that was removed from the *fitness* subscale referred to energy, rather than physical fitness. Energy plays a very important role within the discourses of prisoners’ daily lives, as highlighted through prisoner interviews and significant correlations between the revitalisation subscale in the health-related quality of life, exercise motivations and BPNs for exercise. There is a subscale within the EMI-II that measures revitalisation alone, and given the importance of this concept to prisoners, it was deemed appropriate to remove the item measuring energy from the *fitness* subscale of the MPAM-R, and ensure the revitalisation subscale from the EMI-II was retained as a more comprehensive measure of energy as a motivator for exercise.

The *appearance* and *social* subscales of the MPAM-R both scored acceptably in terms of reliability, but were not good enough to be retained for the purposes of the present study. In fact, subscales measuring social reasons for exercise across all three exercise motivation measures revealed less than good internal consistency, and possible reasons for this are explored in the discussion of this study.

The Sport Motivation Scale (SMS-28) had four of its seven subscales removed for poor internal consistency; *intrinsic: to accomplish* (.793), *extrinsic: external* (.644), *extrinsic:*

*identified* (.695), and *extrinsic: introjected* (.706). One item was then removed from the *amotivation* subscale (“I can’t seem to achieve the goals I set myself”) to increase the reliability from .834 to .835, and the remaining two subscales showed good internal consistency; *intrinsic: stimulation* (.836), *intrinsic: knowledge* (.849).

The only intrinsic subscale from the SMS to be removed was related to accomplishment, which included items such as “For pleasure discovering new training techniques” and “For satisfaction in perfecting my abilities”. It is probable that individuals who identify with these items are already highly engaged with exercise, as one must already be at a certain level of engagement and ability before they can feel ready to discover new ways of exercise and perfect their current abilities. It is known that exercise engagement levels across the present sample were relatively low at the time of completing the measures, and therefore accomplishment was an unlikely motivator for most, which may account for its poor internal consistency. Although the extrinsic external subscale was removed before the EFA was performed on the final set of items, it was compared as a predictor of health domains and the BPNEs, and was unable to predict any of the criterion variables, providing further support for its removal. The relatively poor internal consistency of subscales in the SMS that measure regulatory styles reflective of an external locus of causality is an interesting finding. Likely explanations as to why this occurred lie in differences between external motivators for exercise in the general population and the prison population, and are explored in the discussion.

The Exercise Motivation Inventory II (EMI-II) had two of its fourteen subscales removed for poor internal consistency; *ill health avoidance* (.711) and *health pressures* (.518), the latter had also revealed less than good internal consistency in the original development of the EMI-II with .63 (Markland & Hardy, 1992). The *affiliation* and *challenge* subscales also revealed inadequate internal consistency (.795 and .799, respectively),

however, the decision was made to retain both subscales. The justification behind retaining the affiliation subscale was in relation to it being the highest scoring subscale of a social nature, meaning its removal would have left no items measuring social reasons for exercise. As for the *challenge* subscale, challenge was a key theme in participants' discourses regarding their experience of the workshops and what they enjoyed most, and therefore it was deemed important to retain these items, which had only narrowly missed out on the .8 threshold. Two single items were removed to improve the overall internal consistency of their subscale, namely, "To look younger" was removed from the *Appearance* subscale (increasing from .828 to .835), and "It makes me feel good" was removed from the *Revitalisation* subscale (increasing from .817 to .830).

#### 16.4. Technical Appendix D. Items removed following PCA on exercise motivation measures

##### MPAM-R

The six items that did not load independently enough with any one component on the MPAM-R were; “Because I like engaging in activities which physically challenge me”, “Because I like activities which are physically challenging”, “Because I want to get better at this type of activity”, “Because I want to improve existing skills”, “Because I want to keep up my current skill level”, and “Because I believe it will make me happy”. These will now be discussed in turn.

The two items which refer to “physical challenge” loaded highly on all three components (above .570), which is perhaps unsurprising when they are broken down, as it is arguable that they are measuring multiple constructs. Firstly, “I like” reflects enjoyment, and is a term used in all items that load highly on the first factor, and secondly, the word “physically” is synonymous with fitness in the context of exercise. Similarly, both items that measured skill also loaded highly on all three components. Building on current skill levels could understandably be thought of in the context of improving fitness *and* challenge, as well as holding personal interest, therefore these items are not specific enough to be retained.

The item “Because I want to get better at this type of activity” does not load higher than .599 on any of the components. However, participants seemed to identify with this item better than any of the other remaining items on the MPAM-R ( $M = 4.25$ ,  $SD = 1.12$ ). It must be noted that the remaining subscales of the MPAM-R included in this PCA do not cover all aspects of exercise motivation, and it is possible that when additional items are included from the EMI-II and SMS this item forms part of a factor that is reflective of underlying variables

which the limited MPAM-R is failing to pick up on. Therefore, this item was retained for the final factor analysis.

The final item which did not load highly on any one component was “Because I believe it will me make me happy”. This loaded highest on the third component (.660), with a close loading on the “fitness” factor (-.579). Although the MPAM-R includes this item in the subscale of “interest”, happiness in the context of exercise is likely to have different connotations for prisoners than it would for the general population for whom the measure was intended, and may perhaps become more prevalent when items from the EMI-II and SMS are combined in the final factor analysis. Furthermore, participants identified strongly with this item ( $M = 4.05$ ,  $SD = 1.29$ ) the decision was made to retain it for the final factor analysis. Therefore, to avoid losing a potentially key variable in prisoners’ exercise motivations, this item was retained for the final factor analysis.

The sentence structure and wording of the items also provides some distinction between components. Firstly, all five items that load highest with the first component begin with “I like”, which reflects personal preference. It is also noteworthy that almost all of the items which were retained have a simple sentence structure, with the exception of “to maintain physical strength to lead a healthy life”. However, the premise of this item as a measure of fitness is still very distinct. The items measuring physical challenge which were lengthy failed to load highly on any one component, whereas the simply phrased item “I like the challenge”, loaded clearly with the first component. The presentation of items and their impact on responses in the context of the present sample are explored in the discussion.

## **EMI-II**

The item “Because I find exercise satisfying” loaded highest on the “enjoyment” component as expected, but also loaded highly on the first component (.584; *health and*

*strength*) and moderately on a further three components. The term “satisfying” can be used interchangeably with “rewarding”, “pleasing” and “fulfilling” (Simpson & Weiner, 1989b), which arguably makes it ambiguous in the context of a continuum of motivation, as a reward is an external motivation, but pleasing is reflective of internal motivations. Furthermore, satisfaction is akin with positive emotions such as enjoyment, but it is only likely to occur as a product of personal achievement, whether that be completing a new exercise or exerting great effort. Therefore, it may be difficult to distinguish between the motivators of bettering oneself and the enjoyment associated with it, and for these reasons the item was removed.

The second *enjoyment* item “I feel at my best when exercising” loaded higher than .5 on three components, (*health and strength*, .554; *challenge and competition*, .523; and *enjoyment*, .686). The dictionary definition of “best” includes the example “*exercise helps me to feel my best (= feel healthy)*” (Simpson & Weiner, 1989a). Suggesting that “at my best” is thought of in direct relation to being healthy, whilst the verb “feel”, is related to the affective *outcome* of being at one’s best, which could be interpreted as enjoyment. As this item was unable to load sufficiently high on any one component, the decision was made to remove it. Following the removal of these two enjoyment items, the one remaining item on the *enjoyment* component was, “I enjoy the feeling of pushing myself”, which loaded moderately on three components (*health and strength*, .556; *challenge and competition*, .434; and *revitalisation*, .511) but did not load highly on any. The combination of words regarding enjoyment and challenge may have contributed to its inability to load distinctly on one component. In the context of a continuum of motivation where enjoyment would be intrinsic and challenge introjected, it is important that such concepts remain distinct, and for these reasons this item was removed.

Three of the items within the original subscale of *social recognition* failed to meet the criteria. These were “To accomplish things others cannot do”, “To gain recognition for my

achievements” and “To show others my worth”. The first item did not load as highly as the others on the same subscale (.575), whilst also loading moderately on a further two subscales (*appearance*, .509; and *competition and challenge*, .475) and scored relatively low in terms of participants’ identification with the item ( $M = 2.49$ ,  $SD = 1.80$ ). Therefore, the decision was made to remove this item. The remaining two were removed in subsequent PCAs, as they also loaded highly on the *competition and challenge* component (.444 and .527, respectively). In the context of a male prison, as a very masculine environment, it is perhaps unsurprising that the concepts of social recognition and competition are not distinct from one another. In an environment where one is striving to embody the hegemonic masculinity of a strong, fit male, gaining recognition for a sporting achievement and showing self-worth is likely to be synonymous with being the best, and therefore competing against others, this is explored further in the discussion. There are four remaining items on the subscale of *social and affiliation* which are distinct from reasons regarding competition, which provided further support for removing all three of these *social recognition* items.

The item “To release tension” loaded highest with the *challenge* component (.627), but was not distinct enough from the *stress management* component (.536) or *appearance* (.449). There is a very similarly worded item, “Helps reduce tension” which loads highly with the *stress management* component, it was decided that the scale would not lose considerable power overall if the item “To release tension” was removed.

The two items measuring nimbleness are “So I am able to move quickly and easily”, and “To stay flexible”. The first of these items loaded highest on a component associated with challenge (.646), whilst the latter loaded highest on the *health and strength* component (.640), which is expected, as a reasonable amount of flexibility is needed for strength and good health. These items both loaded higher than .5 on four components in total, suggesting

that they are not distinct enough to justify forming their own component, and were therefore removed.

Two of the items which were removed belonged to the *challenge* subscale on the original EMI-II. Namely, “To give me goals to work towards”, and “It gives me personal challenges to face”. These items loaded higher than .3 on eight of the nine components in the first PCA. This wide spread commonality suggests that these items do not clearly measure a single construct, but are related in some way to most of them, perhaps because personal challenges and goals could be set in relation to factors such as weight, appearance and health, which would account for the cross-loadings. Furthermore, there are other items which remain on the EMI-II that measure exercise as a challenge in a more direct way, therefore, the two items were removed.

One of the items regarding strength is “To develop muscles”, which loaded highly on the *appearance* component (.711) and moderately on the *health and strength* component (.536). In the context of sport, the masculine ideal is one of being visually strong, which includes a muscular appearance. Therefore, the concept of developing muscles is not only reflective of strength, but also important to one’s appearance. Because this item does not distinguish between the two concepts of strength and appearance, the decision was made to remove it. Further support for this decision is provided by the item “To get stronger” which remained in the *health and strength* subscale and can measure strength distinctly from appearance according to the final structure matrix.

The final item measured affiliation (“Social aspects of exercising”). This item loaded highly on the *social* component (.601), but also very closely on *revitalisation* (.650). This communality between reasons of affiliation and revitalisation highlights an important finding in relation to the prison population specifically, which will be explored further in the

discussion. However, for the purposes of scale development where distinction between subscales is important, this item of affiliation was removed.

## 16.5. Technical Appendix E. Rules for adequate factor analysis

### Rules for adequate factor analysis

Cattell (1973) puts forward a set of seven rules that can be applied to ensure an adequate factor analysis is conducted, therefore enhancing the chance of obtaining simple structure. Firstly, sampling variables must include the whole range of ability variables in the domain which is being tested. The present study adopted a comprehensive range of variables that have been used to measure exercise motivation amongst the general population with some success, and the reduction of these into a more parsimonious set of variables was conducted through a range of considered statistical approaches. Therefore, it is assumed that an adequate range of prisoners' exercise motivations has been considered in the present analysis.

The second rule proposes that the sample must be representative of the population, although Kline (2000) also argues that they should not be too homogenous either, so as not to miss any important variables which do not appear relevant because they do not vary significantly within the population, but in fact play a very crucial role. The purpose of the present study is to identify the individual factors which underlie prisoners' motivations to exercise, therefore, the sample was made up of prisoners alone. Although the sample is somewhat representative of the diversity that exists within the prison, in terms of age and previous exercise behaviours, consideration is also given to the fact that the sample could be considered homogenous, as they all have prison in common. To this extent, attention will be paid to variables that appear to differ in prominence to the general population, to consider the possibility that they may be representative of an important common factor.

The third and fourth rules concern sample size and variable to subject ratio, stating the importance of sample size for obtaining reliable factors. This is a topic of much debate amongst statisticians, for example, Guilford (1956) suggests a 200-subject minimum for factor analysis, whereas Kline (2000) disputes this, suggesting 100 is adequate, and that with samples below 100 the factors should be replicated. Hogarty et al. (2005) and MacCallum et al. (1999) conducted tests to determine what the sufficient sample size should be and found no minimum level of participants *or* participants to variable ratio to achieve good factor recovery. Whilst Kline proposes a ratio of 2:1 variables to subjects is essential to ensure “factors are reliable and not affected by any direct statistical sampling problems” (p. 142, Kline, 2000). The present study recognises that it may be at a disadvantage in terms of its sample size being just shy of 100, however, this was taken into consideration when reducing the initial set of variables down into a size that was more appropriate for the given sample, and given the nature of obtaining data in the prison environment along with the high number of variables, the present data set may be considered sufficient for factor analysis. Further support for the appropriateness of this data set for a reliable factor analysis is demonstrated by the elevated levels of motivation to complete the surveys which is reflected in the high number of response rates. The final three rules from Cattell concern the choice of factoring method (justification for the common factor analysis approach is provided earlier in this section), the number of factors to be rotated, and the type of rotation to be adopted. The latter two are considered in conjunction with one another.

