

***Interpersonal Transgressions, Paranoia and Forgiveness***

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## Chapter I: Summary

### Overview

The main aim of this project was to gain a better understanding of paranoia. By *paranoia*, we mean beliefs that another individual has deliberate intentions to cause one harm. Paranoid thoughts are a common everyday experience and are reported by both people with and without mental health difficulties. Though not always the case, paranoid thoughts can make people feel quite distressed and have been linked to poorer well-being. Therefore, a better understanding of paranoia is important and can hopefully inform psychological support offered to people who would like help with their paranoid experiences.

The overall thesis is divided into four parts, starting off with this brief summary of the whole thesis. This is followed by Chapter II, which focuses on two different types of paranoia thought to exist, called *Poor Me* and *Bad Me* paranoia. Next, Chapter III describes an experiment which looked at people's experiences of Poor Me/Bad Me paranoia after they played an online game. The experiment was also interested in how forgiving and paranoid people felt after being betrayed by their opponent in the game. Lastly, in Chapter IV, personal thoughts by the main researcher on the process of planning and carrying out the research are shared. There is also a discussion on how all the chapters relate to one another and how the research will be shared with others.

### A Review of Experiences Linked to Poor Me/Bad Me paranoia

*Poor Me* and *Bad Me* paranoia are two types of paranoia. People with *Bad Me* paranoia are more likely to feel like they *deserve* to be mistreated by others, whereas people with *Poor Me* paranoia are more likely to feel they *do not deserve* to be mistreated by other people. How much someone feels they deserve to be mistreated by others is sometimes referred to as *deservedness of persecution*, or *deservedness*. Many researchers have tried to understand ways in which Poor Me

paranoia (low levels of deservedness) and Bad Me paranoia (high levels of deservedness) differ. For example, some studies have shown that people with Bad Me paranoia feel more depressed and anxious compared to people with Poor Me paranoia.

As it had not been done before, a review was carried out to summarise studies which have measured relationships between Poor Me/Bad Me paranoia and factors like how a person thinks, feels, and behaves. Four online databases of published research studies were searched, and 22 studies were found. These studies were summarised and awarded a quality rating from weak to strong using a well-known quality analysis tool. The review found 32 different ways in which people tend to think, feel, and behave, which have been explored in people who describe experiencing Poor Me/Bad Me paranoia. There was strong evidence that feeling like harm was deserved (Bad Me paranoia), was linked to poorer mental health. People with Bad Me paranoia generally felt more negative about themselves, had lower self-esteem, and felt more depressed and anxious. The review showed that deservedness is an important concept to consider in relation to paranoid experiences.

### **How does Betrayal in an Online Game Affect How Paranoid and Forgiving People Feel?**

People can experience paranoid thoughts when playing a game, such as the Prisoner's Dilemma Game (PDG). In this game, players choose to either *cooperate* or *compete* with their opponent, and points are awarded based on both players' choices. Previous studies have shown that people are more cooperative if they identify with their opponent in some way. This is because of a bias we have where we tend to favour people who we see as similar to us, or part of the same group as us (e.g., in gender, race, religion or political affiliation). Negative experiences in the PDG, such as if an opponent makes a suggestion to cooperate but then breaks this

agreement (a *betrayal*), can make people feel more paranoid. However, previous studies have not explored if a betrayal in the PDG is experienced differently if committed by someone we feel closer to. Therefore, we wanted to see if identifying with an opponent on a category like nationality was important in shaping how people felt after experiencing a betrayal in the PDG. We expected people would feel *less* paranoid, *more* forgiving and *more* deserving of mistreatment from others (higher deservedness) if they experienced a betrayal from someone viewed as part of the same group (what we call an “in-group” member), compared to someone seen as part of a different group (what we call an “out-group” member).

One hundred and twenty-nine British nationals took part in the experiment. After completing questionnaires measuring how paranoid and forgiving they were naturally, each person was randomly allocated to one of two groups. The first group were made to believe they were playing against another British person (an in-group member), and the second group were made to believe their opponent was of Polish nationality (an out-group member). In reality, all opponents were pre-programmed computer responses. Everyone in the game experienced a negative interaction where their opponent initially suggested they cooperate but then *betrayed* them. The betrayal was that the opponent chose the competitive strategy instead of the previously suggested cooperative strategy. Immediately after this, every player completed questionnaires on how suspicious and forgiving they felt towards their opponent, and how much they felt they deserved mistreatment by others in that moment.

We found that both groups felt equally suspicious and forgiving after the betrayal. However, people who played someone of the same nationality (an in-group member) showed high levels of deservedness. They especially felt this way if they had chosen to compete in the game themselves. While this was interesting, there were issues with the study which make it more difficult to be confident about what we

found. For example, it is not clear whether questionnaire responses after the game were because of the negative experience of being betrayed, who the betrayal was committed by, or both these things. Although more research is needed to clarify the results, it showed that deservedness is an important concept to study alongside paranoia. It also suggested that we should consider whether the person thought to intend harm is viewed as an in-group or out-group member.

### **How the Chapters Relate and How the Findings will be Distributed**

Although the review and experiment are presented in two different chapters, they are both linked. Both parts wanted to gain a better understanding of paranoia with a specific focus on Poor Me/Bad Me paranoia (sometimes referred to as *deservedness*). The review did this by summarising which experiences have been linked to Poor me/Bad me paranoia in previous studies, while the experiment explored a new concept in relation to deservedness (whether the person committing the harmful act was an in-group or out-group member). The chapters are also different, in that the experiment was also interested in how paranoid and forgiving people felt after experiencing a betrayal in the game. This section also provides reasons for some of the main decisions made in the project. For example, the main researcher shared how the decision to use nationality as the basis in which people would see others as part of the same or different group was made at a time when Brexit discussions were widespread. Ways in which service users could have been included more in the project are also suggested.

The findings will be distributed through being published in academic journals, a research presentation to the Royal Holloway Clinical Psychology training department and sharing the summary to London paranoia support groups and national organisations (e.g., British Psychological Society Faculty of Psychosis). Through sharing the findings, it is hoped that the project will have an impact for wider society. It will hopefully help raise awareness that paranoid thoughts are common

among people without mental health diagnoses. It will add to the campaign to reduce stigmatising attitudes towards people who experience more severe mental health difficulties, and hopefully encourage people to access support earlier if they experience distressing paranoid thoughts. It is also hoped that people who experience paranoid thoughts and beliefs themselves will find it validating and normalising to read about the project, as the ability to detect and respond to threat in the world can be viewed as a helpful survival strategy. Finally, both mental health practitioners and service users may find it helpful to consider how paranoid thoughts are linked to ways that people think, feel and behave, but also following stressful interactions with others.

**Chapter II: A Systematic Review of Psychological Factors Related to *Poor Me*  
and *Bad Me* Paranoia in Clinical and Nonclinical Populations.**

## Abstract

Two subtypes of paranoia - *Poor Me* and *Bad Me* paranoia (or PM/BM paranoia) have been proposed to exist. Individuals presenting with PM or BM paranoia differ on the extent to which they believe they deserve persecution, a belief which is distinct from other paranoid thought content and associated with high levels of depression and anxiety. Given the potential clinical implications, a better understanding of factors associated with this paranoid experience was justified. The current review provided an overview of empirical studies investigating relationships between deservedness and psychological factors in clinical and nonclinical populations. PubMed, PsycInfo, Web of Science and grey literature databases were searched, revealing 22 quantitative studies for inclusion in the review. Four broad categories were used to group the 32 psychological factors investigated in relation to deservedness. Deservedness was associated with several cognitive (negative self-evaluation, low self-esteem) and affective correlates (elevated depression, paranoia, anxiety) in both clinical and nonclinical populations. There was less support for associations between deservedness, and behavioural and vulnerability factors. Many mixed findings also emerged, and relevant methodological issues which may have contributed towards these inconsistencies were discussed. Nevertheless, PM/BM groups generally reported worse outcomes compared to healthy controls. The findings suggest it would be important to assess for deservedness or PM/BM paranoia in paranoia assessments and consider psychological factors outlined in the current review where deservedness is a prominent feature of the paranoid experience. The review had a number of limitations, but also highlighted gaps in the literature which require further research. Crucially, there is a need for more experimental designs in order to establish causal relations between deservedness and psychological factors.

## Introduction

Paranoia is characterised by a belief that other people are intentionally trying to cause one harm (Freeman & Garety, 2000) and has traditionally been conceptualised as a core symptom in mental health diagnoses, including schizophrenia (Freeman, 2007), bipolar disorder (Goodwin, 2016), and major depression (Salokangas et al., 2015). However, as with other clinically relevant experiences such as voice hearing (Beavan, Read, & Cartwright, 2011), paranoia is also experienced by individuals without mental health difficulties (Freeman et al., 2019, 2011). Prevalence rates of paranoid cognitions in general population samples vary from 15-30% (Bebbington et al., 2013; Freeman, 2007; Freeman et al., 2005) and increase to 30-40% in university samples (Freeman et al., 2005). It has also been shown that between 2-5% of the general population experience extreme levels of paranoia, such as persecutory delusions (Bebbington et al., 2013; Johns et al., 2004). These studies add to the increasing evidence in support of the continuum model of psychotic symptoms (Strauss, 1969), proposing that paranoid experiences range from milder suspicions about others' intentions to severe psychotic experiences in the form of persecutory delusions (Freeman, Pugh, Vorontsova, Antley, & Slater, 2010; van Os, Linscott, Myin-Germeys, Delespaul, & Krabbendam, 2009). Both clinical and nonclinical levels of paranoid thinking are associated with a variety of difficulties, including poorer physical and mental health (anxiety, worry, post-traumatic stress, and suicidal ideation), reduced social functioning, and increased use of alcohol and cannabis (Freeman et al., 2011). The prevalence and significant impact of paranoia in both clinical and nonclinical populations provide justification for the study of paranoia across the continuum.

Paranoia is a complex and multidimensional phenomenon (Ellett, Lopes, & Chadwick, 2003), demonstrating high levels of individual variability in the experience of persecutory delusions, including content of persecutory thoughts, level of distress,

degree of conviction, and resistance to change (Freeman, 2007). This has prompted research to move away from the study of diagnostic syndromes such as schizophrenia, towards exploring the phenomenology of individual symptoms, including paranoid experiences (Bentall, Jackson, & Pilgrim, 1988; Peters, Joseph, & Garety, 1999; van Os, Hanssen, Bijl, & Ravelli, 2000). A better understanding of how each dimension relates to psychological factors would have significant treatment implications (Campbell & Morrison, 2007; Freeman, 2007). Previous reviews have highlighted convincing evidence of relationships between paranoia and various psychological processes, including negative beliefs about the self, interpersonal sensitivity, self-esteem, reasoning biases, and attachment styles, providing clear treatment implications (Freeman & Garety, 2014; Kesting & Lincoln, 2013; Miesel, Garety, Stahl, & Valmaggia, 2018; Lavin, Bucci, Varese, & Berry, 2020; Tiernan, Tracey, & Shannon, 2014). With regards to the dimension of *content* of paranoid thinking, higher perceptions of awfulness of threat and power of the persecutor have been found to be associated with greater distress and traumatic reactions to psychotic episodes (Chisholm, Freeman, & Cooke, 2006).

Another aspect of paranoid thought content which has gained attention in recent years concerns beliefs regarding *deservedness of persecution* ("deservedness"). Building on earlier paranoia models (Zigler & Glick, 1988) and clinical experience of two different presentations of paranoia, Trower and Chadwick (1995) proposed two paranoia subtypes, named persecution or *Poor Me paranoia* (PM paranoia) and punishment or *Bad Me paranoia* (BM paranoia). Based on the psychodynamic understanding of paranoia and the interpersonal theory of self, the authors hypothesised how individuals with clinical levels of paranoia experience *insecurity* and *alienation* threats in their experience of trying to construct a "self", followed by a response to these threats with one of two types of paranoid defences. More specifically, individuals with PM paranoia (low levels of deservedness

attributions) reject others' malevolence as undeserved persecution in order to protect the self from negative evaluations from others. Contrastingly, individuals with BM paranoia (high levels of deservedness attributions) experience the self as bad and unworthy due to having accepted negative evaluations from others, and therefore continue to passively accept mistreatment from others as deserved persecution.

The PM/BM paranoia model has been criticised for lacking convincing empirical evidence of two distinct causes of the paranoia subtypes. Moreover, fluctuations in deservedness attributions (Melo et al., 2006; Udachina et al., 2012) have led to contentions regarding the stability of deservedness and whether it exists as a dimensional concept rather than reflecting two different subtypes with different underlying causes (Freeman, 2007; Freeman & Garety, 2014). Deservedness attributions have been considered dimensionally by contemporary models of paranoia. Bentall and colleagues' (2001) revised attributional model of paranoia proposes that due to unstable self-representations and self-esteem, paranoid individuals present with PM or BM beliefs at different times. More specifically, they suggest that BM beliefs are more likely to emerge when attempts to avoid internal attributions for negative events fail. Another contemporary model of persecutory delusions is that of Freeman, Garety, Kuipers, Fowler and Bebbington (2002). This cognitive model of paranoia argues that delusions directly (not defensively) reflect negative emotions and beliefs about the self and others, and therefore deservedness levels correspond to changes in negative emotion (Freeman, 2016). Individuals present with BM paranoia beliefs when levels of depression are high, and PM beliefs when levels of depression are low. Paranoia beliefs are then maintained by low self-esteem, cognitive biases and safety behaviours which obtain confirming evidence and discard disconfirming evidence.