During factor analysis each factor is represented in Euclidean space, along with their relevant factor loadings. The axes on which factor loadings plot themselves are not fixed, however, and when there are multiple factors the number of possible positions for these axes become almost infinite. The spinning of the axes, or factors, is known as rotation, and knowing which position to rotate to is an important decision in factor analysis. Although

rotating the factors will not change the percentage of variance that the model accounts for, it does change the relative position of the factor loadings, and therefore the correlations of each variable with that factor, which has a potentially huge impact on one's interpretation of the factor. Thurstone (1947) proposed that the aim of rotation is to achieve simple structure, in which factors have mainly zero, or near zero loadings, and a few high loadings. This is the simplest explanation of the correlations, and allows for replication of the factor from study to study (Kline, 2000). There are two types of rotation that can be adopted; orthogonal, which assumes no correlation between factors, and oblique, which assumes factors are correlated. An oblique rotation, specifically, direct oblimin rotation, was chosen because one would expect the factors to be correlated with each other, as reflected by their relative positions on the self-determination continuum which are determined by the regulation type that they most strongly identify with. It has also been argued that oblique rotation fits psychological theory better than orthogonal factors (Kline, 2000).

To identify the appropriate number of factors to retain two criteria were considered; firstly, Velicer's minimum average partial (MAP) test (Velicer, 1976) was conducted, then the Scree test (Cattell, 1966; with support from Kline (2000) and Cattell & Vogelmann (1977)) was used as a rule of thumb to confirm the results of the MAP test. The approach of retaining factors with eigenvalues greater than 1 was rejected as this has been criticised for overestimating the number of factors (Zwick & Velicer, 1986), as it appeared to do with the present study's data. The premise behind Velicer's MAP test is to identify the number of factors that can account for more variance than factors derived from random data, as determined by the systematic and unsystematic variance remaining in the correlation matrix as factors are extracted. Although the statistical package used in the present study does not permit the MAP test to be performed, it does allow programs to be written within its matrix processing environment (or syntax), and steps for completing this are provided by O'Connor

(2000). The MAP test involves the performance of a complete PCA on the data, followed by examination of a series of matrices of partial correlations to identify the appropriate number of factors. This output was then used to specify the number of factors required when performing the common factor analysis.

Before conducting the common factor analysis, a decision was made regarding how best to manage the spaces in the diagonals of the correlation matrix, which would inform the estimation of the common variance within the factor. Kline (2000) outlines the approaches one might take to manage these diagonals, beginning with an approach that includes estimating the rank of the matrix<sup>21</sup> using reliabilities of the variables in the diagonal spaces, then performing an initial PCA, before performing an iterative process of principle factor analyses using either the communality (as the sum of the squared factor loadings) or the communality as estimated in the original PCA (whichever is greater). This is known as Thurstone's iterative method. A further method is to use the squared multiple correlations of a variable as an estimate of the communalities, however, this ignores how much a variable has in common with a hypothetical set of factors, which means potentially failing to identify any underlying psychological constructs. An approach which avoids the issues concerning the management of the diagonals in the matrix is to use a factor analysis which does not use them in the computations at all, known as minimum residual factor analysis, or correlation-fitting factoring methods. Two such approaches are generalised (or weighted) least squares, and ordinary (or unweighted) least squares, these algorithms minimise the residuals between the input correlation matrix and the reproduced correlation matrix, whilst aiming to restore the diagonals as the sums of the communality and uniqueness to 1s. The difference in the generalised least squares (GLS) approach is applied when minimising the residuals, such that observations with less variability are given greater weight when determining coefficients,

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<sup>21</sup> The rank of a matrix is the number of factors required to explain its variance

testing a range of weight transformations and indicating which one will give the best fit to the data. This approach is appropriate for fitting factors to highly common variables (strongly driven by factors) better than highly unique variables (weakly driven by factors), which is a common approach in questionnaire construction as this gives room for the presence of partial correlations. Because the ordinary least squares (OLS) approach is not as sensitive to outliers as the GLS it is more robust, and can be applied to smaller sample sizes, however, it is for this very reason that its results must be considered with caution. Due to the present sample's relatively small sample size it was not possible to apply GLS to the refined dataset of items, therefore, the more robust OLS approach was adopted. The findings are reviewed with consideration for outliers that may have been included, and the implications of this common factor analysis approach are explored in the discussion.

## 16.6. Technical Appendix F. Translation validity

### **Translation validity**

#### *Face validity*

Face validity is sometimes used as an indication of the suitability of scale items, which, broadly speaking, reflects the degree to which respondents or other suitable individuals can confirm that a scale measures its intended construct. To a certain extent, the latent variables that are being measured through exercise motivation scales are unlikely to be apparent to the general population, and therefore face validity cannot be comprehensively assessed. Furthermore, high face validity may not be desirable for the current study as responses to items can be distorted if respondents are able to guess their purpose.

#### *Criterion-related validity*

Typically, there are four types of criterion-related validity against which a psychometric measure can be tested; concurrent, convergent, discriminant and predictive. Concurrent validity looks at the extent to which the results of a measure correspond to a previously established measure of the same construct. With respect to alternative exercise motivation measures, these were rejected from the present study due to validity issues, so it would not be practical to adopt these as a suitable tool to test concurrent validity. Instead, the predictive validity of the MPEMM were tested against the original subscales of the three exercise motivation measures, the HRQL, and the BPNES, whilst the convergent and discriminate validity were tested against the self-determination continuum.

#### *Predictive validity - Correlations with relevant variables*

The predictive validity of a scale is the extent to which it can predict scores on a criterion measure and is considered by many to provide good support for the efficacy of a test (Kline, 2000). Although not all authors agree with this test, for instance, Howe (1988) argues that correlations between a criterion and predictor variable can be explained by some other common influence. In response to criticisms, it should be noted that predictive validity is not the only test of validity that has been applied to the MPEMM. Furthermore, research has demonstrated the relationship between exercise motivation and BPNs, and as such, it has been deemed appropriate to test the predictive validity of the MPEMM using these variables as criterion measures, with the expectation that other influences will be kept to a minimum. The predictive validity of the MPEMM will also be tested using measures on the HRQL, although these will be treated with greater caution as there are likely to be many other influences on these outcomes.

Because the subscales within the MPEMM are not direct predictors of BPNs for exercise, and there will be other factors affecting these needs such as structural barriers to exercise, it is reasonable to expect a moderate correlation between these measures, perhaps .3 to .4. Since the subscales within the HRQL measure general health and well-being, and are not specifically related to exercise behaviours, an individual's motivation to exercise is not likely to be a major factor in the outcomes of these health measures, particularly in the context of prison with many negative factors affecting well-being. However, it is not unreasonable to assume exercise motivation may play some part, and therefore a significant correlation may be found, but this is likely to be smaller in size than those found between the MPEMM and BPNES, perhaps around .2 to .3.

## 16.7. Technical Appendix G. Predictive validity of the MPEMM

### MPEMM Weight

MPEMM *Weight* is a marginally weaker predictor of social functioning than the EMI-II *weight* subscale ( $r_s = .247$ ,  $p = .021$ ; and  $r_s = .248$ ,  $p = .022$ , respectively), and a stronger predictor of relatedness ( $r_s = .245$ ,  $p = .025$ ; and  $r_s = .236$ ,  $p = .032$ , respectively). The MPAM-R *appearance* subscale, which includes items related to weight, was not able to predict social functioning at all, and was a weaker predictor of relatedness ( $r_s = .217$ ,  $p = .048$ ). Overall, the original subscales which measured exercise motivations directly related to weight and appearance were not as strong as *MPEMM Weight* as an all-round predictor of relatedness and social functioning.

### MPEMM Appearance

The three-item MPEMM *Appearance* subscale is derived from the four-item EMI-II *Appearance* subscale, with one item removed “To look younger”, as this increased the overall internal consistency of the subscale. The removal of this item, however, has meant that the predictive ability of the MPEMM *Appearance* subscale is poorer than the original subscale across all three BPNEs of autonomy ( $r_s = .234$ ,  $p = .034$ ), competence ( $r_s = .268$ ,  $p = .014$ ), and relatedness ( $r_s = .342$ ,  $p = .002$ ), although it is slightly better at predicting general health ( $r_s = .293$ ,  $p = .006$ , as measured on the original EMI-II subscale). As the removal of the fourth item only increased the internal consistency of the original subscale by .007, it was thought reasonable to include the item and re-run the final EFA to ascertain whether it would load uniquely onto the *appearance* factor. This confirmed that the item was not measuring appearance alone, as it loaded with *Appearance* (.520) and cross-loaded with *Weight* (.551), *Interest* (.311), and *Revitalisation* (.443). Therefore, it seems reasonable to suggest that this

fourth item is measuring more internal motivations for exercise than the rest of the appearance items, which would account for the EMI-II subscale being a better predictor of the BPNs, as one would expect a more internalised form of motivation to be a stronger predictor of such variables. The MPAM-R *Appearance* subscale is only able to predict relatedness ( $r_s = .217, p = .048$ ), and this is not as strong as *Appearance* on the MPEMM.

### **MPEMM Socialising**

The *social* subscale on the MPAM-R did not correlate with competence on the BPNES, and when compared with the MPEMM's subscale of *Socialising* it was a marginally better predictor of relatedness ( $r_s = .331, p = .002$ ) and a stronger predictor of autonomy ( $r_s = .217, p = .048$ ). The *social recognition* subscale of the EMI-II did not correlate with any of the subscales across the BPNES and the HRQL. However, the *affiliation* subscale of the EMI-II was a better predictor than the *MPEMM Socialising* subscale for autonomy, competence, and relatedness, ( $r_s = .245, p = .026$ ;  $r_s = .300, p = .006$ ; and  $r_s = .337, p = .002$ , on the EMI-II respectively).

The key difference between the EMI-II *affiliation* subscale and the *MPEMM Socialising* subscale is the removal of the item "to enjoy the social aspects of exercising" from the latter, which was removed through the EFA process as it did not load uniquely enough with similar items. The inclusion of the term 'to enjoy', within this item, suggests that it may also be measuring intrinsic motives, which is likely to account for its stronger correlation with the BPNE.

### **MPEMM Revitalisation**

The two-item *Revitalisation* subscale on the MPEMM is derived from the three-item EMI-II subscale of Revitalisation, with the item "It makes me feel good" removed. The justification behind removing the third item was that it did not load independently enough

with the *Revitalisation* component in the initial PCA, as it also loaded highly with the *Health & strength* component. Furthermore, removing this third item increased the internal reliability of the subscale from .817 to .830. The original EMI-II subscale, however, is a stronger predictor of General Health ( $r_s = .356$ ,  $p = .001$ ) and all three BPNs of autonomy, competence and relatedness ( $r_s = .367$ ,  $p = .001$ ;  $r_s = .490$ ,  $p < .000$ ; and  $r_s = .353$ ,  $p = .001$ , respectively). There is no equivalent subscale on the MPAM-R.

### **MPPEMM Strength & health**

The MPPEMM subscale of *Strength & health* is equivalent to the *fitness-health* subscale of the MPAM-R, and the two have very similar predictive validity. The MPAM-R subscale is a significant predictor of autonomy ( $r_s = .427$ ,  $p < .001$ ), competence ( $r_s = .454$ ,  $p < .001$ ), relatedness ( $r_s = .450$ ,  $p < .001$ ), and general health ( $r_s = .322$ ,  $p = .002$ ).

The EMI-II has three subscales measuring health, namely, *health pressures*, *ill-health avoidance*, and *positive health*. *Health pressures* was unable to predict any of the criterion measures, and although *ill-health avoidance* was a significant predictor of all three BPNs, namely, autonomy ( $r_s = .293$ ,  $p = .007$ ), competence ( $r_s = .290$ ,  $p = .007$ ), and relatedness ( $r_s = .359$ ,  $p = .001$ ), as well as general health ( $r_s = .276$ ,  $p = .009$ ), the MPPEMM *Strength & health* subscale was a stronger predictor of these variables. The final EMI-II health subscale of *positive health* was also a significant predictor of these four criteria; autonomy ( $r_s = .435$ ,  $p < .001$ ), competence ( $r_s = .383$ ,  $p < .001$ ), relatedness ( $r_s = .377$ ,  $p < .001$ ), and general health ( $r_s = .291$ ,  $p = .006$ ). However, the MPPEMM *Strength & health* subscale was a stronger predictor for most of these criteria, except for autonomy, for which it was only marginally weaker at predicting (a difference of .016).

The *Strength* subscale of the EMI-II was a far greater all-round predictor of the proposed criteria than any other subscale across all the measures, predicting six criteria in

total. It was a significant and stronger predictor than the MPEMM *Strength & health* subscale on three subscales across the HRQL; general health ( $r_s = .371, p < .001$ ), energy & fatigue ( $r_s = .274, p = .01$ ), and physical functioning ( $r_s = .214, p = .042$ ), and all three of the BPNs; autonomy ( $r_s = .436, p < .001$ ), competence ( $r_s = .494, p < .001$ ), and relatedness ( $r_s = .433, p < .001$ ).

### **MPEMM Competition & challenge**

The four items that comprise the MPEMM *Competition & challenge* subscale were derived from two subscales on the EMI, one measuring competition and the other measuring challenge. The MPEMM *Competition & challenge* subscale is a markedly stronger predictor than the EMI-II *Challenge* subscale for all three of the BPNs; autonomy ( $r_s = .280, p = .01$ ), competence ( $r_s = .309, p = .004$ ), and relatedness ( $r_s = .332, p = .003$ ). The MPEMM subscale is also a marginally stronger predictor the EMI-II *Competition* subscale for all three of the BPNs; autonomy ( $r_s = .425, p < .001$ ), competence ( $r_s = .381, p < .001$ ), and relatedness ( $r_s = .367, p = .001$ ).