Despite differences in theoretical conceptualisations of deservedness attributions, a number of empirical studies have supported some of Trower and

Chadwick's (1995) proposed differences in individuals holding PM/BM beliefs. Studies have found higher self-esteem, lower depression and lower anxiety in individuals with PM paranoia compared to BM paranoia, where greater depression and shame prevails (Chadwick, Trower, Juusti-Butler, & Maguire, 2005; Freema, Garety, & Kuipers, 2001; Morris, Milner, Trower, & Peters, 2011). However, some predicted differences between BM/PM paranoia groups have not been supported, for example with regards to differences in positive and negative self-esteem (Gray, 2009; Udachina, Varese, Oorschot, Myin-Germeys, & Bentall, 2012), threats to self-representation (Melo, Taylor, & Bentall, 2006; Morris et al., 2011), attributional styles (Fornells-Ambrojo & Garety, 2009; Melo & Bentall, 2012), and levels of anger (Chadwick et al., 2005; Freeman et al., 2001).

### **The Current Review**

Although there has been a significant amount of research on PM/BM paranoia and beliefs regarding deservedness of persecution since Trower and Chadwick's (1995) original paper, a focused review of the empirical research has not been conducted to date. Moreover, despite clear implications, a comprehensive review outlining which psychological factors relate to this dimension of delusional experience, and what the quality of research has been thus far, has not been conducted. In order to address this, the central aim of the current review was to synthesise data from clinical and nonclinical studies which have investigated psychological factors in relation to deservedness of persecution, or PM/BM paranoia.

As in previous reviews (Evangeli, Pady, & Wroe, 2016; Glod, Roby, Honey, & Rodgers, 2015; Matcham, Ali, Hotopf, & Chalder, 2015), a broad definition of *psychological factors* was used to conceptualise potentially modifiable factors relating to an individual's internal state (cognitive and affective variables) and behavioural variables, all of which could be addressed in an intervention. Though not usually considered modifiable targets of an intervention, the effects of personality

traits and attachment styles on cognitions and behaviours typically are, therefore justifying inclusion in the review. This has also been done in a previous review (Jordan, Sin, Fear, & Chalder, 2016). Additionally, as the aim of the review was to better understand deservedness, common indicators of mental health (e.g., depression, hallucination severity) and characteristics of paranoid thoughts (e.g., delusional distress, locus of control) were also included. Findings are discussed in relation to two primary research questions:

Primary research question:

1. Which psychological variables are associated with deservedness in clinical and nonclinical populations?

Secondary research question:

2. Do individuals with PM and BM paranoia differ from clinical and nonclinical controls on psychological variables?

## **Method**

### **Search Strategy**

A systematic review protocol and search strategy were developed, guided by Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA; Moher, Liberati, Tetzlaff, Altman, & Prisma Group, 2009). A PICOS table (Centre for Reviews and Dissemination [CRD], 2009) was used to identify the specific population, intervention, comparison, outcomes and study design of interest, based on the research questions.

Searches were conducted for keywords in the title or abstract of publications with reference to deservedness (“poor-me”, “bad-me”, “poor me”, “bad me”, “defensive avoidance”, “deserv\*”), paranoia (“psychos\*”, “delu\*”, “paranoi\*”, “persecut\*”, “psychotic”) and associations (“factor\*”, “predict\*”, “influence\*”, “associat\*”, “correlate\*”, “interact\*”, “relation\*”). The Boolean operator “AND” was used to combine the three search item categories, and the Boolean operator “OR”

was used between search terms within each set of brackets. The search strategy was verified by a Royal Holloway, University of London (RHUL) librarian with expertise in conducting systematic reviews.

Three databases were searched on 27<sup>th</sup> July 2020, which included PubMed, PsycINFO (interface: EBSCOhost Research Databases), and Web of Science Core Collection with no restrictions on language and publication date. To minimise publication bias, hand-searches were conducted in the following locations to identify further eligible studies: (a) databases of unpublished dissertations, theses and reports, such as ProQuest Dissertations and WorldCat; and (b) Google Scholar. All abstracts identified were screened by the author. Full texts from the screen were reviewed and assessed for eligibility. A subset (10%) of screened abstracts and full texts were reviewed by independent researcher, and any disagreements were resolved by discussion.

### **Inclusion and Exclusion Criteria**

Inclusion criteria:

- Empirical, quantitative design;
- Clinical and nonclinical paranoia samples;
- Measured deservedness of persecution (e.g., self-reported, clinician-rated);
- Quantitative measure of psychological variable(s);
- Assessment of the direct relationship between deservedness and psychological variable(s) using statistical analysis;
- All dates of publication;
- Available in English language;
- All geographical locations;
- Both published and unpublished literature.

Exclusion criteria:

- Prevalence studies, qualitative designs, narrative reviews, systematic reviews, meta-analyses, study protocols, book chapters and theoretical papers;
- Studies not investigating paranoia;
- No measurement of deservedness of persecution;
- Measuring the property of a psychological variable (e.g., stability or malleability of a variable) instead of the variable itself;
- Lack of measuring a direct relationship between deservedness and psychological variable(s) using statistical analyses;
- Unavailable in English.

### **Data Extraction**

The full texts of the 22 final studies were reviewed in detail and data extracted into one table (Table 2 in Results section), allowing comparison across studies for the following key features:

1. First author, year of publication and geographical location
2. Study design and details regarding subgroup allocation, sample characteristics (sample size, age and gender distribution)
3. Name and measurement of psychological variable(s)
4. Associations between psychological variable(s) and deservedness
5. Group comparisons on psychological variables

The data was organised by sample type (clinical, nonclinical and mixed sample) and psychological factor category (cognitive, affective and mental health indicators, behavioural, vulnerability and personality factors) to enable comparison across and within categories.

### **Quality Assessment**

The methodological quality of the studies was evaluated using the Quality Assessment Tool for Quantitative Studies (QATQS; Appendix 1) developed by the

Effective Public Health Practice Project (EPHPP; Thomas, Ciliska, Dobbins, & Micucci, 2004). This tool was chosen as it can be used across a range of study designs and has content and construct validity (National Collaborating Centre for Methods and Tools, 2019; Thomas et al., 2004). The QATQS permits quality appraisal of a paper across six domains including selection bias, study design, confounders, blinding, data collection methods, and attrition. A paper is rated “weak”, “moderate” or “strong” in each domain and for the paper as a whole (“global rating”). The QATQS was modified for the current review. A rating was not awarded for “study design” or “blinding” as the included studies did not allocate participants to intervention conditions and therefore these domains were not relevant. Additionally, the “confounders” domain was modified from “Were there differences between groups prior to intervention?” to “Were possible confounding variables measured and considered in the design or analysis?” to permit a more appropriate assessment of measurement and control of confounding variables in studies with one or more participant groups. The final quality ratings are shown in Table 3 of the Results section, and there were no disagreements between the researcher and independent researcher who rated 20% of the studies ( $n = 4$ ).

### **Data Synthesis**

The extracted data was heterogenous. Studies varied on measures of deservedness, psychological variables, and the nature of control groups. Therefore, a narrative synthesis was considered more appropriate than a meta-analysis (Baumeister, 2013; Siddaway, Wood, & Hedges, 2019). The narrative synthesis was reported in accordance with the PRISMA checklist and guidance from the CRD (2009). To facilitate comparison between studies, standardised effect sizes and 95% confidence intervals were calculated where possible<sup>1</sup>. Based on effect size guidelines

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<sup>1</sup> 95% confidence intervals were not calculated for non-parametric group comparisons.

(Grissom & Kim, 2005), sample-size corrected effect sizes (Hedges'  $g$  and eta squared ( $\eta^2$ )) were calculated for parametric and non-parametric group comparisons, Pearson product moment correlation coefficients ( $r$ ) and Spearman's rank correlation rho ( $r_s$ ) for parametric and non-parametric correlations, and phi coefficients ( $\phi$ ) for chi-square tests of association. For ease of comparison, eta squared was transformed into point-biserial correlation coefficient,  $r$ , which is similar to Pearson's  $r$  (Maher, Markey, & Ebert-May, 2013). Finally, unstandardised and standardised coefficients ( $B$ ,  $SE$ , and  $\beta$ ) were reported for hierarchical regression analyses alongside  $r$ . The following interpretation was used to classify effect sizes as small, medium or large (Cohen, 1988, 1992; Fritz, Morris, & Richler, 2012) as shown in Table 1.

**Table 1**

*Effect Size Interpretation*

Effect Size	Hedges' $g$	$r$	$r_s$	$\phi$
Small	0.2	.10	0-.19	.10
Medium	0.5	.30	.4 - .59	.30
Large	0.8	.50	.60-1.00	.50

*Note.* Effect size interpretation in accordance with Cohen (1988, 1992) and Fritz et al. (2012)

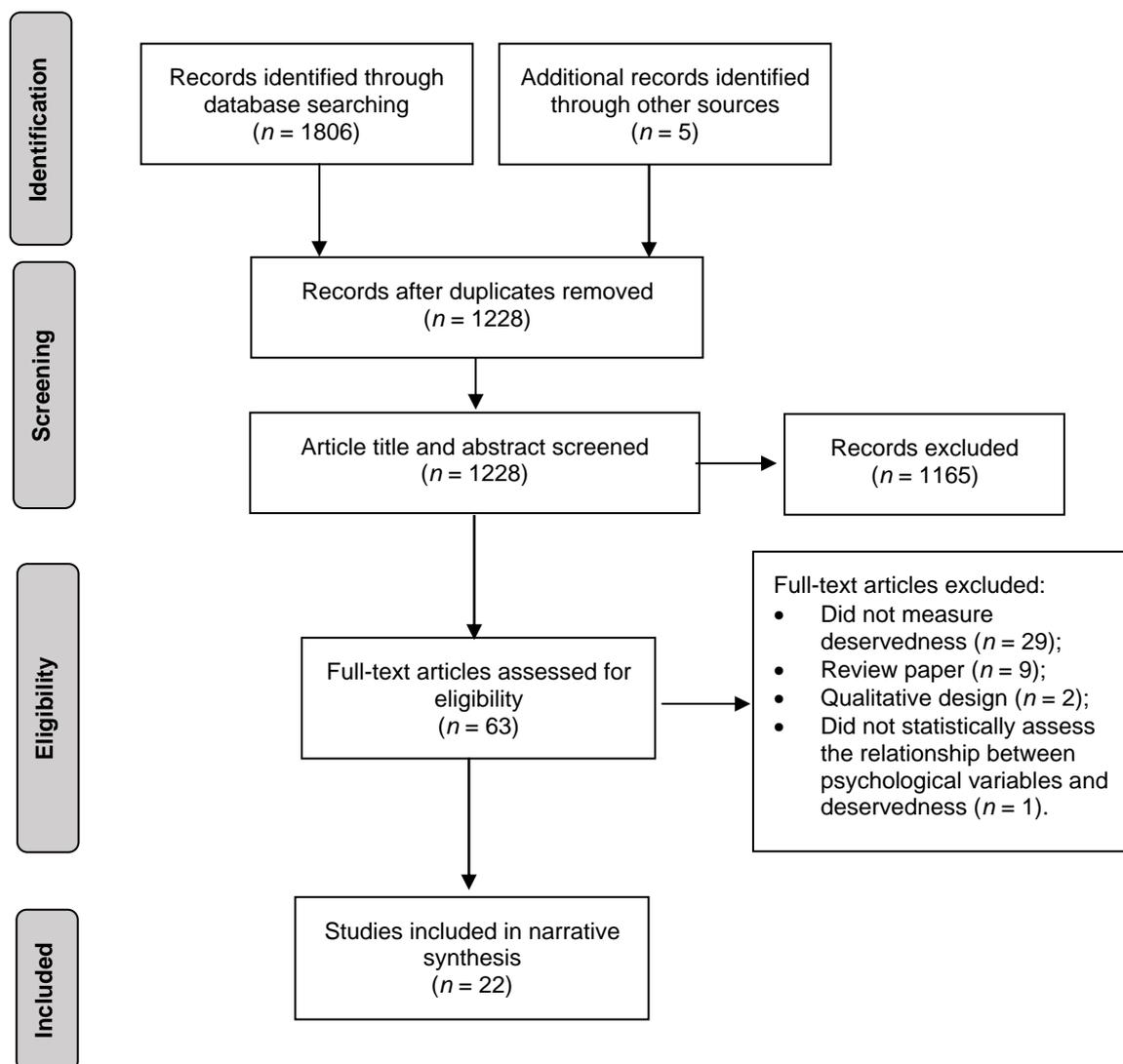
## Results

### Study Inclusion

The literature search yielded  $n = 1806$  studies and a further  $n = 4$  studies were identified through screening citations and reference lists of relevant studies. Of the total  $n = 1810$  studies,  $n = 583$  duplicates were removed, leaving  $n = 1227$  studies for eligibility screening. This occurred in two stages: title and abstract, and full text screening. In the first stage, titles and abstracts of the  $n = 1227$  studies were screened and studies completely irrelevant to the research question were removed.