The MPAM-R subscale of *Competence* is similar to the MPEMM *Competition & challenge* and was a stronger predictor across all three BPNs; autonomy ( $r_s = .432, p < .001$ ), competence ( $r_s = .495, p < .001$ ), and relatedness ( $r_s = .413, p < .001$ ), as well as being a moderate predictor of general health ( $r_s = .269, p = .011$ ). The reason that many of the items from the MPAM-R *Competence* subscale were originally removed is due to their high cross-loadings between all three components in the initial PCA. To test whether these items could load more uniquely with a factor once many of the other items from the MPAM-R had been removed, they were added to the final set of items and the final EFA was re-run. This analysis revealed that all the items from the MPAM-R *Competence* subscale loaded moderately to highly with three factors; *Interest, Strength & health, and Challenge &*

*competition*, showing no distinct preference for any one factor. This failure to load uniquely means that the items would create substantial specific variance amongst responses from the present sample, meaning they are unsuitable for application in a valid measure of factors that influence exercise motivation in this sample, reasons for why these cross-loadings may have occurred are considered in the discussion.

### **MPEMM Interest**

Although the *Interest* subscale of the MPEMM does not include any items from the EMI-II, its closest equivalent on the EMI-II in terms of regulation style is the *enjoyment* subscale. Across all subscales on all measures, the enjoyment subscale of the EMI-II is the best all-round predictor of the three BPNs, as a moderate predictor of autonomy and relatedness ( $r_s = .538$ ,  $p < .001$ ; and  $r_s = -.456$ ,  $p < .001$ , respectively), and a strong predictor of competence ( $r_s = -.658$ ,  $p < .001$ ). Whilst the *Interest* subscale of the MPEMM is a moderate predictor of relatedness, it would be considered a weak predictor of autonomy and competence. As with the *Interest* subscale of the MPEMM, the *enjoyment* subscale of the EMI-II is also a predictor of general health ( $r_s = -.294$ ,  $p = .005$ ), and energy & fatigue ( $r_s = -.291$ ,  $p = .006$ ).

In terms of the MPAM-R, *Interest* is the closest subscale to the *Interest* subscale of the MPEMM, sharing one item. The MPEMM subscale is a stronger predictor of autonomy and competence than the MPAM-R ( $r_s = -.294$ ,  $p = .005$ ), whereas the MPAM-R is a stronger predictor of relatedness ( $r_s = -.447$ ,  $p < .001$ ). Unlike the MPEMM, the *Interest* subscale of the MPAM-R is not related to either *General health* or *Energy & fatigue*.

### **Amotivation**

The three-item MPEMM subscale of *Amotivation* is derived directly from the SMS-28 subscale of *amotivation* with just one item removed, namely, "I can't seem to achieve the

goals I set myself”, which resulted in a stronger internal reliability. The three-item *Amotivation* subscale in the MPEMM was a stronger predictor of *General health* and *Physical functioning* than the original subscale ( $r_s = -.304$ ,  $p = .004$ ; and  $r_s = -.230$ ,  $p = .031$ , respectively as measured by the SMS), and was also able to predict *Energy & fatigue*, which the original subscale was not able to do. Furthermore, the original *Amotivation* subscale could not predict any of the BPNEs, whereas the MPEMM version revealed a significant negative relationship with competence and relatedness.

### **Introjected**

The *introjected* scale on the SMS-28 was a better predictor of the MPEMM *Introjected* subscale against all three BPNEs, namely, autonomy ( $r_s = .374$ ,  $p = .001$ ), relatedness ( $r_s = .351$ ,  $p = .001$ ), and competence ( $r_s = .254$ ,  $p = .02$ ), but was not as strong when predicting general health ( $r_s = .238$ ,  $p = .025$ ).

### **Identified**

The *identified* subscale of the SMS-28 was a poorer predictor of autonomy and relatedness than the MPEMM *Identified* subscale ( $r_s = .336$ ,  $p = .002$ ; and  $r_s = .255$ ,  $p = .019$ , respectively), and unlike the MPEMM *Identified* subscale, the SMS-28 could not predict perceived competence or general health.

### **Intrinsic**

The MPEMM *Intrinsic* subscale is a stronger predictor than all three of the intrinsic subscales of the SMS-28 across autonomy and relatedness and is stronger than *Stimulation* and *Knowledge* at predicting competence, whilst it is only marginally weaker than the SMS-28 *Accomplishment* subscale at predicting competence.

The MPEMM *Intrinsic* subscale is also a stronger predictor of energy & fatigue than *Stimulation* ( $r_s = -.221$ ,  $p = .041$ ) and *Knowledge* ( $r_s = -.216$ ,  $p = .045$ ) and a stronger predictor of general health than the *Accomplishment* subscale of the SMS-28 ( $r_s = -.245$ ,  $p = .002$ ).

## 16.8. Technical Appendix H. Thematic analysis

### Thematic analysis

Braun and Clarke propose that thematic analysis is a flexible approach which can be applied across a range of theoretical and epistemological approaches, providing “a rich and detailed, yet complex account of data” (p. 5, Braun & Clarke, 2006). Although some argue that thematic analysis is situated in realist epistemology (Aronson, 1994; Roulston, 2001), as is the present research, Braun and Clarke argue that when adopting thematic analysis, the importance lies in being explicit about any epistemological assumptions along with explanations for why and how the analysis was conducted, and not in restricting the approach to any one set of assumptions. They recommend being descriptive in qualitative research approaches to allow for evaluation of the research, comparisons with other studies, and to help researchers wanting to carry out related projects. Thus, the present study will be explicit in each stage of the qualitative data analysis process, linking this with the critical realist perspective wherever suitable.

From a CR perspective, the present research aimed to access the tangible reality of prisoners’ experiences with sport and other healthy behaviours inside prison. Understanding this reality provides a basis on which to inform prison-based interventions, by understanding what prisoners perceive to be the barriers to healthy behaviours, it is then possible to understand how these barriers can be minimised.

Prisoners’ experiences of sport in prison are reflective of the social structures that operate inside the prison, and these shared meanings may be outdated, or false, but they must be understood to understand what hinders or promotes the positive impact of such experiences. If prisoners’ shared meanings in relation to sport in prison are somewhat

skewed, then these can be challenged in appropriate ways. CR also plays its role in the qualitative analysis of prisoners' interview data by providing a framework with which to distinguish between the four types of reality; material; artefactual; ideal; and social, which is important in identifying how such realities can be challenged.

Braun and Clarke also make the important distinction between themes "emerging" or being "identified". The former assumes that themes exist independently of the researcher, and will be found regardless of who performs the analysis, whilst the latter recognises the role of the researcher in deciding what is of importance in the data, and therefore what themes should be identified. The process of identifying themes also suggests that there is a role to be played by theory and values, which are informing their identification. Decisions need to be made in relation to what constitutes a theme. Braun and Clarke suggest that it is not the prevalence of a theme in terms of the number of times it appears across data items that necessarily determines whether or not it should be presented as a theme in its own right, rather, it is for the researcher to determine what the themes are, and that some flexibility needs to be retained around this recursive process. However, although the particular method of measurement for prevalence is not considered important, *consistency* in how prevalence is measured is of importance.

Although it is arguably a sparse field, there is existing research that explores prisoners' motivations to exercise and engage in healthy behaviours, thus, the present study does not aim to provide an overall account of prisoners' experiences on the topic, but rather, it aims to provide a much more nuanced and detailed account of a particular set of themes within the interview data, which is explored at a semantic level to allow for an understanding of how prisoners construct their reality. This theoretical thematic analysis is guided by the theoretical backdrop of SDT and the key relationships that have been identified in Study I, to generate specific research questions which are of interest. These research questions have

informed the literature review for the present study, which has allowed the researcher to become more sensitive to ideas and behaviours outlined in the interviews which may be of relevance, whilst striving to avoid confirmation bias by maintaining an open mind with regards to other phenomenon that appear to be of prominence in relation to the research aims of understanding prisoners' motivations to be healthy.

A disadvantage of this relatively simple qualitative approach is the inability to make claims about the use of language, or any contradictions or inconsistencies within individual accounts, which would require a narrative or biographical approach (Braun & Clarke, 2006). This lack of language analysis would be particularly limiting if the present research wished to compare experiences of sport and healthy behaviours between prisoners and prison staff, as the language used to express these accounts may be vital in understanding any key differences. As it stands there is only one account from prison staff in the present dataset, and this will not be used to make comparisons with the accounts from prisoners, but instead it will be used to create a more comprehensive understanding of how sport is managed and viewed within the prison. Although the language used to express thoughts and experiences is of importance in understanding why and how realities have been constructed, from a CR perspective the present research is less interested in these processes, and more interested in interviewees' conscious reflections of their beliefs and actions, so that these can be challenged if needed. To allow for the fact that contradictions within accounts may not be picked up on, themes were subject to thorough review and had to comprise a strong set of codes which provided a consistent narrative. Any contradictions to key themes were reviewed on an individual basis, with the researcher deciding whether these provided an important addition in relation to the research questions, or whether they should be discarded. This approach sought to eliminate any sections of data which were not reflective of the arguments running through the dataset or did not provide key areas for further investigation.

## 17. Appendices

### 17.1. Appendix A. Study I

End survey completed by participants

#### **CELL WORKOUT WORKSHOP – EVALUATION SURVEY END**

Congratulations on completing the 2 week Cell Workout Workshop. Thank you for taking the time to consider these surveys, your responses will help us to evaluate any changes that Cell Workout has made to you, so that the workshop can continue to grow, improve, and benefit others.

It helps us to have basic personal information about those who complete this questionnaire so that we can measure your progress, but you will remain completely anonymous. We would be grateful for the following information:

**Name** \_\_\_\_\_

**Number** \_\_\_\_\_

**Age** \_\_\_\_\_

**We may wish to use this data for evaluation and research purposes to help us improve the program in the future, if you are happy for us to do this  then please tick here**

Please read each of the statements on the ladder carefully and decide which number describes your exercise behaviours most accurately **since participating in Cell Workout Workshop**. Circle '0' if it has made no changes to your intention to want to exercise in the near future, and '10' if the workshop has greatly changed your attitude towards exercising in the near future.

10	I currently exercise regularly and have been doing so for more than 6 months
9	
8	I currently exercise regularly but have begun doing so in the last 6 months
7	
6	
5	I currently exercise a little but not regularly
4	
3	
2	I currently do not exercise but I am thinking about starting in the next 6 months
1	
0	I currently do not exercise and do not intend to start in the next 6 months

The following statements are reasons that people often give when asked why they exercise. We would like to know if your thoughts and feelings have changed in relation to exercise over the past 2 week Cell Workout Workshop.

Please read each of these statements carefully and decide how true they are for you, personally, and not whether you think they may be good reasons for anybody else to exercise.

If the statement is **not** true for you, then circle the '0', if it is **very** true for you then circle the '5', or if it is partly true, then choose either '1' '2' '3' or '4' depending on how strongly you feel it fits with your own reasons for exercising or not exercising.

Personally, I exercise (or might exercise)...							
		Not at all true for me					Very true for me
1	To stay slim	0	1	2	3	4	5
2	To avoid poor health	0	1	2	3	4	5
3	Because it makes me feel good	0	1	2	3	4	5
4	To help me look younger	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
5	To show others my worth	0	1	2	3	4	5
6	To give me space to think	0	1	2	3	4	5
7	To have a healthy body	0	1	2	3	4	5
8	To build up my strength	0	1	2	3	4	5
9	Because I enjoy the feeling of pushing myself	0	1	2	3	4	5
10	To spend time with friends	0	1	2	3	4	5
11	Because a member of healthcare staff advised me to	0	1	2	3	4	5
12	Because I like trying to win in physical activities	0	1	2	3	4	5
13	So I am able to move quickly and easily	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
14	To give me goals to work towards	0	1	2	3	4	5
15	To lose weight	0	1	2	3	4	5
16	To prevent health problems	0	1	2	3	4	5
17	Because I find exercise gives me energy	0	1	2	3	4	5
18	To have a good body	0	1	2	3	4	5
19	To compare my abilities with others	0	1	2	3	4	5
20	Because it helps to reduce tension	0	1	2	3	4	5
21	Because I want to maintain good health	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
22	To increase my endurance	0	1	2	3	4	5
23	Because I find just exercising satisfying	0	1	2	3	4	5
24	To enjoy the social aspects of exercising	0	1	2	3	4	5
25	To help prevent an illness that runs in my family	0	1	2	3	4	5
26	Because I enjoy competing	0	1	2	3	4	5
27	To stay flexible	0	1	2	3	4	5
28	To give me personal challenges to face	0	1	2	3	4	5
29	To help control my weight	0	1	2	3	4	5
30	To avoid heart disease	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
31	To recharge my batteries	0	1	2	3	4	5
32	To improve my appearance	0	1	2	3	4	5
33	To gain recognition for my achievements	0	1	2	3	4	5
34	To help manage stress	0	1	2	3	4	5
35	To feel more healthy	0	1	2	3	4	5
36	To get stronger	0	1	2	3	4	5
37	For enjoyment of the experience of exercising	0	1	2	3	4	5
38	To have fun being active with people	0	1	2	3	4	5
39	To help recover from an illness/injury	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
40	Because I enjoy physical competition	0	1	2	3	4	5
41	To develop personal skills	0	1	2	3	4	5
42	Because exercise helps me to burn calories	0	1	2	3	4	5
43	To look more attractive	0	1	2	3	4	5
44	To accomplish things that others cannot do	0	1	2	3	4	5
45	To release tension	0	1	2	3	4	5
46	To develop my muscles	0	1	2	3	4	5
47	Because I feel at my best when exercising	0	1	2	3	4	5
48	To make new friends	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
49	Because I find physical activities fun, especially when competition is involved	0	1	2	3	4	5
50	To measure myself against personal standards	0	1	2	3	4	5
51	Because I want to be physically fit	0	1	2	3	4	5
52	Because it might be fun	0	1	2	3	4	5
53	Because I like engaging in activities which physically challenge me	0	1	2	3	4	5
54	Because I want to learn new skills	0	1	2	3	4	5
55	Because I want to lose or maintain my weight so I look better	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
56	Because I want to be with my friends	0	1	2	3	4	5
57	Because I like the sound of doing this activity	0	1	2	3	4	5
58	Because I want to improve existing skills	0	1	2	3	4	5
59	Because I like the challenge	0	1	2	3	4	5
60	Because I want to define my muscles so I look better	0	1	2	3	4	5
61	Because I believe it will me happy	0	1	2	3	4	5
62	Because I want to keep up my current skill level	0	1	2	3	4	5
63	Because I want to have more energy	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
64	Because I like activities which are physically challenging	0	1	2	3	4	5
65	Because I like to be with others who are interested in this activity	0	1	2	3	4	5
66	Because I want to improve my cardiovascular fitness	0	1	2	3	4	5
67	Because I want to improve my appearance	0	1	2	3	4	5
68	Because I think it will be interesting	0	1	2	3	4	5
69	Because I want to maintain my physical strength to live a healthy life	0	1	2	3	4	5
70	Because I want to be attractive to others	0	1	2	3	4	5
71	Because I want to meet new people	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
72	Because I think I will enjoy this activity	0	1	2	3	4	5
73	Because I want to maintain my physical health and well-being	0	1	2	3	4	5
74	Because I want to improve my body shape	0	1	2	3	4	5
75	Because I want to get better at this type of activity	0	1	2	3	4	5
76	Because I believe I will find this activity interesting	0	1	2	3	4	5
77	Because I will feel physically unattractive if I don't	0	1	2	3	4	5
78	Because my friends want me to	0	1	2	3	4	5
79	Because I like the excitement of participation	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
80	Because I believe I will enjoy spending time with others doing this activity	0	1	2	3	4	5
81	For the pleasure I feel in living exciting experiences	0	1	2	3	4	5
82	For the pleasure it gives me to know more about this type of exercise	0	1	2	3	4	5
83	I did have good reasons for participating, but now I am asking myself if I should continue	0	1	2	3	4	5
84	For the pleasure of discovering new training techniques	0	1	2	3	4	5
85	I don't know anymore; I think I may not be capable to succeed in this	0	1	2	3	4	5
86	Because others that I know will think highly of me	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
87	Because, in my opinion, it is one of the best ways to meet people	0	1	2	3	4	5
88	Because I feel a lot of personal satisfaction when I can master difficult exercises	0	1	2	3	4	5
89	Because it is absolutely necessary to do sports if I want to be in shape	0	1	2	3	4	5
90	For the respect of being able to complete these exercises	0	1	2	3	4	5
91	Because I think it is a great way to develop other aspects of myself	0	1	2	3	4	5
92	For the pleasure I feel while improving some of my weak points	0	1	2	3	4	5
93	For the excitement I feel when I am really involved in such an activity	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
94	Because I must exercise to feel good about myself	0	1	2	3	4	5
95	For the satisfaction I experience when perfecting my abilities	0	1	2	3	4	5
96	Because people around me think it is important to be in shape	0	1	2	3	4	5
97	Because it is a good way to learn lots of things which could be useful in other aspects of my life	0	1	2	3	4	5
98	For the intense emotions I feel doing exercise that I like	0	1	2	3	4	5
99	It is not clear to me anymore; I don't really think my place is in exercise	0	1	2	3	4	5
100	For the pleasure that I feel while executing certain difficult movements	0	1	2	3	4	5

		<b>Not at all true for me</b>					<b>Very true for me</b>
101	Because I would feel bad if I was not taking time to do it	0	1	2	3	4	5
102	To show others how good I am good at these exercises	0	1	2	3	4	5
103	For the pleasure that I feel while learning techniques I have never tried before	0	1	2	3	4	5
104	Because it is one of the best ways to maintain good relationships with friends	0	1	2	3	4	5
105	Because I like the feeling of being totally immersed in the activity	0	1	2	3	4	5
106	Because I must exercise regularly	0	1	2	3	4	5

107	For the pleasure of discovering new ways of exercising	0	1	2	3	4	5
108	I am not sure why as I can't seem to achieve the goals that I set for myself	0	1	2	3	4	5

This questionnaire is to be completed after participating in the Cell Workout Workshop whilst in prison, which consists of exercising for a minimum of 30 minutes at least 5 times a week for a duration of 2 weeks or more (regular exercise). For the purpose of this questionnaire, exercise includes physical activity which increases your heart rate and causes you to break into a sweat, using the bodyweight training method.

Please read each of the following statements carefully and decide how true they are for you in relation to the Cell Workouts Workshop.

If you completely disagree with a statement then circle the '1', if you strongly agree then circle the '5', or if it is partly true, then choose either '2' '3' or '4' depending on how strongly you feel it fits with your own feelings towards exercise.

	1	2	3	4	5
	Totally disagree	Agree a little bit	Moderately agree	Strongly agree	Very strongly agree
The exercise I have been doing fits very well with my choices and interests	1	2	3	4	5
I definitely think that the way I have been exercising fits perfectly with the way I prefer to exercise	1	2	3	4	5

I definitely think that the way I have been exercising is a true expression of myself	1	2	3	4	5
I definitely think that I have had the opportunity to make choices with respect to the way I exercise	1	2	3	4	5
I think I have been making huge progress with respect to the goals I set myself	1	2	3	4	5
I think that I perform my exercises very effectively	1	2	3	4	5
I think that exercise is an activity in which I do very well	1	2	3	4	5
I think that I can manage with the requirements of my exercise schedule	1	2	3	4	5
I feel extremely comfortable when with the others who I have shared my exercise space with	1	2	3	4	5
I think that I associate with other exercise participants in a very friendly way	1	2	3	4	5
I think there are open channels of communication with other exercise participants	1	2	3	4	5

I feel very much at ease with the other exercise participants

1

2

3

4

5

This survey asks for your views about your health since and any changes you have **noticed over the past two weeks**. This information will help keep track of how you feel and how well you are able to do your usual activities.

For each of the following questions, please mark an X in the one box that best describes your answer.

1. In general, would you say your health over the past two weeks has been:

Poor	Fair	Good	Very Good	Excellent
<input type="checkbox"/>				

2. Compared to two weeks ago, how would you rate your health in general now?

Much worse now than two weeks ago	Somewhat worse now than two weeks ago	About the same as two weeks ago	Somewhat better now than two weeks ago	Much better now than two weeks ago
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. The following questions are about activities you might do during a typical day during the Cell Workout Workshop. Does your health limit you in these activities? If so, how much?

	No, not limited at all	Yes, limited a little	Yes, limited a lot
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate activities, such as moving a table or mopping a floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting or carrying a stack of books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climbing one flight of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bending or kneeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking around a football pitch three times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking one length of a football pitch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. During the past two weeks, to what extent has your physical health or emotional problems interfered with social interaction with others on the wing, staff, or friends and family?

Extremely	Quite a bit	Moderately	Slightly	Not at all
<input type="checkbox"/>				

5. These questions are about how you feel and how things have been with you during the past two weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the past two weeks...

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Did you feel full of life?	<input type="checkbox"/>				
Have you been very nervous?	<input type="checkbox"/>				
Have you felt so down in the dumps that nothing could cheer you up?	<input type="checkbox"/>				
Have you felt calm and peaceful?	<input type="checkbox"/>				
Did you have a lot of energy?	<input type="checkbox"/>				
Have you felt downhearted and depressed?	<input type="checkbox"/>				

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Did you feel worn out?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you been happy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did you feel tired?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This questionnaire contains items that are related to your experience with your trainer on the Cell Workouts programme so far.

	Strongly Disagree		Neutral			Strongly Agree	
	1	2	3	4	5	6	7
1 I believe that my trainer provides me with choices and options	1	2	3	4	5	6	7
2 I feel understood by my trainer	1	2	3	4	5	6	7
3 My trainer showed he has confidence in my ability to do well in cell workouts	1	2	3	4	5	6	7
4 My trainer encourages me to ask questions	1	2	3	4	5	6	7
5 My trainer listens to how I would like to do things	1	2	3	4	5	6	7
6 My trainer tries to understand how I see things before suggesting a new way to do things	1	2	3	4	5	6	7

**The following questions relate directly to your experiences on the Cell Workouts Workshop.**

**Please circle the number which best reflects your experience of the Cell Workouts Workshop, where 1 is a low score, and 10 is a high score.**

	Not at all		Somewhat						Very	
	1	2	3	4	5	6	7	8	9	10
At the start of the workshop, how challenging did you find the exercise sessions?	1	2	3	4	5	6	7	8	9	10
How challenging do you find the exercise sessions now?	1	2	3	4	5	6	7	8	9	10
At the start of the workshop, how enjoyable did you find the exercise sessions in the Cell Workouts Workshop?	1	2	3	4	5	6	7	8	9	10
How enjoyable do you find the exercise sessions in the Cell Workouts Workshop now?	1	2	3	4	5	6	7	8	9	10
How useful did you find the afternoon sessions throughout the workshop?	1	2	3	4	5	6	7	8	9	10
Overall, how rewarding did you find the whole Cell Workouts Workshop?	1	2	3	4	5	6	7	8	9	10
How likely would you be to recommend the Cell Workouts Workshop to others?	1	2	3	4	5	6	7	8	9	10

**The following questions give you a chance to give feedback on the Cell Workouts Workshop in your own words.**

What did you enjoy most about the exercise sessions during the workshop and why?

What did you enjoy least about the exercise sessions during the workshop and why?

Which exercises, if any, do you think you will continue to use after the workshop?

Which exercises are you least likely to continue using after the workshop?

What did you enjoy most about the afternoon sessions during the workshop?

What did you enjoy least about the afternoon sessions during the workshop?

Overall, what did you find most useful about the workshop?

Do you think the workshop has changed you in any way? If so, how?

If you could change anything about the course, what would it be?

**Please use this space to write down any further thoughts, comments and feedback that you may want to add and include any support you think you may need in the future to help you to continue to maintain your progress in achieving your personal goals.**

The following questions relate to smoking behaviours. If you are not a smoker, then please tick the box below and you are not required to answer any more questions. We thank you for your time.

If you are not a smoker, please tick this box

If you are a smoker, please circle the letter next to the statement which is closest to your current use of exercise (that is, spending at least 10 minutes continuously engaging in moderate intensity activities, e.g., jogging on the spot or gentle sit ups) as a strategy to help you quit smoking:

- A** I do not currently and do not intend to use exercise as a way of controlling my cigarette smoking
- B** Although I do not currently, I'm thinking of starting to use exercise as a way of controlling my cigarette smoking
- C** I exercise once in-a-while as a way of controlling my cigarette smoking, but not regularly
- D** In the past six months I have begun to use exercise regularly as a way of controlling my cigarette smoking
- E** I have been exercising regularly as a way of controlling my cigarette smoking for longer than 6 months

If you have smoked in the past month please mark the number that best represents how smoking made you feel (1—not at all, 2—very little, 3—a little, 4—moderately, 5—a lot, 6—quite a lot, 7—extremely).

Was smoking satisfying?

Did cigarettes taste good?

Did you enjoy the sensations in your throat and chest?

Did smoking calm you down?

Did smoking make you feel more awake?

Did smoking make you feel less irritable?

Did smoking help you concentrate?

Did smoking reduce your hunger for food?

Did smoking make you dizzy?

Did smoking make you nauseous?

Did smoking immediately relieve your craving for a cigarette?

Did you enjoy smoking?