Subsequent to this screen,  $n = 62$  papers remained for a full-text screening to determine if they met the specific inclusion and exclusion criteria. Of these,  $n = 41$  were excluded due to absence of a specific measure of deservedness, conducting a review or qualitative study, or absence of statistical analyses assessing relationships between psychological variables and deservedness, leaving  $n = 21$  studies. At the final stage of selection, a reference list search of all eligible articles was completed and  $n = 1$  further study was identified. Therefore,  $n = 22$  studies met the inclusion criteria and were consequently included in the systematic review.

An independent researcher repeated the title and abstract screen for 10% of the 1,227 studies ( $n = 123$ ) and the full-text screening for 10% of the 64 studies ( $n = 7$ ). These papers were selected at random and assessed independently. All disagreements were resolved through discussion (inter-rater agreement weighted at  $k = 0.80$ ). Figure 1 shows the selection and screening process as a Prisma diagram.



**Figure 1**

PRISMA Diagram of Study Selection

### Study Characteristics and Findings

The data extraction process involved identifying and reporting key characteristics and main findings from the included studies, alongside effect sizes and 95% confidence intervals where possible. Table 2 summarises this information, categorised by sample type (clinical, nonclinical, and mixed samples) and psychological variable category (cognitive, affect and common mental health indicator, behavioural, and vulnerability and personality factors).

**Table 2**

*Summary of Study Characteristics, Associations Between Psychological Variables and Deservedness, and Corresponding Effect Sizes.*

First Author, Year and Location	Design and Sample Characteristics	Psychological Variable (Measure)	Associations Between Psychological Variables and Deservedness (Effect Size)	Group Comparisons on Psychological Variables	Group Comparison Effect Size [95% CI]
Clinical Only					
Asensio- Aguerri et al. (2019)	Cross-sectional N = 60 42% female 41.12 years old	Cognitive: Life satisfaction (SWLS) Affect and Common Mental Health Indicators (Affect): Psychological well-being (PWBS)	No association	-	-
Spain	No subgroups	Psychological well-being (PWBS)	Negative association between deservedness and overall psychological well-being ( $r = -.58$ ), autonomy ( $r = -.54$ ), self-acceptance ( $r = -.44$ ), positive relations ( $r = -.44$ ), environmental mastery ( $r = -.50$ ), purpose in life ( $r = -.46$ ), personal growth ( $r = -.38$ )		
		Positive affect (PAS)	No association	-	-
Chadwick et al. (2005)	Cross-sectional N = 53 20.8% female 32.6 years old	Cognitive: Self-esteem (RSE) Evaluative beliefs (EBS)	-	BM < PM	$g = 1.48 [0.80-2.16]$
United Kingdom (UK)	<u>Subgroups:</u>			Negative self-to-self evaluation BM > PM Negative self-to-other evaluation	Unable to calculate

	PM (n = 36); BM (n = 14); Not Classified (n = 3)			PM > BM	
				Negative other-to-self evaluation	
				No difference between PM and BM	
		Affect:			
		Anxiety (HADS)	-	BM > PM	$g = 0.75 [0.12-1.39]$
		Depression (HADS)	-	BM > PM	$g = 0.80 [0.16-1.43]$
		Anger (STAXI)	-	No difference between PM and BM	-
Freeman et al. (2001)	Cross-sectional  N = 24	Cognitive:  Self-Esteem (RSE)	-	D < MD	$g = 4.26 [2.28-6.25]$
				D < UD	$g = 5.2 [3.16-7.24]$
				No difference between UD and MD	
UK	33.3% female  37 years old	Affect:  Depression (BDI)	-	D > MD	$g = 1.78 [0.47-3.09]$
				D > UD	$g = 1.18 [0.06-2.29]$
				No difference between UD and MD	
	<u>Subgroups:</u>	Anxiety (BAI)	-	No difference between D, UD and MD	-
	'Deserved' (n = 5);				
	'Undeserved' (n =	Anger (STAXI)	-	No difference between D, UD and MD	-
	12); 'Maybe				
	deserved' (n = 8)	Delusional Distress (DoT) <sup>a</sup>	-	No difference between D, UD and MD	-
		Behavioural:			
		Safety behaviours (SBQ) <sup>a</sup>	-	Use of compliance safety behaviours	Unable to calculate
				D > UD	

D > MD

Morris et al. (2011)	Cross-sectional N = 36 50% female	Cognitive: Threats to Self- representation (SOS)	-	No difference between PM and BM	-
UK	35.4 years	Affect:			
	<u>Subgroups:</u>	Depression (BDI)	-	BM > PM	$g = 1.35 [0.62-2.09]$
	PM (n = 21); BM (n = 15)	Shame (ESS)	-	BM > PM	$g = 0.89 [0.20-1.59]$
		Severity of Delusions (SAPS)	-	BM < PM	$g = 0.54 [-0.13-1.22]$
		Vulnerability and Personality Factors:			
		Perceived Parental Care (PBI)	-	Overprotection BM > PM Care	$g = 0.66 [-0.03-1.34]$
				No difference between PM and BM	
Pacitti et al. (2019)	Cross-sectional N=81 34.6% female	Affect: Schizophrenia Symptom Severity (PANSS)	No association	-	-
Italy	42.4 years old	Depression (BDI-FS)	Positive association between deservedness and depression ( $r = .30$ )	-	-
	No subgroups	Paranoia (PaDS-P)	Positive association between deservedness and paranoia ( $r = .38$ )	-	-

Startup et al. (2003)	Cross-sectional N=22 33% female 28.8 years	Affect: Passivity experiences (SAPS)	Those who thought persecution was deserved were more likely to have used passivity experiences as evidence for the persecution, compared to those who thought persecution was undeserved ( $\varphi = .54$ )	-	-
UK	<u>Subgroups:</u> Deserved ( $n = 11$ ); Not deserved ( $n = 8$ ); Insufficient information ( $n = 3$ )	Ideas of reference (PDCS) <sup>a</sup>	No association	-	-
<hr/> Nonclinical Only <hr/>					
Brock et al. (2016)	Longitudinal N=278 100% female Age NR No subgroups	Cognitive: Self-Esteem (SERS-SF) Negative Self-Esteem (NSE)  Positive Self-Esteem (PSE)	Negative association between deservedness and positive self-esteem in the para-menstrual ( $r_s = -.52$ ) and mid cycle phase ( $r_s = -.46$ )  Positive association between deservedness and negative self-esteem in para-menstrual ( $r_s = .50$ ) and mid-cycle phase ( $r_s = .48$ )	-	-
UK					
<hr/> Affect: <hr/>					

		Depression (HADS)	Positive association between deservedness and depression ( $r_s = .31$ ) in para-menstrual and mid-cycle phase ( $r_s = .21$ ).	-	-
		Anxiety (HADS)	Positive association between deservedness and anxiety ( $r_s = .30$ ) in the para-menstrual and mid-cycle phase ( $r_s = .25$ ).	-	-
Melo et al. (2010)	Cross-sectional N = 598 68.4% female 23.9 years	Affect: Depression (BDI)	No association between deservedness and depression after controlling for RSQ and COPE scores	-	-
UK and Portugal	No subgroups	Behavioural: Coping strategies (COPE)	Hierarchical regression predicting deservedness: With demographic information, depression, and RSQ scores controlled for, use of alcohol and drugs ( $\beta = 0.25, r = .30$ ), active coping ( $\beta = 0.20, r = .25$ ) and positive reinterpretation and growth ( $\beta = -.18, r = -.23$ ) were independent predictors of deservedness.	-	-
		Coping Behaviours (RSQ)	Hierarchical regression predicting deservedness: With demographic information, depression, and COPE scores controlled for, engaging in dangerous activities ( $\beta = -0.28, r = .33$ ) and	-	-

adaptive coping ( $\beta = -0.11$ ,  $r = -.16$ ) were independent predictors of deservedness.

Neubert (2012)	Cross-sectional	Hierarchical Regression Predicting Deservedness:	
	N = 534	With gender, anxiety, depression, paranoia, self-esteem and social rank variables controlled	
	69.9% female	for, negative self-esteem ( $B = .02$ , $SE B = .01$ , $\beta = 0.23$ , $r = .27$ ) and perceived social rank ( $B = -0.09$ , $SE B = 0.05$ , $\beta = -0.17$ , $r = -.22$ ) remained significant predictors of deservedness.	
UK	Age NR		
	<u>Subgroups:</u>		
	PM (n = 65), BM (n = 65)		
	Cognitive:		
	Perceived Social Rank (SCS)	Negative association between deservedness and perceived social rank (SR) ( $r = -.41$ ), attractiveness ( $r = -.32$ ) and social acceptance ( $r = -.20$ )	Social Rank PM > BM Social Attractiveness PM > BM Social Acceptance No difference between PM and BM
			$r = -.22$   $r = -.22$
	Explicit Self-esteem (SERS-SF)		
	PSE	Negative association between deservedness and PSE ( $r = -.38$ )	PM > BM $r = -.29$
	NSE	Positive association between deservedness and NSE ( $r = .47$ )	PM < BM $r = -.37$

		Implicit Self-esteem (IPT/BPT)	No association	-	-
		Affect:			
		Anxiety (HADS)	Positive association with deservedness ( $r = .22$ )	PM < BM	$r = -.22$
		Depression (HADS)	Positive association with deservedness ( $r = .21$ )	No difference between PM and BM	-
		Paranoia (PaDS-P)	Positive association with deservedness ( $r = .35$ )	BM > PM	$r = -.21$
Pickering et al. (2008)	Cross-sectional N = 55 70% female 20.9 years old  UK		Hierarchical Regression Predicting Deservedness:  With hallucination severity, attachment anxiety and attachment avoidance controlled for, paranoia ( $\beta = 0.29$ , $r = .34$ ) and self-esteem ( $\beta = -0.26$ , $r = -.31$ ) remained significant independent predictors of deservedness.		
		<u>Subgroups:</u>			
	PM (n = 28), BM (n = 27)	Cognitive:			
		Self-esteem (SERS)			
		NSE	Positive association between deservedness and NSE ( $r = .39$ )	-	-
		PSE	Negative association between deservedness and PSE ( $r = -.34$ )	-	-
		Locus of control (LoC)	Positive association between deservedness and perception of powerful others ( $r = .15$ )	-	-
		Anticipation of negative events (NES)	Positive association between deservedness and anticipation of threat ( $r = .27$ ) and recall of threatening events ( $r = .23$ )	-	-

Affect:

Depression (BDI-II)	No association	-	-
Paranoia (PaDS-P)	Positive association between paranoia and deservedness ( $r = .42$ )	-	-
Hallucination Severity (LSHS)	Positive association between deservedness and hallucination severity ( $r = .22$ )	-	-

Vulnerability and Personality

Factors

Attachment (RQ)	Significant association between attachment status and paranoia type. PM and BM were significantly more likely to have a fearful-avoidant attachment style and HCs have secure attachment style ( $\phi = .45$ )	-	-
	Positive association between attachment anxiety and deservedness ( $r = .18$ )		
	Positive association between attachment avoidance and deservedness ( $r = .12$ )		

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Serrone et al. (2018)	Cross-sectional N = 312 59.3% female	Cognitive: Self-esteem (SERS)	-	Significant difference between BM and PM	Unable to calculate
Italy	32.8 years old	Affect: Depression (BDI-FS)	Positive association between deservedness and depression ( $r = .24$ )	Significant difference between BM and PM	Unable to calculate
	<u>Subgroups:</u>	Aberrant Salience (ASI)	No association	-	-

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PM (n=122), BM

(n=154)

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Mixed Clinical and Nonclinical Sample

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Bentall et al. (2008)	Cross-sectional N = 148 32.3% female 38.4 years	Cognitive: Self-esteem (SERS) NSE PSE Anticipation of negative events (ANET) Affect: Paranoia (PS) Depression (HADS)	Negative association between deservedness and NSE in currently paranoid and paranoid depressed groups ( $r_s = -.29$ ) No association between deservedness and PSE in currently paranoid and paranoid depressed groups No association between deservedness and estimates of past frequency or future likelihood of negative events occurring to self in currently paranoid and paranoid depressed groups No association Positive association between deservedness and depression in currently paranoid and paranoid depressed groups ( $r_s = .26$ )	- - - -	- - -	
Fornells- Ambrojo et al. (2009)	Cross-sectional N=73 27.4% female 32.2 years	Cognitive: Self-Esteem (RSE)		-	PM > clinically depressed No difference between PM and HC	$g = 1.82 [1.10-2.55]$

UK

	Attributional Style	-	Self-serving bias	
<u>Subgroups:</u>	(ARAT)		PM > clinically depressed	$g = 1.59 [0.89-2.29]$
Currently paranoid			No difference between PM and HC	
PM (n = 20);			Other-person bias	
clinically			PM > clinically depressed	$g = 0.76 [0.12-1.39]$
depressed control			PM > HC	$g = 0.92 [0.34-1.51]$
(n = 21); healthy			Personalising bias	
control (n = 32)			No difference between PM, clinically depressed and HC	
	Affect:			
	Anger (NAS)	-	Cognitive	
			PM > HC	$g = 0.96 [0.37-1.55]$
			No difference between PM and clinically depressed	
			Arousal	
			PM > HC	$g = 0.91 [0.32-1.49]$
			No difference between PM and clinically depressed	
			Behavioural	
			PM > HC	$g = 1.17 [0.57-1.77]$
			PM > clinically depressed	$g = 0.61 [-0.02-1.23]$
			Reactions to Provocation	
			PM > HC	$g = 0.80 [0.23-1.39]$

				No difference between PM and clinically depressed	
		Guilt (GI)	-	State Guilt	
				PM < clinically depressed	$g = 1.03 [0.38-1.69]$
				No difference between PM and HC	
				Trait Guilt	
				PM < clinically depressed	$g = 1.33 [0.66-2.01]$
				No difference between PM and HC	
		Anxiety (BAI)	-	PM > HC	$g = 1.16 [0.55-1.76]$
				No difference between PM and clinically depressed	
		Depression (BDI)	-	Clinically depressed > PM	$g = 0.97 [0.32-1.61]$
				PM > HC	$g = 0.75 [0.17-1.33]$
Gray (2009)	Cross-sectional	Cognitive:			
	N = 36	Self-Esteem (SERS)	-	PSE	
UK	11.1% female			BM < HC	$g = 1.36 [0.37-2.34]$
	41.7 years			No difference between PM and BM	
				No difference between PM and HC	
	<u>Subgroups:</u>			NSE	
	Currently paranoid			BM > HC	
	categorised as PM			No difference between PM and BM	$g = 1.30 [0.32-2.29]$
	(= 16) and BM (n			No difference between PM and HC	
	= 8); healthy	Self-Discrepancies	-	Self-Actual-Self-Ideal Consistency	
	control (n = 12)	(Modified SQ)		PM > BM	$g = 1.30 [0.38-2.23]$

No difference between PM and HC

No difference between BM and HC

Self-Actual-Parent-Actual Consistency

No difference between BM, PM and HC

Self-Actual-Other-Actual Consistency

No difference between BM, PM and HC

Valence of Self-Actual Ratings

BM < HC *g* = 1.51[0.50-2.52]

BM < PM *g* = 1.16 [0.25-2.08]

No difference between PM and HC

Valence of Parent-Actual Ratings

PM < HC

BM < HC

No difference between PM and BM *g* = 1.15 [0.34-1.95]

Valence of Other-Actual Ratings *g* = 1.06 [0.11-2.01]

BM < HC

No difference between HC and PM

No difference between PM and BM *g* = 1.47 [0.46-2.47]

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Marley et al. (2017)	Cross-sectional N = 52 25% female	Cognitive: Evaluative Beliefs (EBS)	Negative Self-to-Self Evaluation	
	UK 35.5 years		BM > PM	<i>r</i> = .76
			BM > HC	<i>r</i> = .84
			No difference between PM and HC	
			Negative Self-to-Other Evaluation	
	<u>Subgroups:</u>		PM > HC	<i>r</i> = .79

	Currently paranoid			BM > HC	$r = .42$
	categorised as PM			PM > BM	$r = .39$
	( $n = 19$ ) and BM ( $n$			Negative Other-to-Self Evaluation	
	= 13); healthy			PM > HC	$r = .69$
	control ( $n = 20$ )			BM > HC	$r = .81$
				BM > PM	$r = .57$
	Self-Esteem (RSE)	-		HC > PM	$g = 1.09 [0.43-1.77]$
				HC > BM	$g = 3.58 [2.47-4.70]$
				PM > BM	$g = 2.15 [1.27-3.03]$
	Affect:				
	Depression (HADS)	-		BM > PM	$r = .36$
				BM > HC	$r = .83$
				PM > HC	$r = .66$
Melo et al.		Cognitive:			
(2006)	Longitudinal	Threats to self-	-	Frequency of Insecure Self	
	N=65	representation (SOS)		BM > HC	$g = 0.87 [-0.02 -1.76]$
UK	75% female			No difference between PM and BM	
	33 years			No difference between PM and HC	
	<u>Subgroups:</u>			Endorsement of Insecure Self	
	Currently paranoid			PM > HC	$g = 0.82 [0.23-1.42]$
	categorised as PM			BM > HC	$g = 1.36 [0.63-2.09]$
	(varied between $n$			No difference between PM and BM	
	= 21-28 or BM			Frequency of Engulfed Self	
				BM > HC	$g = 1.28 [0.56-2.01]$

(varied between  $n$   
= 9-15); healthy  
control ( $n = 21$ )

PM > HC  $g = 1.19 [0.58-1.80]$   
No difference between PM and BM  
Endorsement of Engulfed Self  
PM > HC  $g = 0.95 [0.35-1.55]$   
BM > HC  $g = 1.41 [0.67-2.15]$   
No difference between PM and BM

Attributional Style (ASQ) Positive association between deservedness and  
negative internality ( $r = .34$ ) in currently paranoid  
participants Negative Internality  
BM > PM  $g = 0.88 [0.09-1.66]$   
HC > PM  $g = 0.86 [0.25-1.47]$   
No difference between BM and HC  
No association between deservedness and negative  
globalness in currently paranoid participants Negative Globalness  
PM > HC  $g = 0.71 [0.11-1.31]$   
BM > HC  $g = 1.12 [0.29-1.96]$   
No difference between BM and PM  
Remaining Subscales  
No difference between PM, BM and HC

Affect:

Depression (BDI) Positive association between mean deservedness  
and depression ( $r = .37$ ) in currently paranoid  
participants BM > PM  $g = 0.74 [0.09-1.39]$   
BM > HC  $g = 2.15 [1.32-2.98]$   
PM > HC  $g = 1.49 [0.85-2.14]$

No association between initial deservedness score  
and depression in currently paranoid participants

Vulnerability and Personality

Factors:

Personality Modes (PSI) No association

Sociotropy

BM > HC  $g = 0.91 [0.18-1.63]$

PM > HC  $g = 0.96 [0.34-1.58]$

No difference between PM and BM

Autonomy

PM > HC  $g = 0.84 [0.23-1.45]$

No difference between PM and BM

No difference between BM and HC

Early attachment -

experiences (PBI)

Mother-care

PM < HC  $g = 0.75 [0.15-1.35]$

Remaining subscales:

No difference between PM, BM and HC

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Melo et al. (2009)	Cross-sectional N = 653 66.3% female	Affect: Paranoia (PS)	Positive association between deservedness and paranoia in whole non-clinical sample ( $r_s = .28$ )	-	-
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UK and Portugal	28.4 years	Paranoia (PaDS-P)	Positive association between deservedness and paranoia in whole non-clinical sample ( $r_s = .33$ ), UK HCss ( $r_s = .31$ ), and Portuguese HCs ( $r_s = .27$ )	-	-
	<u>Subgroups:</u>				
	Clinically paranoid ( $n = 45$ ); British healthy controls ( $n = 318$ ); Portuguese healthy controls ( $n = 290$ )	Depression (BDI)	No association between deservedness and paranoia in clinically paranoid sample Positive association between deservedness and depression in whole non-clinical sample ( $r_s = .35$ )	-	-
Melo et al. (2012)	Longitudinal N = 70 32% female	Cognitive: Self-esteem (RSE)	Negative association between deservedness and self-esteem ( $r = -.39$ ) in clinical sample	PM < HC BM < HC	$g = 0.73 [0.18-1.27]$ $g = 1.57 [0.77-2.37]$
UK	37.4 years		No association between deservedness and self-esteem in whole sample	No difference between PM and BM	
	<u>Subgroups:</u>				
	Currently paranoid categorised as PM ( $n = 32$ ) and BM ( $n = 12$ ); healthy control ( $n = 25$ )	Self-Discrepancies (SDQ)	-	Self-Actual-Self-Ideal Discrepancy BM > HC No difference between PM and BM No difference between PM and HC	$g = 1.40 [0.59-2.21]$
				Self-Actual-Other-Actual Discrepancy BM > HC No difference between PM and BM	

		No difference between PM and HC	
			$g = 1.11 [0.32-1.89]$
		Self-Serving Bias	
		No difference between BM, PM and HC	
Self-Serving Bias (SDEI) <sup>a</sup>	-	Positive Internality	
		BM > HC	$g = 0.98 [0.24-1.73]$
		No difference between BM and PM	
		No difference between PM and HC	
		Negative Internality	
		BM > PM	
		BM > HC	$g = 0.96 [0.24-1.69]$
		No difference between PM and HC	$g = 1.04 [0.29-1.79]$
Affect:			
Paranoia (PaDS-P)	-	PM > HC	$g = 2.41 [1.72-3.10]$
		BM > HC	$g = 2.16 [1.30-3.01]$
		No difference between PM and BM	
Behavioural:			
Rumination (Modified RSQ and COPE) <sup>a</sup>	-	No difference between BM, PM and HC	

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Morrison et al. (2015)	Cross-sectional N = 480 39.3% female UK 20.3 years	Cognitive:  Core Schemas (BCSS)	Positive association between deservedness and negative beliefs about self ( $r = .50$ ) and negative beliefs about others ( $r = .05$ ) in ARMS samples	-	-
	<u>Subgroups:</u> Clinically psychotic (n = 45); ARMS (n = 117); healthy control (n = 318)	Metacognitive beliefs (MCQ)	Positive association between deservedness and negative beliefs about uncontrollability of thoughts ( $r = .26$ ), negative beliefs about the need to control thoughts ( $r = .34$ ) and cognitive self-consciousness ( $r = .25$ ) in ARMS samples	-	-
		Metacognitive beliefs about paranoia (BAPS)	Positive association between deservedness and beliefs about paranoia as a survival strategy ( $r = .24$ ) in ARMS samples  No association between deservedness, negative beliefs and normalising beliefs about paranoia in ARMS sample	-	-
		Affect:			
		Paranoia (PaDS-P)	Positive association between paranoia and deservedness in ARMS sample ( $r = .32$ )	-	-
		Depression (BDI-PC)	Positive association between depression and deservedness in ARMS sample ( $r = .36$ )	-	-
		Social Interaction Anxiety (SIAS)	Positive association between social interaction anxiety and deservedness in ARMS sample ( $r = .36$ )	-	-
	Cross-sectional	Cognitive:			

Moutoussis et al. (2015)	N = 75 27% female 40.8 years	Self-Discrepancies Computerised adaptation of Self-Lines Measure (Francis et al., 2006)	-	Actual-Ideal Discrepancies PM < HC BM < HC No difference between PM and BM Other-Ideal Discrepancies BM < HC No difference between PM and HC Other-Actual Discrepancies No difference between PM and HC	$g = 0.82 [0.25-1.39]$ $g = 0.97 [0.27-1.67]$ $g = 1.17 [0.45-1.88]$
UK	Currently paranoid categorised as PM (n = 29) and BM (n = 14); non- paranoid depressed control (n = 9); healthy control (n = 23)	Behavioural: Avoidance of self- discrepant attributes (Engagement with Negative Attributes Task <sup>a</sup> ) Experiential Avoidance (AAQ-II) Social Desirability Behaviours (MCSDS)	-	No difference between PM, BM and HC BM < HC PM < HC No difference between PM and BM No difference between PM, BM and HC	$g = 2.56 [1.63-3.38]$ $g = 2.3 [1.57-2.97]$

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Cognitive:

Udachina et al. (2012)	Longitudinal ESM design	Self-Esteem (SERS-SF)			
	N=64	NSE	Positive association between PaDS-D deservedness and NSE in currently paranoid sample ( $r_s = .42$ )	PM > HC BM > HC	$g = 1.60 [0.85-2.36]$ $g = 2.31 [1.45-3.14]$
UK	58% female		Positive association between ESM-deservedness and NSE and in in currently paranoid sample ( $r_s = .56$ )	BM > remitted No difference between PM and BM	$g = 1.34 [0.46-2.13]$
	39.7 years				
	<u>Subgroups:</u>	PSE	Negative association between PaDS-D deservedness and PSE in currently paranoid sample ( $r_s = -.38$ )	PM < HC BM < HC BM < remitted	$g = 2.15 [1.32-2.97]$ $g = 3.09 [2.08-3.97]$ $g = 1.04 [0.23-1.85]$
	Currently paranoid categorised as BM (n = 15) and PM (n = 14); Remitted (n = 12); Healthy control (n = 23)	Self-esteem (ESM Self-esteem) <sup>a</sup>	Negative association between ESM-deservedness and PSE in currently paranoid sample ( $r_s = -.51$ ) Negative association between PaDS-D deservedness and ESM self-esteem in currently paranoid sample ( $r_s = -.59$ )	No difference between PM and BM BM < PM BM < remitted BM < HC	$g = 1.13 [0.35-1.92]$ $g = 1.57 [0.7-2.43]$ $g = 2.33 [1.49-3.16]$
			Negative association between ESM deservedness and ESM self-esteem in currently paranoid sample ( $r_s = -.54$ )	PM < HC	$g = 0.74 [0.06-1.43]$
		Affect:			
		Paranoia (PaDS-P)	Positive association between PaDS-D deservedness and paranoia in currently paranoid sample ( $r_s = .40$ )	PM > remitted PM > HC BM > remitted	$g = 3.37 [2.17-4.57]$ $g = 3.77 [2.68-4.85]$ $g = 1.85 [0.95-2.76]$
			Positive association between ESM deservedness and paranoia in currently paranoid sample ( $r_s = .52$ )	BM > HC No difference between PM and BM	$g = 2.34 [1.50-3.17]$