**Thank you for taking the time to complete this survey, your responses are extremely useful and will help us to improve future physical activity programs in prisons.**

**If you have any questions at all then please do not hesitate to get in touch with your trainer.**

## 17.2. Appendix B. Study I

### Review of measures including exercise motivation, physical activity behaviour and smoking behaviours

*Review of behavioural and motivational measures*

Focus	Name	Author(s)	Items	Type	Info	Validation		Pros	Cons
						Author(s)	Results		
Physical activity	7-Day Physical Activity Recall (PAR)		7 days x sleep/ morning/ afternoon/ evening/ strength/ flexibility	Semi-structured interview	Interview asks participant to recall time spent sleeping and doing physical activities for the past 7 days, guiding through the recall process day by day to determine duration and intensity	Gross et al. (1990)	Relationship between first test and same day retest with different interviewer		
						Sallis et al. (1985)	Relationship between first test and two week retest	Includes a variety of activity including such as aerobic, work-related, gardening, walking and leisure-time physical activity	Light activity not measured
						Dishman & Steinhardt (1988)	Relationship between first test and 9wk test - 3 x sig. results at 5wks, 2-9wks and 5-9wks		
						Sallis et al. (1993)	Relationship between first and second test within 7 days		
						Jacobs et al. (1993)	Relationship between first test and one month retest		
						Rauh et al. (1992)	Relationship between first test and two week retest		
						Sallis et al. (1988)	Relationship between first test and same day retest with different interviewer	Manual to standardise interview process is very detailed	Some issues with validity when measuring moderate activity
						Taylor et al.	Relationship between 7-Day Recall and self-report		
						Wallace et al. (1985)	Comparison with direct observation		
						Sallis et al.	Relationship between recall and HR of very hard activity	Good measure of intensity	Same interviewer required for validity - does not work with different interviewers so will not lend itself well to self-report
Dishman & Steinhardt	Relationship between 7-Day Recall and 7-day activity log								
Blair et al. (1984)	Relationship between 7-Day Recall and Caltrac activity monitor								
Intrinsic versus extrinsic life goals	Aspirations Index	Kasser & Ryan (1996)	105 items across 7 categories	Self-report	There are 7 categories of life goals (wealth; fame; image; personal growth; relationships; community; and health) and 5 specific goals to measure each of these (importance; likelihood; and current progress)			Various approaches to data analyses can be found in research articles such as Kasser and Ryan (1996).	105 items is rather long for a self-administered measure - although it may be possible to include a subset of categories only
								it and wording are simple and straightforward	

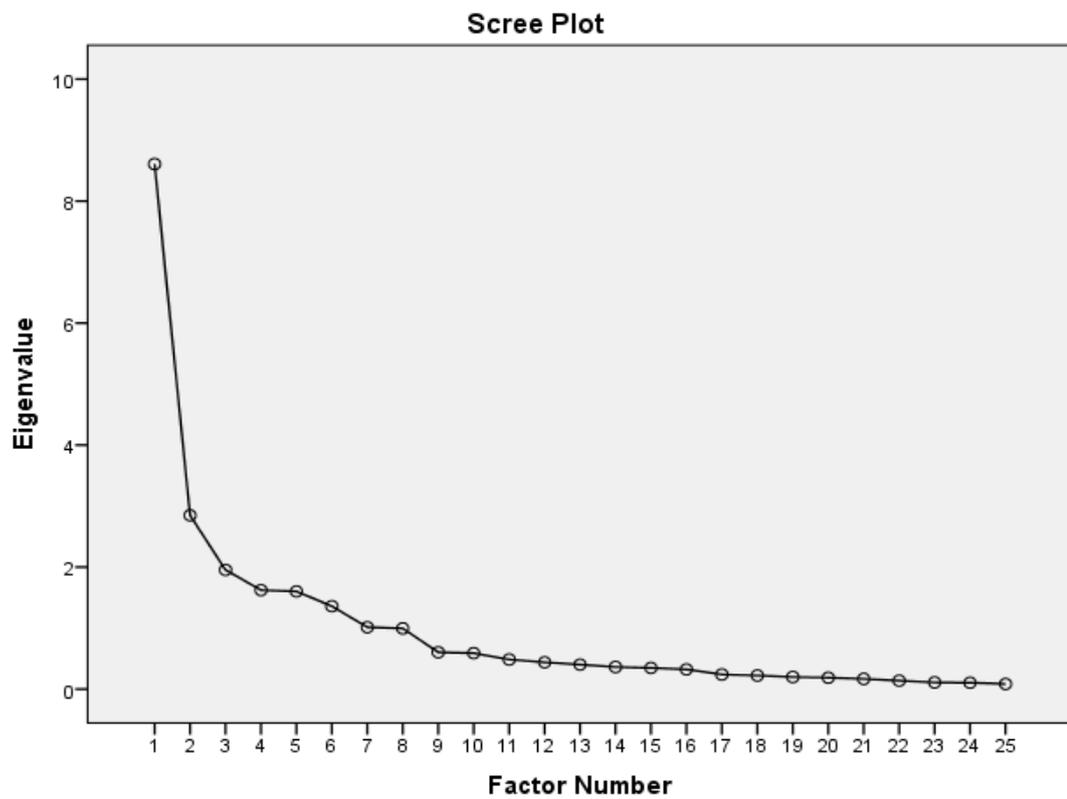
Basic psychological needs	Basic Psychological Needs Scales	Guardia, Ryan, Couchman & Deci	This includes three scales; General, work and relationships. The original scales have 21 items each but it is possible to work with 9 (3 to measure each need of autonomy, competence and relatedness)	Self-report	Each item has a 7-point likert scale from 'not at all true' to 'very true'. The results then feed into a score for each of the three needs relating to that particular scale e.g. the extent to which the basic needs are met in relation to work.	Cappelleri, Bushmakin, Baker, Merikle, Olufade & Gilbert (2007)	Psychometric evaluation through three independent studies found smoking satisfaction and Psych reward domains exceeded 7.0 in Cronbach's alpha, but not Aversion. Validity and reliability of multidimensional framework confirmed and supported.	Format is very straightforward  Option to reduce the length of each subscale to 9 items  Wording as well as numbered scale to aid responses	The use of reverse items may be confusing for some
Smoking	modified Cigarette Evaluation Questionnaire (mCEQ)		Original was 11 items, this has an additional twelfth item to measure enjoyment. Smoking satisfaction - 3 items; Psych reward - 5 items; Aversion - 2 items.	Self-report	Provide answers to 12 items on a 7-point likert scale from 'not at all' to 'extremely'. Average of each response is then calculated and combined to give score for each subscale.	Cappelleri, Bushmakin, Baker, Merikle, Olufade & Gilbert (2007)	Psychometric evaluation through three independent studies found smoking satisfaction and Psych reward domains exceeded 7.0 in Cronbach's alpha, but not Aversion. Validity and reliability of multidimensional framework confirmed and supported.	Option for self-administration or interview  No reverse scoring  Very straight forward to complete, simple wording for the most part (exception of 'nauseous') and brief	Only tested on at least moderately dependent smokers (n = 626) who were recruited to the medication treatment trial (at least 10 cigarettes a day)
Contingent self-esteem	Competence based self-esteem measure		Two dimensions; 'contingent upon competence' (8 items) and 'self-critical' (4 items)	Self-report	The authors have divided contingent self-esteem into competence and relation sub scales. Responses are provided on a 5-point likert scale from 'Strongly disagree' to 'Strongly agree'		CFA confirmed this two dimensional structure of contingent self-esteem. Cronbach's alpha score of 0.89 for initial scores, and test retest reliability of 0.93 when using 50 Ps in follow up after 5 weeks	Fairly complex wording	
	Relation based self-esteem measure		Three dimensions; 'Rejection' (6 items); Contingent upon love' (4 items); and 'Compliance' (4 items)	Self-report			Cronbach's alpha score of 0.88 for initial scores, and test retest reliability of 0.80 when using 50 Ps in follow up after 5 weeks		
Exercise motivation	The Exercise Motivations Inventory - 2 (EMI-2)	Markland and Ingledew (1997)	51 items	Self-report	Responses on a likert-scale of 1-5	Wilson (2002)	Health pressures ( $\alpha = .69$ ; Ingledew et al., 1998) and revitalisation ( $\alpha = .56$ ; Markland & Ingledew, 1997) subscales consistently return lower reliability estimates	Easy wording and straight forward to complete, very comprehensive with vast range of subscales, applicable for exercisers and non-exercisers	Fairly long
						Markland (1999)	differentially predict perceptions of autonomy and interest-enjoyment		

Perceived stress	Perceived Stress Scale	Cohen, Kamarck & Mermelstein	14 items	Self-report	Responses on a likert-scale of 1-5 from 'never' to 'very often'			Wording as well as numbered scale to aid resp	This has the potential to be a very emotive survey, particularly in the prison context with items such as 'in the last month, how often do you feel you have been able to control your time?'
Motivation for smoking cessation	Kim's Smoking Cessation Motivation Scale		10 items to identify four possible levels of motivation; Prep level 1; pre-contemplation; contemplation; and prep level 2	Self-report	Responses on a likert-scale of 1-5	Park, Chai, Lee, Joe, Jung & Kim	The precontemplation level of the scale is found to significantly predict success of smoking cessation. Cronbach's alpha scores ranged from 0.480 to 0.666		Wording may need to be amended as this is an Asian study and the grammar in the translation is slightly confusing  Moderate levels of reliability
Cigarette withdrawal symptoms	Mood and Physical Symptoms Scale (MPSS)		5 items of mood symptoms - Depressed; Irritable; Restless; Hungry; Poor concentration; And 2 items of physical symptoms - Frequency of urges; Strength of urges	Self-report	The scale is to be completed following 24hrs of abstinence. Responses on a likert-scale of 1-5 for mood; 0-5 for physical symptoms	West & Hajek (2004)	Support found for using raw scores to measure urges rather than comparisons with baseline scores	easy to understand and quick to complete	
Exercise motivation	Motives for Physical Activities Measure - Revised (MPAM-R)	Ryan, Frederick, Lepes, Rubio & Sheldon (1997)	30-items measuring reasons for engaging in physical activity		Likert-scale from 'not true at all for me' to 'very true for me' - measuring the following motivations for PA - Interest/enjoyment/ competence/ appearance/ fitness/ social	Chmielewski, M., Sala, R., Tang, R. & Baldwin, A. (2016)	MPAM-R more reliable than BFI in 40% of comparisons, and more reliable than other measures (mREI; PACES) - demonstrates adequate levels of dependability. Interest/enjoyment subscale may be best measures of 'common affective judgement' that currently exists. However, this subscale correlated as strongly with competence as it did with itself - suggest combining the two and removing overly redundant items. Overall, sig. stronger criterion validity than other tested scales.	Straightforward to complete	Interest/enjoyment subscale is not distinct from the competence subscale
Perceived autonomy support for sport	The Sport Climate Questionnaire (SCQ)		15-items or short form 6 items	Self-report	7 point likert-scale from 'strongly disagree' to 'neutral' and 'strongly agree'			Simple and straightforward items - wording can be changed to reflect the prison context if needed  Option to use shortened version	Some reversed items used - but can reword these if needed
Motivation for smoking cessation	Motivation to Stop Scale (MTSS)		Single item measure	Self-report	7 possible responses from 'I don't want to stop smoking' to 'I REALLY want to stop smoking and intend to in the next month'	Kotz, Brown and West	Odds of quitting were 6.8 times higher for those in highest motivation level compared with lowest at 6 month follow up. Accuracy for discriminating between those who did/did not attempt to quit was ROCAuc - 0.67	Single item simple measure	ted on British population with good validity

Readiness for PA as cessation aid	Readiness to use PA as cessation aid	Everson-Hock, Taylor & Ussher	Single items to measure - readiness to quit; beliefs about using PA to quit	Self-report	Adapted from the contemplation ladder - question to assess readiness for using PA as cessation aid			Very unique chance to measure readiness to use PA and beliefs of PA - may support development of intervention which addresses and challenges these beliefs where necessary	More info is needed from other studies to determine exact detail of the measures used
Cigarette withdrawal symptoms	Questionnaire on Smoking Urges-Brief (QSU-Brief)	Tiffany and Drobes (1991)	5-items (shortened version of the original 10-item questionnaire)	Self-report	7 point likert-scale from 'strongly disagree' to 'strongly agree'	Toll, Katulak & McKee	Good internal consistency reliability estimates	Very brief	
Exercise motivation	THE SPORT MOTIVATION SCALE (SMS-28)	Pelletier, Fortier, Vallerand, Briere, Tuson & Blais (1995)	28 items to measure motivation	Self-report	7 point likert-scale from 'does not correspond at all' to 'corresponds exactly' - looks at various forms of motivation from three forms of intrinsic to all levels of extrinsic regulation as well as amotivation	Mallett, Kawabatta, Newcombe, Otero-Forero & Jackson	Original reliability scores - Amotivation .75; External regulation .77; introjected .74; identified .63. Alpha for subscales - enjoyment - .92; appearance .91; social .83; fitness/health .78; and competence/challenge .88	Provides a very thorough examination of motivation type - this would inform the results very well. Includes a subscale of integrated regulation, which is absent from most other measures	Moderate length - would depend on the size of the remaining measures if this were to be included. Poor internal consistency of the 'identified' subscale.
Exercise motivation	Behavioural Regulation in Exercise Questionnaire 2 (BREQ2)	Markland & Tobin (2004)	19 items to measure motivation	Self-report	5-point likert scale from 'Not true for me' to 'very true for me'	Chmielewski, M., Sala, R., Tang, R. & Baldwin, A.	Introjected and external subscales do not appear to be measuring the same overarching construct as the other subscales. Overall, sig. stronger criterion validity than other tested scales. High measurement error across all affective measures of PA. Recommend against using the total score - this is muddying the waters.	Includes a relative autonomy index	Does not include integrated regulation; does not distinguish between types of intrinsic motivation. Brevity of the scale means that the measure of intrinsic motivation is too narrow (Chmielewski, 2016)
Exercise motivation	Behavioural Regulation in Exercise Questionnaire 3 (BREQ3)	Markland & Tobin (2004) and Wilson, Rodgers, Loitz and Scime (2006)	24 items to measure motivation	Self-report	5-point likert scale from 'Not true for me' to 'very true for me'			Includes a measure of integrated regulation Includes a relative autonomy index	
Exercise motivation	mREI	Siberstein, Stiegel-Moore, Timko & Rodin (1988)				Chmielewski, M., Sala, R., Tang, R. & Baldwin, A. (2016)	Among the worst measure of common affective judgement for exercise. Very poor criterion validity.		
Exercise motivation	Basic Psychological Needs in Exercise Scale	Vlachopoulos, S. P. & Michailidou, S. (2006)	12 items to measure BPNs; 4 for each construct	Self-report				Cannot find other existing measures of BPN satisfaction for exercise; short measure with concise wording	
Exercise motivation	Physical Activity Enjoyment Scale (PACES)	Kendzierski & DeCarlo (1991)	18 items, 7-point bipolar scale	Self-report	Original measure used to assess enjoyment of exercise	Chmielewski et al., 2016	High measurement error, less reliable than MPAM-R		Only measures enjoyment, is not reflective of self-determination continuum, too many items measuring enjoyment alone

### 17.3. Appendix C. Study I

Scree plot from final EFA of the MPEMM confirming eight-factor solution



## 17.4. Appendix D. Study I

### Pattern matrix from final EFA of the MPEMM

*Pattern matrix from the final EFA on the MPEM*

	1	2	3	4	5	6	7	8
I will find it interesting						<b>0.885</b>		
Did have good reasons now asking self whether to continue	<b>0.815</b>							
May not be able to succeed	<b>0.78</b>							
Intense emotions doing exercise I like						<b>0.649</b>		
I don't really think my place is in exercise	<b>0.761</b>							
Pleasure discovering new ways of exercising						<b>0.745</b>		
To spend time with friends								<b>-0.564</b>
To lose weight					<b>-0.706</b>			
Exercise gives me energy							<b>-0.591</b>	
To have a good body				<b>0.698</b>				
I want to maintain good health	<b>0.733</b>							
To increase endurance	<b>0.721</b>							
I enjoy competing			<b>0.742</b>					
To recharge my batteries							<b>-0.832</b>	
Improve appearance				<b>0.753</b>				
Feel more healthy	<b>0.816</b>							
To get stronger	<b>0.777</b>							
To have fun being active with people								<b>-0.613</b>
I enjoy physical competing			<b>0.859</b>					
Exercise helps burn calories					<b>-0.893</b>			
To look more attractive				<b>0.749</b>				
To make new friends								<b>-0.732</b>
I find PA fun especially when competition involved			<b>0.73</b>					
Measure myself against personal standards			<b>0.71</b>					
I think it will be interesting						<b>0.642</b>		

## 17.5. Appendix E. Study II

### Information sheet for interviewees



#### Interviewee Information Sheet

##### Cell Workout Workshop Evaluation Interviews

###### Introduction

I am a researcher from Royal Holloway, University of London, and I am conducting the evaluation of the Cell Workout Workshop which you have participated in. Before you decide whether to take part, you need to understand why the research is being done and what it will involve for you. Please take the time to read the following information carefully. Talk to others about the evaluation if you wish.