Paranoia (ESM Paranoia) <sup>a</sup>	Positive association between ESM paranoia and PaDS-D deservedness in currently paranoid sample ( $r_s = .37$ )	PM > remitted	$g = 1.17 [0.33-1.99]$
		PM > HC	$g = 1.54 [0.78-2.29]$
		BM > remitted	$g = 1.60 [0.73-2.47]$
	Positive association between ESM paranoia and ESM deservedness in currently paranoid sample ( $r_s = .49$ )	BM > HC	$g = 2.07 [1.27-2.86]$
		No difference between PM and BM	
Depression (BDI-PC)	Positive association between depression and PaDS-D deservedness in currently paranoid sample ( $r_s = .34$ )	PM > HC	$g = 1.98 [1.17-2.78]$
		BM > HC	$g = 2.39 [1.55-3.24]$
		BM > remitted	$g = 1.17 [0.35-1.99]$
	Positive association between depression and ESM deservedness in currently paranoid sample ( $r_s = .48$ )	No difference between PM and BM	
Depression (ESM Depression) <sup>a</sup>	Positive association between ESM depression and PaDS-D deservedness in currently paranoid sample ( $r_s = .46$ )	BM > PM	$g = 0.87 [0.10-1.62]$
		BM > remitted	$g = 1.25 [0.42-2.08]$
		BM > HC	$g = 1.94 [1.15-2.71]$
	Positive association between ESM depression and ESM deservedness ( $r_s = .59$ ) in currently paranoid sample	PM > HC	$g = 1.05 [0.35-1.76]$

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Udachina et al. (2017)	Longitudinal ESM design N = 143	Cognitive: Self-esteem (ESM Self-esteem) <sup>a</sup>	-	HC > PM	$g = 1.39 [0.85-1.93]$
				HC > BM	$g = 2.62 [1.98-3.27]$
UK	49.7% female 38.7 years			Remitted > PM	$g = 0.68 [0.16-1.19]$
				Remitted > BM	$g = 1.52 [0.96-2.09]$
				PM > BM	$g = 0.55 [0.04-1.14]$

<u>Subgroups:</u>	Affect:			
Currently paranoid categorised as PM (n = 23) and BM (n = 23); remitted (n = 45); healthy controls (n = 52)	Paranoia (ESM Paranoia) <sup>a</sup>	-	PM > remitted	$g = 2.66 [1.99-3.33]$
			PM > HC	$g = 2.32 [1.70-2.94]$
			BM > remitted	$g = 3.57 [2.79-4.35]$
			BM > HC	$g = 2.84 [2.17-3.51]$
	Positive Affect (ESM Positive Affect) <sup>a</sup>	-	HC > PM	$g = 1.13 [0.61-1.66]$
			HC > BM	$g = 1.11 [0.58-1.63]$
			Remitted > PM	$g = 0.46 [0.05-0.97]$
			Remitted > BM	$g = 0.41 [0.09-0.92]$
	Negative Affect (ESM Negative Affect) <sup>a</sup>	-	BM > PM	$g = 0.59 [0.00-1.18]$
			PM > HC	$g = 1.82 [1.25-2.39]$
		BM > HC	$g = 2.45 [1.82-3.08]$	
		PM > Remitted	$g = 1.02 [0.49-1.55]$	
		BM > Remitted	$g = 1.62 [1.05-2.19]$	
Vulnerability and Personality				
Factors:				
Sensitivity to activity stress (ESM activity stress) <sup>a</sup>	-	BM > HC	$g = 0.71 [0.20-1.21]$	
		BM > Remitted	$g = 0.69 [0.18-1.21]$	
Sensitivity to social stress (ESM social stress) <sup>a</sup>	-	PM > HC	$g = 1.01 [0.50-1.53]$	
		BM > HC	$g = 1.11 [0.59-1.64]$	
		BM > Remitted	$g = 0.47 [0.04-0.98]$	

Note. ARMS = At risk mental state; BM = Bad Me paranoia; CI = Confidence Interval; ES = Effect size; ESM = Experience Sampling Method; HC = Healthy control; PM = Poor Me paranoia

<sup>a</sup> Measures designed for the current study

Key. AAQ-II = Acceptance and Action Questionnaire II (Hayes et al., 2004); ANET = Anticipation of Negative Events Task (Kaney, Bowen-Jones, Dewey, & Bentall, 1997); ARAT = Achievement and Relationships Attributions Task (Fornells-Ambrojo & Garety, 2009); ASQ = Attributional Style Questionnaire (Peterson et al., 1982); ASI = Aberrant Saliency Inventory (Cicero, Kerns, & McCarthy, 2010); BCSS = Brief Core Schema Scale (Fowler et al., 2006); BAPS = Beliefs about Paranoia Scale (Gumley, Gillan, Morrison, & Schwannauer, 2011); BAI = Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988); BDI = Beck Depression Inventory (Beck & Steer, 1961); BDI-II = Beck Depression Inventory (Beck, Steer & Brown, 1996); BDI-PC = Beck Depression Inventory for Primary Care (Beck et al., 1997); BDI-FC = Beck Depression Inventory Fast Screen (Beck, Steer & Brown, 2000); COPE = Coping Orientations to Problems Experienced (Carver, Scheier & Weintraub, 1989); DOT = Details of Threat Questionnaire (Freeman et al., 2001); EBS = Evaluative Beliefs Scale (Chadwick, Trower & Dagnan, 1999); ESS = Experience of Shame scale (Andrews, Qian, & Valentine, 2002); GI = Guilt Inventory (Kugler & Jones, 1992); HADS = Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983); IPT/BPT = Initial-Preference and Birthdate-Preference tasks (Bosson, Swann, & Pennebaker, 2000); LSHS = Revised Launay-Slade Hallucination Scale (Bentall & Slade, 1985); LOS = Levenson Locus of Control Scale (Levenson, 1973); MCQ = Metacognitions Questionnaire-Revised (Wells & Cartwright-Hatton, 2004); MCSDS = Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960); NAS = Novaco Anger Scale (Novaco, 1994); NES = Negative Events Scale (Corcoran et al., 2006); PWBS = Psychological Well Being Scales (Diaz et al., 2006); PAS = Positive Affect Scale (Diaz, Blanco, Horcajo & Valle, 2007); PS = Fenigstein Paranoia Scale (Fenigstein & Venable, 1992); PSI = Personal Style Inventory (Robins et al., 1994); PBI = Parental Bonding Instrument (Parker, Tupling, & Brown, 1979); PANNS = Positive and Negative Syndrome Scale (Kay, Fiszbein, & Opler, 1987); PDCS = Persecutory Delusions Category Scale (Startup, Owen, Parsonage, & Jackson, 2003); RSE = Rosenberg Self-Esteem Scale (Rosenberg, 1965); RSQ = Response Styles to Depression Questionnaire (Nolen-Hoeksema & Morrow, 1991); RQ = Relationship Questionnaire (Bartholomew & Horowitz, 1991); SWLS = Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985); SERS = Self-Esteem Rating Scale (Nugent & Thomas, 1993); SERS-SF = Self Esteem Rating Scale Short Form (Lecomte, Corbiere, & Laisne, 2006); SCS = Social Comparison Scale (Allan & Gilbert, 1995); SQ = Selves Questionnaire (Higgins, Bond, Klein, & Strauman, 1986); STAXI = Spielberg Trait Anger Expression Inventory (Spielberg, 1988); SBQ = Safety Behaviours Questionnaire - Persecutory Beliefs (Freeman et al., 2001); SOS = Self-to-Other scale (Dagnan, Trower & Gilbert, 2002); SDEI = Significant Daily Events Interview (Melo & Bentall, 2012); SDQ = Self-Discrepancies Questionnaire (Higgins, 1987); SAPS = Scale for Assessment of Positive Symptoms (Andreasen, 1984); SIAS = Social Interaction Anxiety Scale (Mattick & Clarke, 1998)

## **Study and Participant Characteristics**

### ***Author, Year and Location***

The year of publication ranged from 2001 to 2019. In total, 20 peer-reviewed journal articles and two unpublished theses conducted in the United Kingdom (UK) ( $n = 17$ ), Italy ( $n = 2$ ), Spain ( $n = 1$ ) and across both UK and Portugal ( $n = 2$ ) were included.

### ***Sample Characteristics***

Samples ranged from 22 to 663 participants with a median sample size of 70. Of the total  $N = 3,912$  participants,  $n = 2,287$  identified as female (58%) with one study recruiting a female-only sample. Two studies did not report the mean age of the sample, however the mean age of participants from the remaining studies was 34.1 years. Only five studies reported the ethnicity breakdown of their sample, of which four had over 80% white participants.

Eleven studies recruited both clinical and nonclinical participants, six studies recruited a purely clinical sample, and five studies recruited a purely nonclinical sample. In studies with both clinical and nonclinical participants,  $n = 394$  participants had a diagnosis of a psychotic disorder (e.g., Schizophrenia, Schizoaffective disorder, Delusional disorder) and were experiencing persecutory delusions,  $n = 1,151$  were nonclinical healthy controls,  $n = 117$  were considered ultra-high risk for psychosis (ARMS),  $n = 91$  were non-paranoid depressed controls,  $n = 86$  were in remission of a psychotic diagnosis and  $n = 20$  were both clinically paranoid and depressed. In the six purely clinical studies,  $n = 276$  had a diagnosis of a psychotic disorder and were currently experiencing paranoid delusions, and in the five purely nonclinical studies,  $n = 1,777$  were adults recruited from the general population.

### ***Design and Methodology***

**Design.** Seventeen studies used a cross-sectional design, and five studies used a longitudinal design. Two of the longitudinal studies used an experience sampling method (ESM, Hektner, Schmidt, & Csikszentmihalyi, 2007) which required participants to complete the measures of interest 10 times a day on six consecutive days. The use of repeated measures designs was to assess for stability and malleability of deservedness and

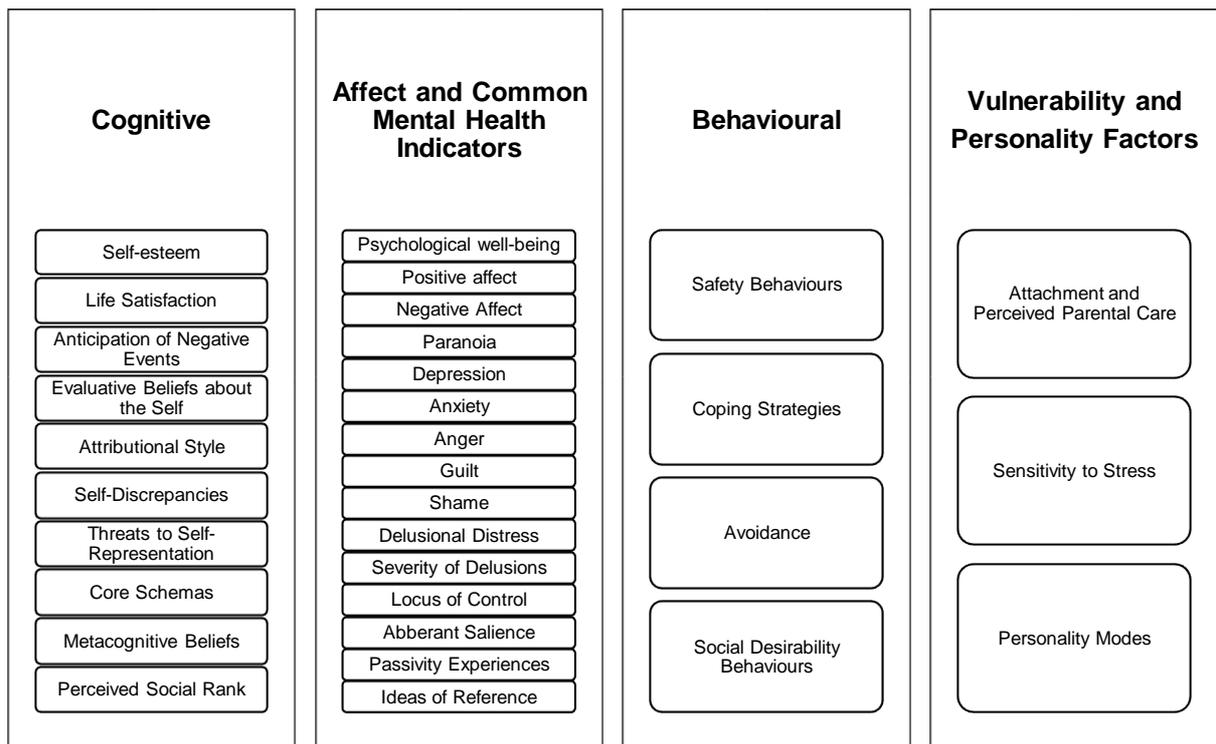
psychological constructs as well as temporal relationships between constructs, which were not of interest by the current review.

**Deservedness Measurement.** The majority of studies ( $n = 16$ ) measured deservedness continuously, using either the PaDS-Deservedness subscale (PaDS-D, Melo, Corcoran, Shryane, & Bentall, 2009) ( $n = 14$ ) or the Perceived Deservingness of Persecution scale (Melo et al., 2006) ( $n = 2$ ). A range of cut-offs were used to divide participants into subgroups. Four studies used the PaDS-D median score (Brock, Rowse, & Slade, 2016; Neubert, 2012; Pickering, Simpson, & Bentall, 2008; Udachina et al., 2012), and two used “points of rarity” in PaDS-D scores (Gray, 2009; Melo & Bentall, 2012). Moutoussis, El-Deredy and Bentall (2015) used PaDS-D cut-offs suggested by Melo et al. (2009) and two studies did not describe their criterion (Melo et al., 2006; Serrone et al., 2018).

Six studies assigned participants to a deservedness subgroup without using a continuous measure. The most common method was by conducting interviews with participants, eliciting information about the content of persecutory delusions to ascertain deservedness severity (Fornells-Ambrojo & Garety, 2009; Freeman et al., 2001; Morris et al., 2011; Startup et al., 2003). Less commonly, referring clinicians were asked to base their judgement on their knowledge of the content of participants’ persecutory delusions (Chadwick et al., 2005) or scores from items of the Evaluative Beliefs Scale (Chadwick et al., 1999) were used (Marley, Jones, & Jones, 2017).

### ***Psychological Variables***

Thirty-two psychological variables were investigated in relation to deservedness in the 22 studies. These variables were grouped into four broad categories: (a) cognitive; (b) affect and common mental health indicators; (c) behavioural, and (d) vulnerability and personality factors, as shown in Figure 2.



**Figure 2**

*Psychological Variables Explored in Relation to Deservedness*

The most common psychological variables explored in relation to deservedness were depression ( $n = 16$ ), self-esteem ( $n = 14$ ), and paranoia ( $n = 9$ ). Sixteen variables were explored by a single study each. The majority of variables were measured using validated self-report questionnaires with the exception of three task-based measures for anticipation of negative events, attributional style and avoidance of self-discrepant attributes (Bentall et al., 2008; Fornells-ambrojo & Garety, 2009; Moutoussis et al., 2015). Some studies included measures designed for the study which had not been validated, as indicated in Table 2.

**Quality Assessment of Studies**

The global and domain quality ratings of the studies are shown in Table 3 below. Eleven studies were assessed globally as “moderate”, six as “strong” and five as “weak”. The most common areas of weakness across studies were susceptibility to selection bias and confounding variables. Seven studies received a “weak” rating for selection bias as their samples were self-referred, and only seven studies reported the percentage of participants

who agreed to participate, which ranged from 50% (Moutoussis et al., 2015) to 87% (Freeman et al., 2001). Controlling for confounds was generally an area of strength apart from seven studies which received a “weak” rating for lacking reference to confounds or for failing to control for the majority of confounds. Data collection methods were also generally an area of strength apart from seven studies which received “weak” ratings for using their own psychometric scales without referencing validity or reliability. With regards to withdrawals and dropouts, most studies received a “moderate” rating because they employed a cross-sectional design, where dropouts are not relevant. Of the four studies which used longitudinal designs, completion rates varied greatly from 32% (Brock et al., 2016) to 83% (Udachina et al., 2012).

**Table 3***Quality Assessment of Studies*

First author, Year	Selection bias	Confounders	Data Collection Methods	Withdrawals and Dropouts	Global Rating
Asensio-Aguerri et al. (2019)	Moderate	Strong	Strong	Moderate	Strong
Bentall et al. (2008)	Moderate	Strong	Strong	Moderate	Strong
Brock et al. (2016)	Weak	Weak	Strong	Weak	Weak
Chadwick et al. (2005)	Weak	Weak	Strong	Moderate	Weak
Fornells-Ambrojo et al. (2009)	Moderate	Strong	Moderate	Moderate	Moderate
Freeman et al. (2001)	Moderate	Moderate	Strong	Moderate	Strong
Gray (2009)	Moderate	Strong	Strong	Moderate	Strong
Marley et al. (2017)	Moderate	Weak	Strong	Moderate	Moderate
Melo et al. (2006)	Moderate	Weak	Weak	Weak	Weak
Melo et al. (2009)	Weak	Strong	Strong	Moderate	Moderate
Melo et al. (2010)	Weak	Moderate	Strong	Moderate	Moderate
Melo et al. (2012)	Weak	Strong	Weak	Strong	Weak
Morris et al. (2011)	Moderate	Strong	Strong	Moderate	Strong
Morrison et al. (2015)	Moderate	Weak	Strong	Moderate	Moderate
Moutoussis et al. (2015)	Weak	Strong	Weak	Moderate	Weak
Neubert (2012)	Weak	Strong	Moderate	Moderate	Moderate
Pacitti et al. (2019)	Strong	Weak	Strong	Moderate	Moderate
Pickering et al. (2008)	Weak	Strong	Strong	Moderate	Moderate
Serrone et al. (2018)	Moderate	Strong	Strong	Moderate	Strong
Startup et al. (2003)	Moderate	Weak	Strong	Moderate	Moderate
Udachina et al. (2012)	Moderate	Strong	Strong	Strong	Strong
Udachina et al. (2017)	Moderate	Strong	Moderate	Moderate	Moderate

## Main Findings from the Data Synthesis: Relationships Between Psychological Variables and Deservedness

### *Cognitive Variables*

**Self-Esteem.** Two out of three studies showed negative relationships between self-esteem and deservedness in clinical participants (Melo & Bentall, 2012; Udachina et al.,

2012), and a weaker quality study found no relationship in their mixed sample (Melo & Bentall, 2012). In nonclinical samples, one study found an inverse correlation between self-esteem and deservedness (Pickering et al., 2008) however one study found no correlation (Neubert, 2012). Pickering et al. (2008) also found that self-esteem remained a significant predictor of deservedness with hallucination severity, anxiety and paranoia controlled for. Group comparisons showed a clearer pattern. Four studies found lower self-esteem in both PM/BM groups compared to healthy controls and remitted participants (Marley et al., 2017; Melo & Bentall, 2012; Udachina et al., 2012; Udachina, Bentall, Varese, & Rowse, 2017), and three studies found lower self-esteem in BM compared to PM groups (Chadwick et al., 2005; Udachina et al., 2012; Udachina et al., 2017). Similarly, Freeman et al. (2001) found lower self-esteem in “deserved” compared to “undeserved” or “maybe deserved” groups. Serrone et al. (2018) also found a difference in self-esteem between PM and BM groups but did not report the direction of effect. Contrary to the above, one study found no difference in self-esteem between PM and healthy controls (Fornells-Ambrojo & Garety, 2009) and a weak quality study found no difference between BM/PM groups (Melo & Bentall, 2012).

**Negative Self-Esteem (NSE).** Positive relationships between deservedness and NSE were found in two clinical and two nonclinical samples (Bentall et al., 2008; Brock et al., 2016; Pickering et al., 2008; Udachina et al., 2012). In support of this, two studies found higher NSE in BM compared to healthy controls and remitted groups (Gray, 2009; Udachina et al., 2012) however only one study showed higher NSE in PM compared to healthy controls (Udachina et al., 2012). Contradictions were present in PM/BM comparisons, with two studies finding no differences in clinical samples (Gray, 2009; Udachina et al., 2012) and one nonclinical study showing higher NSE in BM compared to PM groups (Neubert, 2012). Neubert (2012) also found NSE was an independent predictor above other demographic and affective variables.

**Positive Self-Esteem (PSE).** Four studies showed negative relationships between deservedness and PSE in nonclinical and mixed samples (Brock et al., 2016; Neubert, 2012; Pickering et al., 2008; Udachina et al., 2012), with the largest effect found in a study with

poorer quality (Brock et al., 2016). In line with this, two studies found lower PSE in BM groups compared to healthy controls (Gray, 2009; Udachina et al., 2012), and remitted groups (Udachina et al., 2012). Three studies found no differences in PSE between PM/BM groups (Bentall et al., 2008; Gray, 2009; Udachina et al., 2012), however, a difference of small magnitude was found in one nonclinical study with BM groups showing poorest PSE (Neubert, 2012).

**Anticipation of Negative Events.** Using the same measure, Bentall et al. (2008) found no relationship between deservedness and recall of past and future negative events in their clinical sample, however Pickering et al. (2008), where issues with selection bias were present, found positive relationships in their nonclinical sample.

**Evaluative Beliefs about the Self.** Compared to healthy controls, both BM/PM groups showed more negative evaluations of others and more negative other-to-self evaluations (Marley et al., 2017). Clinical samples also showed elevated negative self-evaluation in BM groups and heightened negative evaluation of others in PM groups (Chadwick et al., 2005; Marley et al., 2017). The studies contradicted in other-to-self evaluations between BM/PM groups, however the higher quality study found more negative other-to-self evaluations in BM groups.

**Attributional Style.** Two studies found no differences in self-serving biases (SSB) between BM/PM groups and healthy controls (Fornells-Ambrojo & Garety, 2009; Melo & Bentall, 2012), however the better-quality study found greater SSB and other-person-bias in PM compared to clinically depressed controls (Fornells-Ambrojo & Garety, 2009). No differences existed in other-person-bias and personalising bias between PM and remaining control groups (Fornells-Ambrojo & Garety, 2009).

In two weak quality studies, BM groups internalised negative events more than PM groups (Melo et al., 2006; Melo & Bentall, 2012), supported by a positive relationship between deservedness and internality of negative events (Melo et al., 2006). However, these studies found contradicting results in the remaining group comparisons on internality of negative events. Studies also showed greater internalising of positive events in BM

groups (Melo & Bentall, 2012) and greater globalness (the extent to which causes of negative events are seen as implicated in the occurrence of other events) in both BM and PM groups compared to healthy controls (Melo et al., 2006).

**Self-Discrepancies.** Group comparisons on views of the self and perceptions of others' view of oneself were highly inconsistent aside from two studies showing no differences between PM and healthy controls, and between BM/PM groups on self-actual-self-ideal (SASI) and self-actual-other-actual (SAOA) discrepancies (Gray, 2009; Melo & Bentall, 2012). With regards to valence of ratings, Gray (2009) found both BM/PM groups rated their parents view of themselves less positively than healthy controls. BM groups rated themselves more negatively than PM, and perceived others' view of themselves more negatively than healthy controls.

**Threats to Self-Representation.** Two studies found no differences between PM/BM groups on perceived threats to self-representation in the form of "insecure self" and "alienated self" using the same measure (Melo et al., 2006; Morris et al., 2011). However, the poorer quality study found greater frequency and endorsement of both threats in both PM/BM groups compared to healthy controls, apart from frequency of insecure threat levels between PM paranoid and healthy controls, of which there was no difference (Melo et al., 2006).

**Remaining Cognitive Variables.** Certain cognitive variables were explored in one study only. Deservedness correlated positively with core schemas (negative beliefs about the self and others, Morrison et al., 2015), and metacognitive beliefs (negative beliefs about uncontrollability of thoughts, need to control thoughts, cognitive self-consciousness, Morrison et al., 2015) but not with life satisfaction (Asensio-Aguerri et al., 2019) or negative and normalising beliefs about paranoia (Morrison et al., 2015).

### ***Affect and Common Mental Health Indicator Variables***

**Depression.** Studies consistently found positive relationships between depression and deservedness across samples (Bentall et al., 2008; Brock et al., 2016; Melo et al., 2006; Melo et al., 2009; Morrison et al., 2015; Neubert, 2012; Pacitti et al., 2019; Serrone et al.,

2018; Udachina et al., 2012), with mainly small effect sizes. This relationship was not found when *initial* (as opposed to *average*) deservedness was used (Melo et al., 2006). In one study, the relationship between depression and deservedness became nonsignificant after controlling for coping responses (Melo & Bentall, 2010).

In line with the positive associations, studies consistently showed greater depression levels in BM groups compared to PM (Chadwick et al., 2005; Freeman et al., 2001; Marley et al., 2017; Melo et al., 2006; Morris et al., 2011; Udachina et al., 2012) and remitted groups (Udachina et al., 2012). BM/PM groups generally showed elevated depression compared to healthy controls (Marley et al., 2017; Melo et al., 2006; Udachina et al., 2012) and unsurprisingly, one study found PM groups showed lower depression than clinically depressed but not healthy controls (Fornells-Ambrojo & Garety, 2009). Interestingly, Udachina et al. (2012) found greater depression in BM compared to PM groups on the ESM depression measure, but not Beck's Depression Inventory for Primary Care measure (Beck et al., 1997).

**Paranoia.** Five out of seven studies found a positive relationship between paranoia and deservedness in nonclinical, mixed, ARMS and clinical samples (Melo et al., 2009; Morrison et al., 2015; Neubert, 2012; Pacitti et al., 2019; Pickering et al., 2008; Udachina et al., 2012). Studies found greater paranoia in PM/BM groups compared to healthy controls and remitted groups (Melo & Bentall, 2012; Udachina et al., 2012; Udachina et al., 2017), and no differences between PM/BM groups on paranoia severity (Melo & Bentall, 2012; Udachina et al., 2012) in clinical samples. In nonclinical samples, BM groups showed greater paranoia severity than PM groups (Neubert, 2012; Pickering et al., 2008).