###### What is the purpose of the evaluation?

Broadly, this evaluation seeks to provide an understanding of the impact that the Cell Workout Workshops have had on the individual participants involved as well as the wider prison population. The results will be used to inform an evaluation for the Ministry of Justice to inform future policy making, and to support the delivery of further workshops in prisons across England and Wales. In addition to this, the results will be used to inform the researcher's PhD thesis on motivating prisoners to engage in healthy behaviours.

###### What will happen to me if I take part?

You will be required to take part in a face to face interview conducted by the researcher which will take no longer than 30 minutes. **This interview will be voice-recorded**, so you will be asked to confirm that you are happy to be recorded. If you do not wish to be voice recorded, then you should not participate in this evaluation. No recording will take place without your explicit awareness: you will be informed when the recording begins and when it ends.

###### Do I have to take part?

No, you do not have to participate. There will be no adverse consequences if you decide not to participate. You can withdraw at any time without giving a reason.

###### What do I have to do if I want to take part?

If you would like to take part please let the researcher know, and they will give you a consent form to read and complete.

###### What are the possible disadvantages or risks of taking part?

There are no known or anticipated risks associated with taking part in this research.



**What are the possible benefits of taking part?**

Hopefully you will find taking part to be interesting and enjoyable, but you will also be playing an important role in developing our understanding of what works in prisons in terms of motivation and engagement with exercise and other healthy behaviours.

**What happens when the research study stops?**

After participating in the [study](#) the researcher will answer any questions you might have, and will tell you how you can find out the results at a later date if you are interested.

**What if there is a problem?**

Any complaint or concern about any aspect of the way you have been dealt with ~~during the course of~~ the study will be addressed. If you have any concerns please ask a wing officer to put you in contact with Miss Yardy in Performance.

**Will my taking part in the study be kept confidential?**

**Please note: interviews may be listened to by a member of the security team to ensure that no threat is posed to the security of others inside or outside of the prison. To ensure that your details are kept entirely confidential please do not identify any fellow prisoners or members of prison staff in a manner that will breach security, or speak about anything which could be interpreted as threatening or violent behaviour.**  
 Once the interviews have been reviewed by security they will be transcribed and then destroyed. They will only be listened to by the researcher who is immediately involved in this project and a member of the security team at the prison. ~~All~~ of the information you give in the face to face interviews will be anonymised so that those reading reports from the research will not know who has contributed to it.  
 Data will be stored securely in accordance with the Data Protection Act 1998.

**Contact details of the lead researcher?**

Hannah Baumer, School of Law, Royal Holloway University of London c/o  
 info@cell-workout.com

**Who is organising and funding the research?**

This research is funded as part of the lead researcher's PhD.

**Who has reviewed the evaluation?**

The study has been reviewed and received a favourable opinion from the National Offender Management Service's National Research Committee.

Thank you for taking the time to read this Information Sheet.

## 17.6. Appendix F. Study II

### Consent form for interviewees



#### Consent Form

- I the undersigned voluntarily agree to take part in the evaluation of the Cell Workout Workshops.
- I have read and understood the Information Sheet provided. I have been given a full explanation by the investigators of the nature, purpose, location and likely duration of the evaluation, and of what I will be expected to do. I have been given the opportunity to ask questions on all aspects of the study and have understood the advice and information given as a result.
- I understand that I will take part in a voice-recorded interview as part of the study, and I give consent for this voice-recording to take place. I understand that the recording will be transcribed anonymously and then destroyed, as outlined in the accompanying information sheet, and in accordance with the Data Protection Act (1998).
- I understand that I am free to withdraw from the study at any time without needing to justify my decision and without prejudice.
- I confirm that I have read and understood the above and freely consent to participating in this study. I have been given adequate time to consider my participation and agree to comply with the instructions and restrictions of the study.

Name of interviewee (BLOCK CAPITALS) .....

Signed .....

Date .....

Name of researcher (BLOCK CAPITALS) .....

Signed .....

Date .....



## 17.8. Appendix H. Study II

### Table of interview extracts supporting theme of Tension

*Table of interview extracts supporting theme of Tension*

<u>Sub theme</u>	<u>Extract</u>
Prison is hard and lonely	<i>When a person is on his own this really is a lonely place, we've people all around us, but the fact is it's a lonely place (Eden)</i>
	<i>The thing about being in prison, especially when you've got a long sentence, is you have to be around good people, with good energy – back to that word again, you need that otherwise it can be the most loneliest place, it's lonely anyway even though you've got good people around ya it's still not your family but, it can be an even more lonely place if you're just doing the wrong things in here you need others to keep going and to keep your mind active, that's for sure (Brian)</i>
	<i>I wouldn't want to be an officer on the landing, put it that way, I'm lucky to be an officer in the gym, even though I'm cross-deployed half the time I still get that time to ease up a little in the gym, whereas being an officer on the wing it's constant day in day out, been there wouldn't want to do it again (PE Officer)</i>
Lack of positive challenge	<i>Like freeflow yesterday, you get let out all of a sudden they start shouting at you, not in a nice way, they start shouting at you not like "sorry you ain't getting freeflow" but- we're here now we're paying for what we've done wrong, dya know what I mean? Give us some opportunity to show ya or if you're getting nothing you're locked up, you're not getting none of these courses then all of a sudden you're getting the hump cause you're just being brung down, you've got nothing to go for and prison is meant to be like rehabilitation that's the whole point of it innit, or opening doors for things like fitness or opening doors for distance learning and things like that. So yeah, I think you need things like this in prison the behaviour side to learn from it and get something different (Callum)</i>
Lack of control	<i>I don't understand. They're saying it might be to do with, erm, computers, I feel that's a load of rubbish it's a job off- when- how comes I've got over forty people on my contact list, that's name, address, and phone number, and relationship to me. So, that's a lot more information that'll be saved on the computer. So, surely if they're on my visitors list, why can't they be on my phone list? So, I feel like that process should be made a little bit easier, it's not hard. I feel it's not hard (Fahim, talking about the twenty-contact limit on in-cell telephones)</i>

## 17.9. Appendix I. Study II

### Table of interview extracts supporting theme of Structural barriers to being healthy

Sub theme	Extract
Inconsistent access to healthy behaviours dependant on wing and associates	<p><i>It depends what part of the prison you are, whether you are Heathfield or Trinity, even within those some of us have full time jobs some of us don't, full time education, some others they don't have... So, going to the gym it's like luxury, really... The reality is, some people they're very lucky they end up going every day, two three times a week, others, they do not even know there is gym and if they do they do not know where it is, they haven't even seen the inside of it. So, equality? It's not there (Eden)</i></p> <p><i>Some people go every day [to the gym], but bearing in mind, most of the guys here who go to the gym, as we said earlier, they have favourites, people know this and they're very unhappy about this (Eden)</i></p>
Impact of regime on gym access	<p><i>We're the ones who are down here trying to run a gym... We've got facilities taken off us, we lost experienced staff, we're getting shut down and cross-deployed onto the wings, as I am sitting here today... we were getting pushed aside to come and work on the wings cause the wings are so short staffed... so at that point [during Cell Workout] I think moods and morale was very very low... [The tighter regime has] knocked it complete- I mean I've been here over two years now and I came from a prison where PE was just standard, every single day, I'd be doing classes every day, it'd be absolutely fine... [in here] you never know where you are from one day to the next. So, I can't plan, for example, I couldn't plan to do a week of circuits because I'm being cross-deployed. I've just got back off holiday and already I'm being cross-deployed, so it's like you can't plan anything (PE Officer)</i></p> <p><i>In this jail [access to the gym] it's random, in other jails it's set like you'll be going three times a week at ten o'clock, but here it's a bit random and it's such a big prison and it's short staffed so there's not like a set regime (Ahmed)</i></p>
Lack of effort from prison management to promote and support engagement in healthy behaviours	<p><i>There's a massive if. There's safety issues, there's space on the wing. If there's a will there's a way. It's all about safety and officers. If they say no, it's no, and it only takes one time, one person to mess it up and they'll stop it (Eden, talking about using spaces on the wing for group exercise)</i></p>
Maintaining a healthy diet	<p><i>Obviously, if you eat crap you're gona feel like crap. There is some good things on the canteen, it could be improved but, I think they've improved it a hell of lot since I first came to this prison... [Now there are] lots of vegetables. You can buy fresh lettuce, cabbage, erm, you can get onions, garlic, cause they know we can cook them ourselves. We can make our own salads, you can cook yourself a chicken curry (Fahim)</i></p> <p><i>Although the food here is not wonderful or great, if you get the balance right you can still keep track of what you eat, you can do simple things... you do that you'll be surprised how your energy levels go up it's crazy (Chris)</i></p>
Negative health impact of prison	<p><i>I used to take my dog out for an hour each day, that in itself [was enough exercise], and I was always active, out and about, working, painting and decorating, people think it's not active but you're up and down a step ladder all day, you're using your whole body so it is good exercise, constantly using your arms (Fahim)</i></p> <p><i>[My key unhealthy behaviour outside of prison was] probably smoking. Er, yeah it has changed [since coming to prison], I smoke more. Just through boredom really there's nothing to do and it's like social (Ahmed)</i></p> <p><i>Yeah yeah [I exercise in my cell] as often as I can sort of thing, and it's good when you've got a good cell mate who wants to get involved and you sort of bounce off each other (Ahmed)</i></p> <p><i>[My biggest barrier to exercise is] not getting out of my cell, I know it goes against Cell Workout... if I knew I'd get let out for a shower I would do a workout in my cell (Dale)</i></p> <p><i>No I don't [exercise in my cell]... I'm not gona lie, I'm gona tell you the truth. Dya know what it's still t- still the thing of, I'm with a cell mate now who doesn't exercise and I think you've got to be with a cell mate who does wana exercise so you can both do it together (Brian)</i></p> <p><i>Yes, you can [exercise] in your cell but bear in mind, some of this is specially made, and cells are very tiny places, very tiny [describes size of a cell] and say you want to do it and the other cell mate doesn't want to do it. So you're restricted (Eden)</i></p> <p><i>Being in here, I myself since I came here lost 22 kilograms... I came, I had my belt, it now has extra holes, because... the stress, the trauma, the shock, no exercise, you know. Your muscles and everything, you need to do something (Eden)</i></p>

## 17.10. Appendix J. Study II

### Table of interview extracts supporting theme of Masculine ideals

Table of interview extracts supporting theme of Masculine ideals

Sub theme	Extract
Adaptive masculinities	<p><i>The type of person [who engages in education] is gonna be somebody who... wants to get the best out of his experience in here, so he will be technically a "recluse" they would call it, he'd be laid back. You'd probably miss him. He wouldn't be loud, loud just quiet, just blends in so he'd be very to himself and he'd be the one going to every course, he wouldn't ask for nothing he'd be just trying to have a go so you wouldn't notice him (Chris)</i></p> <p><i>Prison is hard at the end of the day. There's an easy way of getting on with it or there's an 'ard way, and you've gotta do the best you can do (Dale)</i></p>
Maladaptive masculinities	<p><i>They're all- the younger generation they've got the attitude- I can't understand how people walk about with their trousers round their arse, talking like a black man. Not that I'm racist or nothing like that, but I mean, I think a lot of it is gang related, personally, you know, and they've all got this chip on their shoulder, they've gotta be better than the next person, they've gotta dress better than the next person, they've gotta have their- all the nice things- there's just no respect, you know? (Dale)</i></p> <p><i>I know people, these guys will not mess up, you could leave them there for hours [unsupervised], but some of the others, these youngsters, they wana have fun, and for that fun is just fighting with each other. So, we have loads of those (Eden)</i></p>
Adaptive exercise culture	<p><i>I do more cardio than what I would've done before since CW... [it has made a difference] I feel a lot, in myself it sorts out me head, does that make sense?.. It does, it gets you... dunno, if you can get to the gym in the mornings it sets you up for the day (Brian)</i></p> <p><i>I would love to [do more group-based aerobic exercise], I'd look forward to it. You know, as I said it makes your mind more active as well (Dale)</i></p> <p><i>It's healthy body, healthy mind, bottom line is, if you really feel good in your body and you're healthy. You need to do some exercise, bearing in mind these guys are locked up for 23 hours. Some of this frustration, energy, anxiety, it needs to just come out. And that's why there's always issues, I'm not saying this is the solution but goodness! If we can do it, why not? It's so, so important (Eden)</i></p> <p><i>Er inside [I exercise] probably just to keep my mind, sorts your mind out, it helps you sleep when you train hard, the minute I go bed or go back to my cell I put my head on my pillow shut my eyes, I'm straight to sleep. I don't think about things like "oh I'm in prison," yeah it's, it's good for your mind (Iqbal)</i></p> <p><i>You want to go somewhere there's a bit of fresh air, and, the camaraderie with the other guys, when I was doing [Cell Workout], it was great fun! You get together, you meet up, you die at the end! And another day, next day, and you talk about the healthy eating and everything (Eden)</i></p> <p><i>Where you go to the gym you might work in threes or fours but where we was in that group [in Cell Workout] it was like ten or fifteen so it was a lot more, like everyone in the room was actually doing the same thing so, kinda motivates you a bit more as well like everyone's like "come on, let's keep this thing going" and you bounce off each other (Ahmed)</i></p> <p><i>I'd say [the typical prisoner who exercises in his cell] they was gym orientated before they come in so they come in and do a bit more than the average person so they're used to that regime in their life (Ahmed)</i></p>
Maladaptive exercise culture	<p><i>The majority who go to the gym it's not about- wanting to better themselves or looking to the future, it's just about self-image, whereas, the other side- your healthy eating and that- is thinking about how to make yourself better as a person and move forward... Networking, I'd call [the behaviour in the gym] networking, so, here they're not networking [in education], here they're networking [gym] so there's no overlap (Chris)</i></p> <p><i>When it comes to training as much as people say it's not competitive, it's a very competitive like, guys will be looking at you, you don't even know they're looking they'll see how long you're running for they'll see what you're pushing like you know, ok news gets round if they see you doing something that's impressive they'll tell their friend and it'll get round. It's one of those things you'll just know this person can run for the longest, or this person can push the most weight, or you would just know - I became one of those guys (Ellis)</i></p>

## 17.11. Appendix K. Study II

### Table of interview extracts supporting theme of Calm energy

Table of interview extracts supporting theme of Calm energy/within-person well-being

<u>Sub theme</u>	<u>Extract</u>
Factors that diminish energy	<p><i>I don't know I think sometimes just being closed in 'ere it automatically brings your energy levels down you get tired of waiting... no matter what you try and do in 'ere there's always, there's a wait and it's the same old stories off the officers it's "no, not enough staff, no enough"- and it does, it brings you down, other people banging all the time doors, all that sort of thing it does it brings ya, it brings your energy down it just gets you down in yourself at times I think it, that's... just being in 'ere in general can bring you down (Brian)</i></p> <p><i>[Energy in prison is] much different than your energy outside of prison, outside you're free to do what you want so your energy levels are not zapped, in here you don't it's so, passive, that you don't realise it comes into effect so you'll be absolutely drained by the end of the morning you're absolutely finished, ruined, because you're always, you've got to think, you don't know who's behind you, who's in front, you don't know officers, you're always on your toes, your energy levels are always flat (Chris)</i></p> <p><i>I'm not lying to you [vaping is] not the same as tobacco. I don't know what they do to you but your energy levels don't go down, people say when you smoke [tobacco] your energy levels go up - it doesn't, it's the opposite, the energy levels go down 'cause you go mellow, so my energy levels go down when I smoke. But with the vape I'm either the same or I don't go down, it's just the same... Before with the stress relief it wasn't because my stress levels were going down it's just I was calmer, so it's not dealing with the actual stress it's just making me feel relaxed like. But with the vape I think I'm actually dealing with the stress now, I'm addressing it, I can go through it in my mind, whereas with smoking I would just block it out (Chris)</i></p>
Methods of enhancing energy	<p><i>Socialising and using one another for support is I think <u>massive</u> in 'ere... you have to be around good people, the thing about being in prison, especially when you've got a long sentence, is you have to be around good people, with good energy – back to that word again, you need that otherwise it can be the most loneliest place, it's lonely anyway even though you've got good people around ya it's still not your family but, it can be an even more lonely place if you're just doing the wrong things in here you need others to keep going and to keep your mind active, that's for sure (Brian)</i></p> <p><i>A lot of the people who train together they associate together on the wing so you get motivation from each other obviously you get along and like... you know if there's someone and you see them regular and that and then you don't see them they'll come see you and be like "you alright? What's happening" and if you're feeling down they'll pick you up and you might be like "let's go to the gym" and if the gym's not open you just crack out (Ahmed)</i></p>

## 17.12. Appendix L. Study II

### Interview prompt sheet

#### **Experience of CW workshops**

Could you tell me about your experience of the CW workshops in general?

Were you unable to attend any of the sessions for any reason?

- Morning/afternoon?
- Reason
- Could this have been avoided with support, if yes, how?

Is there anything you do or feel differently about now because of the workshops? *Still exercising, education, positive mindset*

How challenging did you find the exercises and did this have an impact on your experience?

Does it make a difference to you whether you exercise alone or with others?

- If yes, what difference does this make?
- Was this the case before the workshops?
- Would this be different outside of prison? If so, how?

#### **Healthy behaviours**

What makes you feel healthy?

Do you consider education and employment to be healthy behaviours?

Other than exercise, would you say you try to be healthy in any way? *Mentally or physically.*

If yes to above – what are your main reasons for engaging in these behaviours? Have these changed since the workshops?

How much choice and control do you feel you have over these behaviours?

- Do you have control over food choices? – *Challenge this*
- Do you have control over exercising? – *Challenge this*
- Do you have control over your plans following release? – *Challenge this*

Do you see yourself as unhealthy in any way at the moment, if yes, what are the reasons behind these behaviours and how much control do you feel you have over this, if you wanted to control these would that be realistic?

Did you engage in any healthy behaviours outside of prison that you feel you cannot engage in now?

If yes to above – what were your main reasons for engaging in these behaviours?

Do you think you will return to these behaviours?

Did you engage in any *unhealthy* behaviours outside of prison that you feel you cannot engage in now?

If yes to above – what are main reasons for engaging in these behaviours?

Do you think you will return to these behaviours?

Take a moment to think about other prisoners and their behaviours.

- How would you describe those who engage in exercise/education/are isolated?
- Are there any specifics for the above in terms of demographics such as age, length of time in prison, ethnicity etc. – how would you compare yourself to these individuals?

### **Energy levels in prison**

- Are energy levels something that affect you in prison?
- Do you think this is somewhat different to how you would feel outside of prison?
- Does this seem to be random or do you attribute this to anything specific? *Prompt: news from outside prison/poor night's sleep/changes in regime*
- What impact does your energy level have on your daily life? *Prompt: ability to engage with positive activities in the prison, communication with others, sentence planning, visits, how you perceive situations.*
- Do you have any techniques to tackle low energy? *Caffeine, exercise, meditation.*
- Are the above techniques different to what you would do outside of prison?

### **Low relatedness scores**

- Were you engaged in exercise before prison/was it something you ever considered?
- If yes, were there any reasons for not engaging?
- How would you describe the health behaviours of those close to you outside of prison?

- How would you describe the health behaviours of those close to you inside prison?
- Do you think those who you associate with inside prison are similar to those outside of prison? Expand on this.

### **Smokers**

- Did the workshops have an impact on your smoking behaviours?
- What was the lasting impact, if any?
- Would you have considered engaging in prison healthcare cessation support at end/now?
- Do you identify as a smoker in the prison? Do you tend to spend time with other smokers?
- Did you notice any difference between smokers/non-smokers in the workshops?
- Do you use cigarettes as a means to feel better emotionally? Do you feel there is any similarities to this and the way the exercise made you feel?
- Did you consider how the exercise could be used to control smoking before the workshops/after/since?

17.13. Appendix M. Study III

Poster to promote the Cell Workout Workshops around HMP Wandsworth

# CELL WORKOUT

WORKSHOP by L. J. Flanders  
(author of Cell Workout)

Enrol onto the EXCLUSIVE new 2-week Cell Workout Workshop course located on A Wing

WHAT THE PROGRAMME OFFERS

MORNING

An intense Cell Workout bodyweight training session and learn how to use the book.  
No equipment needed!

AFTERNOON

Group discussions including self-achievement, the theory of change, goal setting and nutrition advice.  
Find out about courses available from the Prisoners' Education Trust

WHAT WILL YOU RECEIVE

Your own copy of Cell Workout, branded T-Shirt/vest and course material

FULL BODY HEALTH MOT

At the beginning of the week you will receive a full body MOT showing body fat, muscle mass and BMI. A revised MOT at the end of the course to see the changes you have made, along with before and after photos to see your body transformation!

FAMILY/FRIENDS SESSION

And at the end of the two weeks a family workout session, where you can invite 3 members of your family/friends to join us for an awards ceremony with a certificate of achievement and photos.

AVAILABLE TO

All ages, abilities and fitness levels.

The course is currently only available to men on A Wing.

All participants must be health checked and undertake a gym induction prior to course commencement.

To enrol onto the course Maths and English key stage 2 is required.

Agreement to be available to complete the course

HOW TO REGISTER

Fill in a general app located on the wing with a written reference from a wing officer and send to A Wing.



## GET THE BODY YOU WANT INSIDE & OUT

### 17.14. Appendix N. Study III

#### Table of successful applicants' reasons for applying to the CW Workshops

*Table of successful applicants' reasons for applying to the workshops categorised by key themes*

<u>Theme</u>	<u>Application reason</u>
To improve health and fitness	<i>Improve my well-being and personal health. I want to improve my fitness and mental health. To better myself. Am also a cleaner on the wing so it would really help to improve my physical state. I'd like to lose weight and tone my body. I would also like to learn how to keep up my fitness levels without the facility of regular gym routine. A healthy body is a healthy mind. I am asthmatic and believe that I would really benefit from doing this course.</i>
Focus and motivation	<i>When I first came to prison I weighed 22 stone. I started running every day, now I weigh 16.5 stone I still would like to carry on losing weight but my motivation has gone. To keep fit, healthy and give me something to focus on.</i>
Learning	<i>I have always enjoyed training and I enjoy learning and I'm keen to learn more about keeping fit and healthy To learn new things in order to become a better person i.e. changing my thinking, setting goals and targets how to use nutrition advice in the correct way. I want to do the course so that I have a good understanding of how to do a good cell workout, with this knowledge I will be able to train in my cell on a regular basis. This will help me to keep fit and improve my health. To help me get more educated and to help me for when I get out and maybe get a job and not to commit crime. Can't wait to get started. I've still got fifteen months left to do. So I want to learn some thing sooner than soon. So this course would help me a lot. Thank you.</i>
Well-being	<i>Because I want to be more healthier when I set out and where I have ADHD I will help me slow down where I'm too energetic so I think this would be a good course for me.</i>

## 17.15. Appendix O. Study III

### Table of diary extracts and survey extracts highlighting behavioural change

*Table of daily diary extracts and survey responses highlighting behavioural change*

<u>Behaviour</u>	<u>Extract</u>
Smoking	<i>I feel good after today's session, I feel my lungs opening up and I'm find the cardio easier as the course goes on. I am going to try and keep cardio sessions in my training and I'm hoping it will help me cut down smoking, which I have been unable to do so far</i>
	<i>I feel that due to working out I'm smoking less as I just don't feel to smoke which is good</i>
	<i>Started the Cell Workout course, by completing the induction MOT and was embarrassed by the lung capacity tests 5, it gives me an incentive to reduce my smoking, I have managed to get patches and I intend to use them, looking forward to meeting the group and get started and learn new things</i>
	<i>I've cut down in my smoking I now do my own exercises in my own time.</i>
Sleep	<i>I feel great, still thinking how to quit smoking because sometime during workout I feel that I need more air. Ready for the afternoon session</i>
	<i>I usually find it very difficult to sleep at night, but after yesterday's exercise I slept at a reasonable time. I'm also feeling very good about myself. I'm looking forward to continuing this programme and I also believe it's a new beginning for me to lead a healthy life</i>
	<i>Starting to get a good sleeping pattern. I have been eating a lot better, keeping an eye on what food I am consuming and the time I am eating</i>
	<i>Feeling less bored and sleeping well and faster</i>
	<i>Had a really good night's sleep and woke up fresh, looking forward to the session. The workout was intense but really enjoyable, my energy levels are really good also my fitness so really happy with how it's going, again ate well and drank lots of fluid</i>
Education	<i>I have started to eat at 7:00 am 10:00 am, then about 12 pm then 4:00 pm and dinner and going to sleep early and feeling better in the morning</i>
	<i>I feel much better when exercising in my cell. I could not sleep for a long time but as soon as I started to exercise I am sleeping like a baby.</i>
	<i>Had a great night's sleep and woke up early in order to be ready for the session</i>
	<i>I'm going to look into the distance learning</i>
Increased ability to manage daily life	<i>[I have applied for] distance learning for a level 3 qualification</i>
	<i>[I have applied for] a distance learning course in construction. ABC Level 3 certificate in Construction Technologies Theory (UKDLP)</i>
	<i>I am interested in signing up for one of the education courses that was introduced to us</i>
	<i>[The workshop has] motivated me to use my time more constructively</i>
	<i>[The workshop has] made me keep to my goals and not give up and also respect myself much more I've learnt a lot of things I can use in my life from day to day.</i>
Looking ahead	<i>I feel much healthier and stronger and comfortable.</i>
	<i>The days go "faster" and my mood is better than before.</i>
	<i>I am eating at certain times and drinking more water and I don't feel stressed out.</i>
	<i>I feel more calm and less stressful.</i>
	<i>[The workshops are] extremely useful for mental well-being. The workshops (and the consequent exercise routines I now do) have lifted my mood, given clarity to thought and confidence to do my time in prison effectively.</i>
Looking ahead	<i>So far [the workshop] has made me start thinking and planning what I want to do and has also made me feel healthier and focused.</i>
	<i>I think it has, [had a long-term impact] it's made me think more about life after prison, which I completely wasn't interested in, also in making solid plans.</i>
	<i>[I am now] thinking of the future and how to get the qualifications I need to get started.</i>
	<i>I have all the support and tools in my locker now that I have completed my course to evaluate my life and know what I want for the rest of my journey in prison and also when I get released.</i>
	<i>My health has improved my mindset and made me concentrate on bettering myself while in prison and on release.</i>