**Positive Affect.** Using two different measures of positive affect, Asensio-Aguerri et al. (2019) found no relationship between deservedness and positive affect in their clinical sample, whereas Udachina et al. (2017) found reduced positive affect in PM/BM groups compared to healthy controls and remitted groups.

**Anxiety.** Three studies found positive relationships between anxiety and deservedness in nonclinical and ARMS samples (Brock et al., 2016; Morrison et al., 2015;

Neubert, 2012), however in one study anxiety became a nonsignificant predictor of deservedness when paranoia scores were controlled for (Neubert, 2012). In line with the positive associations, Chadwick et al. (2005) found greater anxiety in BM compared to PM groups, and Fornells-Ambrojo and Garety (2009) found heightened anxiety in PM groups compared to healthy controls, but not non-psychotic depressed controls. Contrary to the above correlational findings, one study did not find a difference in anxiety levels between “deserved”, “undeserved” and “maybe deserved” groups (Freeman et al., 2001).

**Anger.** Two studies (Chadwick et al., 2005; Freeman et al., 2001) showed no differences in anger between high and low deservedness groups using the trait subscale of the Spielberg Trait Anger Expression Inventory (Spielberger, 1988), whereas Fornells-Ambrojo and Garety (2009) found higher anger in PM compared to healthy controls, but not clinically depressed controls.

**Severity of Delusions.** Findings were mixed with regards to severity of delusions. Pickering et al. (2008) found a positive relationship between deservedness and hallucinations in a nonclinical sample however Pacitti et al. (2019) found no relationship with hallucination severity in their clinical sample. A study of stronger quality found fewer positive psychotic symptoms in BM than PM groups (Morris et al., 2011).

**Remaining Affect and Common Mental Health Indicator Variables.** Of the variables explored in a single study, BM groups showed higher levels of shame (Morris et al., 2011) and negative affect compared to PM groups (Udachina et al., 2017). Both PM/BM groups showed greater shame than controls (Udachina et al., 2017). PM groups showed lower state and trait guilt compared to clinically depressed but not healthy controls (Fornells-Ambrojo & Garety, 2009). Deservedness was also negatively associated with perceived social rank (Neubert, 2012) and overall wellbeing (Asensio-Aguerri et al., 2019).

With regards to delusions, deservedness was positively associated with increased perception of powerfulness of others (locus of control) (Pickering et al., 2008), but not the experience of aberrant salience (Serrone et al., 2018), or reports of ideas of reference in their psychotic episode (Startup et al., 2003). All deservedness groups showed similar levels

of emotional distress associated with delusions (Freeman et al., 2001), however deserved groups were more likely to use passivity experiences as evidence of persecution (Startup et al., 2003).

### ***Behavioural Variables***

**Coping Behaviours.** Two studies did not find a relationship between deservedness and rumination coping styles in clinical and nonclinical samples (Melo & Bentall, 2010; Melo & Bentall, 2012) however Melo and Bentall (2010) found deservedness was associated with an increased use of engaging in dangerous activities, drug and alcohol use, and active coping, and decreased use of adaptive coping and positive reinterpretation and growth in their nonclinical sample.

**Remaining Behavioural Variables.** Those who thought they deserved persecution used more compliance safety behaviours (Freeman et al., 2001) and both BM/PM groups showed greater experiential avoidance of unwanted internal representations compared to healthy controls (Moutoussis et al., 2015). No differences were found between BM/PM groups on avoidance of negative attributes of the self or social desirability behaviours (Moutoussis et al., 2015).

### ***Vulnerability and Personality Factors***

**Attachment and Perceived Parental Care.** In a weaker quality study, Melo et al. (2006) found PM groups felt less cared for by their mothers compared to healthy controls, however no differences between PM/BM and controls groups on any other scales. In contrast, Morris et al. (2011) found BM groups reported greater overprotection from carers compared to PM groups in their clinical sample. In a nonclinical sample, PM and BM groups were more likely to have fearful avoidant attachment styles, and deservedness was found to be positively associated with attachment anxiety and attachment avoidance (Pickering et al., 2008).

**Remaining Vulnerability and Personality Variables.** There was no relationship between deservedness and personality when measured continually, however both BM/PM groups showed greater endorsement of sociotrophic personality modes and PM groups also

endorsed autonomy personality modes more often (Melo et al., 2006). BM groups showed greater sensitivity to social and activity stress compared to healthy controls and remitted groups, whereas PM groups only showed greater sensitivity to social stress than controls (Udachina et al., 2017)

## **Discussion**

The current systematic review aimed to summarise clinical and nonclinical paranoia studies which have explored psychological factors in relation to beliefs regarding deservedness of persecution, or PM/BM paranoia. It also aimed to summarise how PM/BM paranoia groups and controls differed on psychological variables. The review identified 22 studies which measured direct relationships between deservedness and 32 psychological variables, which were grouped into four categories: (a) cognitive; (b) affect and common mental health indicators; (c) behavioural; and (d) vulnerability and personality factors. It was hoped that synthesising these findings would add to the existing understanding of deservedness as a distinct aspect of paranoid thought content whilst highlighting implications for existing theories, future research and clinical practice.

### **Summary of Evidence**

#### ***Which Psychological Variables are Associated with Deservedness in Clinical and Nonclinical Populations?***

With regards to cognitive psychological variables, the most convincing evidence currently exists in support of relationships between deservedness and low self-esteem, high NSE and low PSE. This existed in clinical and nonclinical samples and were predominantly all medium effect sizes. There was preliminary evidence of a relationship between anticipation of negative events and deservedness in nonclinical, but not clinical samples, however these were only explored by one study each and therefore should be viewed with caution. Positive relationships between deservedness and internality of negative events, negative core schemas and negative metacognitive beliefs, and a lack of a relationship with life satisfaction or beliefs about paranoia also need further corroboration as they only appeared in one study, some of which were weak in quality.

With regards to affective variables, there was considerable evidence of positive relationships between deservedness and depression (larger effects found in clinical and remitted samples and with use of ESM measures) and paranoia across clinical and nonclinical samples. Closer inspection revealed that studies which did not find a relationship with paranoia had used Fenigstein's Paranoia Scale (Fenigstein & Venable, 1992). Deservedness correlated positively with delusion severity and anxiety in nonclinical samples only, however anxiety was no longer a significant predictor when paranoia scores were controlled for, which may be due to links between anxiety and paranoia (Freeman & Fowler, 2009; Lincoln, Lange, Burau, Exner, & Moritz, 2010).

With respect to behavioural, vulnerability and personality variables, there was more convincing evidence of the lack of a relationship between deservedness and rumination across clinical and nonclinical samples, whereas positive relationships between deservedness and maladaptive coping behaviours (e.g., drug and alcohol use), attachment anxiety and attachment avoidance are currently only evidenced in one nonclinical study each, requiring further validation.

### ***Do Individuals with PM and BM paranoia Differ from Clinical and Nonclinical Controls on Psychological Variables?***

With regards to cognitive variables, there was substantial evidence that both BM/PM groups had lower global self-esteem compared to healthy controls and remitted groups (medium and large effects), with BM groups generally showing poorest self-esteem. BM/PM groups did not differ on PSE or NSE in two high quality studies, however sample sizes were small, and analyses were likely underpowered as a result. A difference of small magnitude was present in a nonclinical sample (BM showing greater NSE and poorer PSE than PM groups), suggesting a potential difference between clinical and nonclinical groups. There was more convincing evidence of higher NSE, and lower PSE in BM groups compared to control groups.

BM/PM groups did not differ in threats to self-representation, however showed greater threats to self-representation and more negative self-evaluations compared to controls.

Additionally, there was consistent evidence of different evaluative beliefs between PM/BM groups (heightened negative self-evaluation in BM and evaluation of others in PM), but studies contradicted in other-to-self evaluations. Studies on attributional styles and self-discrepancies (views of the self and how others perceive the self) were inconsistent in findings, though this may be due to weaker quality appraisal and use of different measures. Interestingly, PM/BM groups did not differ on direct measures of self-serving bias, however when exploring the extent to which groups internalise positive and negative events, BM groups internalised negative events more. Therefore, PM/BM groups consistently reported poorer results on cognitive measures compared to control groups, and generally did not differ from one another apart from self-esteem, negative self-evaluations and the degree to which negative events were internalised.

When considering emotional well-being, both BM/PM groups consistently reported worse outcomes compared to controls, with most support for elevated depression and paranoia severity. PM/BM groups did not differ on paranoia severity or anger however BM groups consistently showed higher depression levels than PM groups. Initial evidence of greater anger in PM groups compared to controls was present however group comparisons on anxiety levels and delusional severity were difficult to compare due to different study designs. The remaining 10 affect and mental health indicator variables explored once showed a similar pattern of deservedness being associated with more negative emotional experiences (e.g., shame, guilt, negative affect). Therefore, research on emotion measures aside from depression and paranoia is very much in its infancy but the findings suggest further exploration is warranted.

Finally, with respect to behavioural, vulnerability and personality variables, PM/BM groups did not differ on avoidance of negative self attributes or social desirability behaviours however both groups showed greater experiential avoidance of unwanted internal representations compared to controls. There was also initial evidence that higher deservedness groups used more compliance safety behaviours. Study results on attachment and early care experiences were inconsistent, however it is important to note that all three

studies used different measures of early experiences and differed in quality appraisal.

Clearly further studies are required to elucidate the nature of these relationships, as well as exploring personality modes and sensitivity to stress which have only been investigated in a single study.

### **Findings in Context of Existing Evidence and Theory**

The current review showed that beliefs regarding deservedness of persecution, a dimension of paranoid experience, has been found in both clinical and nonclinical populations. This adds to the convincing evidence of paranoid experiences in nonclinical samples (Bebbington et al., 2013; Ellett et al., 2003; Freeman et al., 2005, 2019) and the continuum of psychotic experience (Strauss, 1969). Furthermore, there was considerable evidence of relationships between deservedness and negative affect outcomes existing across both clinical and nonclinical populations. This supports that nonclinical levels of paranoid thinking are significantly distressing (Ellett et al., 2003; Freeman et al., 2011).

Studies in the current review aimed to explore the distinct cognitive-developmental formulations of PM/BM paranoia proposed by Trower and Chadwick (1995). Theoretically, it was hypothesised that BM/PM groups experienced one of two types of threats to their self-construction process (insecure or alienated) and consequently responded with dysfunctional paranoid defences with specific cognitive, emotional and behavioural patterns. With regards to cognitive variables, the current review found no evidence of BM/PM groups endorsing different threats to self-construction. BM groups were however found to “hold strong negative self-evaluations and blame himself for behaving badly” (Trower & Chadwick, 1995, p.266), supported by strong evidence of greater internalising of negative events and negative self-evaluation in these groups. PM groups on the other hand, showed greater negative evaluation of others, in line with predictions that individuals with this type of paranoia reject persecution as unjustified and condemn others (Chadwick, Birchwood & Trower, 1996). Other cognitive predictions on differences in SASI discrepancies and self-serving attributional biases were not well supported, however this may have been confounded by the poor quality of these studies.

The notion that BM/PM groups have different emotional experiences was better supported. BM groups showed exceptionally poor self-esteem, elevated depression, and anxiety compared to PM groups, supporting Trower and Chadwick's (1995) clinical experiences. However, differences in shame, anger and guilt still need further clarification. Finally, with regards to behavioural patterns, the review found some evidence of BM groups using more compliance safety behaviours, but PM/BM groups did not differ on other types of avoidance measures. Therefore, the authors notion that BM groups would "conceal the bad self" (Trower & Chadwick, 1995, p.271) and be highly avoidant was only partly supported. Similarly, whilst preliminary support was available for the relationship between attachment styles and deservedness, studies have not yet directly compared PM/BM groups and therefore this evidence is lacking.

In conclusion, whilst there are clear differences in the emotional presentation of individuals who hold PM (low levels of deservedness) and BM (high levels of deservedness) beliefs, there is currently insufficient empirical evidence to suggest two different causal mechanisms as originally proposed by Trower and Chadwick (1995). However, as the reviewed studies uniformly indicate that higher perceived deservedness was associated with low self-esteem, negative schemas and elevated depression, both Bentall et al.'s (2001) and Freeman et al.'s (2002) conceptualisations of paranoia remain theoretical possibilities. Several lines of further research are indicated by the current findings. Future research using experimental and longitudinal designs are necessary to determine if deservedness attributions are important in *determining or being determined by* these cognitive and emotional states. Additionally, a better understanding of which psychological processes maintain deservedness is warranted. As there is some indication that perceived deservedness is unstable over time (Melo et al., 2006; Udachina et al., 2012), longitudinal investigations are required to determine which, if any of the psychological processes associated with paranoia shift alongside deservedness beliefs. Instability of self-esteem has been consistently associated with paranoia (Kesting & Lincoln, 2013) and only studied in relation to PM/BM beliefs in one previous study (Udachina et al., 2012), requiring replication.

Studies in the review mostly used the PaDS-D measure (Melo et al., 2009), which has not yet been validated as the first of its kind. Despite its frequent use to divide samples into PM/BM groups, Trower and Chadwick (1995) did not claim that all patients with paranoia are either PM/BM, or that PM/BM paranoia could be distilled into a single measure of deservedness of persecution. Future research should further evaluate the PADS-D measure and other tools used by empirical studies in the current review to the reliability of PM/BM group categorisations. This may provide further clarity to some of the inconsistent findings highlighted in the current review.