## 17.16. Appendix P. Study III

### Table of interview and survey extracts underpinning themes related to basic need of relatedness

*Table of quotes supporting themes underpinning relatedness taken from surveys and interviews*

<u>Theme</u>	<u>Quote</u>
LJ	<p><i>All round fantastic course and to do it with LJ who has experienced prison and gone on to better himself makes it a whole different experience. Very inspiring</i></p> <p><i>I think Mr Flanders should be commended for the work he has done to get to where he is. He has achieved so much and I take my hat off to him, and he should be supported by the prison service so he can take the course to more prisons to help more prisoners.</i></p> <p><i>As long as everyone listens and has even half the commitment of LJ Flanders then nothing really needs to change, all my results improved. Well done and thanks to LJ Flanders and his Cell Workouts.</i></p> <p><i>LJ's conduct is truly an asset to his own company as he is extremely friendly and gives you a sense of working out with your friends rather than an instructor just shouting out orders. This technique makes you listen rather than being spoken down to. Keep it up LJ 100%</i></p> <p><i>As a course it's very good but most importantly it's LJ that makes it work as a whole. Seeing his successes and learning how he did it makes prisoners relate to him more than just your bog standard teachers. He understands the banter and issues/stresses we have so I believe that is what makes this all work.</i></p> <p><i>LJ, I would recommend you to anybody and that's a compliment, I don't say that lightly, well done and keep up the good work, thanks mate.</i></p>
Training in a Group	<p><i>I enjoyed the team effort through the exercise so we support each other and push to our limit</i></p> <p><i>With the sessions is more enjoyable than in the cell, not give up as easy as we are in a group and like to compete</i></p> <p><i>I enjoyed the intensity and the bonding</i></p> <p><i>"[I enjoyed] The opportunity to exercise together because it motivated me to work/exercise harder. (Constructive competitiveness)"</i></p> <p><i>"[I enjoyed] Training with others because it helped me gain confidence to socialise with others as well make decent friends who share my interest in keeping fit</i></p> <p><i>It allows you to talk to people better</i></p> <p><i>"[I enjoyed] That everyone is in a group and everyone motivates everyone</i></p>

## 17.17. Appendix Q. Study III

### Table of interview and survey extracts underpinning themes related to basic need of competence

*Table of quotes supporting themes underpinning competence taken from surveys and interviews*

Theme	Quote
Challenge and achievement	<i>Proving to myself I can do things I am not keen on if I put my mind to it</i>
	<i>Showed myself that I can complete things I'm not too keen on</i>
	<i>I have got more self-esteem and believe in myself</i>
	<i>[I least enjoyed] the pain, haha! But felt good after it</i>
	<i>Exercise is crucial for mental health in prison. Need a constant challenge to not fall into apathy</i>
	<i>Most of the exercises were difficult but became easier the more we did them, so to be honest the more I disliked them the more I will try to do them</i>
	<i>I did not enjoy the sprinting on the spot, that was only because I was unfit. But at the end I liked it because I could do it without stopping</i>
	<i>[I least enjoyed] at first, the sprints, they were one of those dreaded things, but in the end I enjoyed them</i>
	<i>To be honest, although I found some exercises harder than others I don't think there's anything I least enjoyed. I think that the only way to get results from the Cell Workout is to push yourself through the exercises and give it your best</i>
	<i>I enjoyed [the sprints] because they were challenging and pushed me to work harder</i>
	<i>I enjoyed the intensity and the way the session made me feel</i>
	<i>I enjoyed the challenge of trying new things and pushing myself. It was good to feel like I'd worked hard</i>
	<i>The exercise was a real challenge but I put my all in and saw the results in a short time</i>
	<i>Just having to push myself makes me feel like I'm fighting for a change physically and mentally</i>
<i>The exercise was very tedious and rigorous but very essential for my body and I actually enjoyed it</i>	
Supportive learning environment	<i>everything was a challenge but the sessions I really enjoyed even though the next day I would feel the pain</i>
	<i>[I enjoyed] new ways to keep fit, as well as different ways to exercise</i>
	<i>Everything was a good experience for me to learn how to exercise whilst being in my cell</i>
	<i>[I enjoyed] all of [the exercises] I reckon, 'specially the warm up, because I wasn't really sure before about how to warm up properly</i>
	<i>I liked that every session was different as well as being high intensity. It made me really think about what LJ has in store for us tomorrow</i>
	<i>[I enjoyed] learning how diverse exercise can be and the different methods</i>
	<i>I have a knee injury so I couldn't do the same exercises so LJ took time to give me alternative exercises and I could still work out with the class</i>
	<i>"[I enjoyed] the different types of exercises that I have not done before</i>
	<i>The most useful thing I found about the workshop is new exercises that hit parts of the body very well that I didn't know</i>
	<i>I think the afternoon sessions made the course. Learning about diet and education was very important</i>
	<i>[I most enjoyed] getting other people's views on nutrition and what to eat because I've never really knew what I should be eating</i>
	<i>[I most enjoyed] the fact it's ok to ask questions</i>
	<i>The talking was generally a nice conversation! Also generally vocalising things was useful</i>
	<i>[I most enjoyed] being able to put our own thoughts up on the note board and seeing what the other lads thought</i>
<i>[I most enjoyed] engaging with the group</i>	
<i>I found every session interesting and helpful from dietary needs to mindset so can't really say what was the most enjoyable</i>	
<i>The information all across the board [was most useful overall]. Fitness and information</i>	
<i>Being taught how to exercise for an hour that works the whole body [was most useful overall]. Each session learning a different routine was good</i>	
<i>You work out at your own pace and it was really easy to follow</i>	

## 17.18. Appendix R. Study III

### Table of interview and survey extracts underpinning themes related to basic need of autonomy

Table of quotes supporting themes underpinning autonomy and autonomous behaviours taken from surveys and interviews

Theme	Quote
Control over healthy behaviours	<i>[I most enjoyed] showing that anyone can do it and showing all of us how to make it</i>
	<i>[I most enjoyed] the MOT and the class on motivation</i>
	<i>[I most enjoyed] the motivation, being given the chance to talk about different opportunities available</i>
	<i>[I most enjoyed] food nutrition session and motivation discussion. Clear example that anything is possible</i>
	<i>Very good for your mindset</i>
	<i>[I most enjoyed] finding ways to better myself</i>
	<i>I use all of them as I follow the book. You can do the exercises anywhere in your cell, the prison yard</i>
	<i>Having a book in my cell is quite useful as I can simply do them all based on pictures from your book</i>
	<i>[I found] the book [most useful]. Because if I forget anything it is all right there</i>
	<i>at any time if bored or down I can go and train somewhere and have plenty of options what to do due to the cell workout</i>
Aligned with self and values	<i>It has given me a kick up the arse to do more cardio in the future</i>
	<i>[The workshops gave me] the motivation to continue exercise for weeks and months to come while I serve my time inside</i>
	<i>[The workshops gave me] the drive an inspiration to better myself mentally as well as physically</i>
	<i>It reignited my desire to learn and eat better</i>
	<i>It let me think about my own healthy situation concerning my body</i>
	<i>It's really changed my mindset</i>
	<i>I believe and feel the workshop has given me a more growth mindset my permanently</i>
	<i>I feel more determined about getting active</i>
	<i>I'm more motivated, and not as lazy as before</i>
	<i>I never trained in over a year since being in prison. I now have the fire in my belly and determination to keep going</i>
<i>It gave me the tools I needed to become more pro-active.</i>	
<i>It was an absolute eye opener and gives you first hand motivation to continue living healthy and make the correct life decisions.</i>	
<i>Before the course I was experiencing a lull in my training but the course has rejuvenated my training and focus.</i>	
<i>[The workshop] helped me to realise my actual health status and how to improve it.</i>	
<i>Face the reality of my well-being and go for it!</i>	
Personal benefits of exercise	<i>I most enjoyed the MOT results before and after the workshops</i>
	<i>The endorphins it releases for the day make you feel good</i>
	<i>As I was the eldest participant I found myself surprised at my flexibility to perform, it was energising</i>
	<i>I enjoyed all the sessions, the results after the session is the best, to feel in a good mood, to feel the endorphins</i>
<i>The training sessions in the morning, it gets you ready for the rest of the day and uplifts your spirit, you feel good and motivated energised for the rest of the day</i>	

## 17.19. Appendix S. Study III

## Table of interview extracts underpinning themes related to logistics of workshop delivery

<i>Table of quotes supporting themes underpinning logistics of workshop delivery</i>	
<b>Theme</b>	<b>Quote</b>
Respect	<p>"Everyone in there is a human being and they're just in having their daily business, you know... There is that element when someone's first gone into a prison it's like they've gone to a zoo! You know. They're looking around and staring and people and they're like "what you staring at?!" You know!.. Everyone's like "oh what's it like behind the walls?" you know... they've got their daily routine in there, respect that... Sometimes there's a level of confidentiality, so, you know, I am inclusive of what they're talking about in there, you know, I'm not an officer, but I'm not an inmate and sometimes I feel in a little bit of limbo and sometimes a few things get said in class, whether it be one thing or another, so I sort of let it ride the wave. But actually everyone has been very respectful in terms of that... there was never any confrontation with anyone, nothing below the belt"</p>
Autonomy	<p>"I know how to talk to the staff, which I still call 'Guv' or 'Sir' or 'Miss', even once I knew their first name I'd still call them Miss or Sir, it's embedded a little bit... But I had to prove myself every step of the way and I done that wing by wing by wing to each set of officers... The Monday morning of my start, [the officer said] "get in early and we'll get you into the A Wing officers' morning briefing", so everyone gets in early, gets their brief then introduced me, he said "he's [L]'s' gona be here for the next six weeks" so I was really grateful for that."</p> <p>"Although the courses I was doing was actually on the wing... my mobility around the prison when I had a meeting they would've had to dedicate me an officer which like I said I had no support, I had someone for paperwork and operations to maybe speak with someone about organising a meeting, but like the applications I handed out and collected in myself, I delivered everything, I set up, I shut down, it was, you know, lugging stuff from wing to wing... [without keys] well it wouldn't have happened."</p>
Prison regime	<p>"It was a big learning curve. I was worried, I had this workshop and I was daunted about it... I thought on paper this is all working out in my head, logistically I think this works I've got it all in my head, I'll go in there bright and early get it prepped, set up, set myself up before it starts, and then I instantly knew things would take their course of action and they did because I knew, I instantly knew what it's like with regime and being realistic about things... I know what to expect... when I went back on the wing it was like I was <u>back on the wing</u>. Pentonville was quite a similar layout to Wandsworth so I knew the wing and I knew the opening hours, closing hours, how things can happen and sometimes how they can't happen. I expected that, you can't beat around that... you can't tell when there's gona be a staff shortage, at the drop of the hat there could be a lockdown and that is that. It's not just the whole prison, it could be individual wings, so if you're waiting for a cohort of people to come down from a wing and no one is getting out, the class isn't happening... [officers] was always quite quick to say that they have their regime and I completely foresaw that you know I know what they're like with their regime and I completely respect that, absolutely, there may have been one who was quick to say "have they had their showers?"... and I'd always have an answer for them, not a smart answer, but like with the showers, in the morning I'd tell them all to have their stuff. I had to come into the showers, I locked 'em in, I unlocked 'em, so that was one less stress off their [the officers'] head so I'd foresee anything that may have been an issue and I basically had it covered and I think that won over a bit of respect."</p> <p>"Where I wasn't allowed to move people from wing to wing I had to do it on the wing, which worked in a sort of way as I didn't have the facilities to get everyone unlocked. So I'd develop a rapport with the wing officer and say "I'm here for two weeks, here are the people who are doing the course, can you please put them on the list for unlock with everyone else when you unlock for free-flow".</p>
Flexibility	<p>"Every second and fourth Wednesday of the month it was either staff training or lockdown for searches. So, every two weeks there was always a day knocked out... I think if things weren't quite in place for the afternoon, but they had their morning regime complete, and with staff shortages, I think they thought, "everyone's done their morning bit now", and to bring everyone back out for showers without enough officers per landing it does become a health risk, it's health and safety... I think that [lockdown] was purely due to staffing issues, that was the main thing. If there was a lockdown it could have been something from up above, a security reason, protocol, regime, is never simple, there could be lockdown, there could be staff training days, there could be things that you don't know about at the drop of a hat. You have got to improvise... Not one two-week workshop went without some kind of interruption or staff shortages or lockdown day, or something completely unannounced, or some fight has kicked off... it's never gona be plain sailing from A to B, you've really gotta think on your feet about, right, if you've lost an afternoon how are you gona make that up across the next few days?"</p> <p>"It had its perks being on the wing, but, on some wings, the space was so small I'd have to do an hour's workout with seven people, back to back with the next seven - which was great for me as I'd get a double workout! But the afternoons were fine as we could fit all fifteen on chairs, just not to work out."</p>