### **Clinical Implications**

The review poses some interesting clinical implications, as it suggests that assessments of paranoid experiences should include an examination of deservedness. When formulating the development and maintenance of paranoid delusions, it would be important to assess for links between deservedness and the relevant cognitive, emotional, behavioural and vulnerability/personality factors outlined in the current review. Discussing these links, for example between beliefs regarding deservedness of persecution and feeling low in mood, may have the benefit of being empathic, normalising and provide suggestions for mechanisms of change.

Additionally, given the associations observed between negative emotions and high deservedness, treatment of anxiety and depression in their own right may have beneficial effects. Worry interventions which have been found to reduce both worry and persecutory delusions (Foster, Startup, Potts, & Freeman, 2010; Freeman et al., 2015) may also reduce deservedness. Similarly, interventions aimed to improve self-esteem in people with psychosis (Hall & Tarrrier, 2003; Freeman et al., 2014) and therapeutic strategies for working negative thoughts about the self may prove useful for this group. Techniques from Person-Based Cognitive Therapy (Chadwick, 2006) which target negative schemata about the self and others using mindfulness and techniques from Cognitive Behavioural Therapy may be helpful for BM/PM paranoia. Furthermore, with acknowledgment that deservedness has been studied less frequently in ARMS samples, the current findings suggest that at-risk

individuals may benefit from support with negative core schemas, metacognitive beliefs about paranoia, low mood and anxiety.

## **Strengths and Limitations**

### ***Review of The Included Studies***

The current review highlighted that the majority of empirical studies were of moderate quality. However, selection of measures and controlling confounds were problematic or not reported in under half the studies. Furthermore, power calculations were not reported in most studies, with sample sizes in group comparisons being as low as  $n = 5$  per group (Freeman et al., 2001). This may explain why some studies found no significant differences between PM and BM groups on NSE, for example, despite an overall positive correlation between deservedness and NSE with a large effect (Udachina et al., 2012). Therefore, these findings may indicate increased risk of Type II error. Although omitting reference to these methodological details may reflect word count limitations set by publication journals (Fox, Paine, & Sauterey, 2016), it has severe implications in interpretation of results. Future deservedness studies aiming to clarify inconsistencies or address gaps in the literature could improve on these methodological concerns by: (a) ensuring measures have adequate reliability and validity, especially if designed for the study; (b) ensuring analyses are sufficiently powered to detect the presence of an effect; and (c) controlling for variables known to affect deservedness. Future deservedness studies could also consider incorporating clinician-rated measures in addition to self-report psychometric measures, to reduce effects of social desirability bias. Including clinician and self-reported measures of deservedness or PM/BM paranoia would also address issues with the validity of the deservedness measure outlined above.

Finally, the majority of studies used White British samples, which limits the generalisability of the study findings to non-white and non-western populations. Future research should prioritise recruiting more ethnically and culturally diverse samples in order to ensure that literature on deservedness includes experiences of ethnic minorities. This is especially important as studies have consistently confirmed high rates of psychosis in

African-Caribbean populations in the UK (Mandy, Hutchinson, Murray, & McKenzie, 2001), and among immigrant groups globally (Cantor-Graae & Selten, 2005).

### ***Strengths and Limitations of This Review***

The current systematic review had several key strengths. It was the first to systematically analyse and synthesise the existing deservedness literature in clinical and nonclinical populations using a broad research question and search strategy, which enabled a comprehensive review. Furthermore, searching grey literature minimised risk of publication bias and increased the likelihood that the review was representative of existing deservedness literature. The use of a second reviewer on a selection of studies in the abstract, full-paper review and quality appraisal minimised risk of researcher bias and methodological errors. Finally, the inclusion of sample bias-corrected effect sizes enabled fairer comparison of individual findings.

There were also several limitations in the current review, including the exclusion of non-English studies which increased the risk of bias in the findings. Future research should include non-English and qualitative findings to increase validity and enable a better understanding of PM/BM paranoia beyond deservedness severity, as was originally proposed by Trower and Chadwick (1995). Another limitation of the current review was that heterogeneity of studies made it difficult to draw firm conclusions on relationships between psychological factors and deservedness. Finally, although modifications were made to the quality assessment tool, the QATQS does not assess for other factors likely to be important to overall research quality, such as statistical power.

### **Conclusion**

In conclusion, the review synthesised the current quantitative evidence on psychological factors related to deservedness, contributing to a better understanding of the deservedness element of Poor Me/Bad Me paranoia. Deservedness, like other dimensions of paranoia, was related to poorer wellbeing, including increased depression and paranoia severity, anxiety, and poor self-esteem. While there is currently only partial support for Trower and Chadwick's (1995) conceptualisation of PM/BM paranoia, the findings

nevertheless suggest deservedness is an important construct which warrants further empirical attention in both clinical and nonclinical samples. Future research using experimental methodology will establish causal relationships between deservedness and psychological factors, to inform the theoretical understanding of deservedness and support the development of targeted clinical interventions.

### **Chapter III: Empirical Study: Interpersonal Transgressions, Paranoia and Forgiveness**

#### **Abstract**

Paranoia is characterised by beliefs that others intend to cause harm, and central to this belief is that paranoia necessitates another person or group. Despite this, experimental studies investigating paranoia have not considered how characteristics of the person intending harm (the transgressor) can impact state paranoia, and other related variables such as deservedness and forgiveness. More specifically, it is unknown if the group status of a transgressor (ingroup or outgroup) influences the immediate impact of a transgression within a live interpersonal context. Therefore, the Prisoner's Dilemma Game (PDG) was used to examine the effect of interpersonal transgressions committed by ingroup and outgroup members on state paranoia, state forgiveness and beliefs regarding deservedness of persecution. Using a virtual platform, British participants ( $N = 129$ ) completed baseline measures of trait paranoia, trait forgiveness and level of nationality identification before being randomly assigned to one of two conditions: ingroup (British nationality) or outgroup opponent status (Polish nationality). All participants experienced an interpersonal transgression operationalised as an opponent breaking a pre-agreement to cooperate. Unbeknownst to the participants, these were pre-programmed opponents disguised as real players. Consistent with our expectations, participants in the ingroup condition reported significantly higher levels of deservedness than participants in the outgroup condition. In contrast, no differences were seen with regards to state paranoia or forgiveness. With consideration of the limitations of the study, the findings suggest that characteristics of the persecutor may be an important avenue for further research on deservedness.

## Introduction

Persecutory delusions are characterised by a belief, held with a high degree of conviction and certainty that others are intentionally trying to cause one harm (Freeman, 2016; Freeman & Garety, 2000). These delusions are experienced by up to 90% of individuals with a psychotic disorder (Coid et al., 2013; Moutoussis, Williams, Dayan, & Bentall, 2007), and to a lesser degree by individuals with non-psychotic mental health diagnoses including depression (Johnson, Horwath, & Weissman, 1991; Salokangas et al., 2015), post-traumatic stress disorder (Butler, Mueser, Sprock, & Braff, 1996; Norredam, Jensen, & Ekstrøm, 2010; Rathke, Poulsen, Carlsson, & Palic, 2020), and bipolar disorder (Goodwin, 2016). Increasingly, it has been recognised that psychotic symptoms can be better understood as existing on a continuum with normal experience (Freeman, 2007; Freeman & Garety, 2014; Strauss, 1969; van Os & Verdaux, 2003). Within the continuum model of psychotic symptoms, paranoid experiences range from milder suspicions about others' intentions to severe psychotic symptoms in the form of persecutory delusions (Freeman, 2007), and are present in the general population without diagnosable disorders (Nuevo et al., 2012). In support of this, paranoid thoughts have been found in nonclinical populations with prevalence rates ranging from 15-30% (Bebbington et al., 2013; Ellett et al., 2003; Freeman et al., 2005, 2019). A hierarchy of paranoid ideation has been suggested where more severe persecutory ideation builds upon interpersonal worry, mistrust and ideas of reference (Bebbington et al., 2013; Freeman et al., 2005).

Nonclinical paranoid symptoms are predictive of an increased likelihood of development of psychosis (van Os et al., 2000; Poulton et al., 2000; Rössler et al., 2015). Additionally, there is strong evidence that factors associated with paranoid thinking are similar in both clinical and nonclinical populations, including experiences of childhood trauma (Reininghaus et al., 2016) and attachment disruptions (Bentall, Wickham, Shevlin, & Varese, 2012). Therefore, studying paranoid thinking in non-clinical populations could inform the understanding of more severe forms of the phenomena and have significant implications in preventing the development of more severe paranoid experiences (Freeman, 2007).

Additionally, nonclinical levels of paranoid thinking are persistent (Allen-Crooks & Ellett, 2014), distressing and preoccupying (Ellett et al., 2003; Freeman et al., 2011), associated with anxiety and depression (Freeman et al., 2013) and reduced work, family and social functioning (Olfson et al., 2002). Therefore, research into nonclinical paranoia is justified in its own right. It may also be preferred due to the reduced influence of confounding factors such as medication use and comorbidity of secondary illnesses (David, 2010).

### **Perceived Deservedness of Persecution**

Paranoia is a complex and multidimensional phenomenon with significant individual variability in dimensions of delusional experience (e.g., content, level of conviction, resistance to change, level of distress) (Ellett et al., 2003; Freeman, 2007). An aspect of paranoid thought content which has gained attention in recent years concerns *perceived deservedness of persecution*, relating to the degree to which individuals believe they deserve maltreatment by others. This was originally described by Trower and Chadwick (1995) in relation to two hypothesised subtypes of paranoia, *Poor Me* (PM paranoia) and *Bad Me* paranoia (BM paranoia), whereby individuals with clinical levels of paranoia were found to either *reject* malevolence from others as *undeserved* (PM paranoia) or *passively accept* malevolence from others as *deserved* (BM paranoia). Deservedness beliefs have been reported across the continuum of paranoia, showing consistent evidence that individuals with BM paranoia (high levels of deservedness) report greater depression, shame, anxiety, and exceptionally low self-esteem (Chadwick et al., 2005; Freeman et al., 2001; Morris et al., 2011; Trower & Chadwick, 1995). Contrastingly, individuals with PM paranoia (low levels of deservedness) show a somewhat reverse emotional profile to BM paranoia, with notably preserved self-esteem. Nonclinical deservedness has been associated with depression, anxiety, delusion severity, poor self-esteem and increased use of maladaptive coping strategies (Brock et al., 2016; Melo et al., 2010; Neubert, 2012; Pickering et al., 2008; Serrone et al., 2018).

Although Trower and Chadwick's (1995) original conceptualisation of PM/BM paranoia as two subtypes of paranoia with separate causal mechanisms has been criticised

for a lack of empirical evidence, associations between deservedness and poorer well-being across the paranoia spectrum provide justification for further investigation of this dimension of paranoid thought content. Crucially, the systematic review highlighted that despite the high level of associated emotional distress, there is a paucity of experimental studies examining factors causally related to deservedness attributions. Furthermore, empirical studies have largely examined deservedness attributions in relation to intrapersonal factors such as self-esteem or depression, and no empirical studies have examined the role of interpersonal factors in deservedness beliefs. This is surprising as deservedness attributions regard beliefs regarding maltreatment by *others*, and therefore interpersonal processes may be implicated as in paranoia more broadly.

### **Interpersonal Processes in Paranoia**

Paranoia has been largely investigated using psychometric measures or tests measuring cognitive biases, reflecting the common focus on individual processes involved in evaluating personal threat (Freeman & Garety, 2014). However, by its definition, paranoia necessitates involvement of another person or group. The centrality of interpersonal experiences in paranoia is supported by a body of evidence showing links between adverse childhood experiences and paranoia in adulthood (Sitko, Bentall, Shevlin, O'Sullivan, & Sellwood, 2014), including bullying (Bentall et al., 2012), physical abuse and neglect (Sitko et al., 2014), all of which involve negative interpersonal experiences with others. There is also evidence that those who hear voices have relationships with their voices which are similar to their social relationships in general (Birchwood, Meaden, Trower, Gilbert, & Plaistow, 2000). In line with this, interpersonal stress and sensitivity are key factors related to the onset and maintenance of paranoia in both clinical and nonclinical samples (Bebbington et al., 2013; Ellett et al., 2003; Miesel et al., 2018).

Experimental methods have also been used to demonstrate the importance of interpersonal experiences in nonclinical paranoia. The Prisoner's Dilemma Game (PDG) is an example of an experimental paradigm which has been used to show how heightened paranoia is only experienced when individuals believed they were competing against

another person, not a computer (Ellett, Allen-Crooks, Stevens, Wildschut, & Chadwick, 2013). The PDG has also been used to stimulate an interpersonal transgression which immediately elevates in the moment or *state* paranoia (Honeybourne-Ward, 2016). Collectively, these studies support that paranoia is by definition a problem of interpersonal experience (Boyd & Gumley, 2007) and that interpersonal transgressions are specifically implicated in paranoia. However, experimental research thus far has neglected to include closer inspection of how one's relationship with the individual who is believed to be intending harm, henceforth referred to as the *transgressor*, impacts paranoia.

### **Forgiveness and Paranoia**

It is surprising that few studies have explored the relationship between paranoia and forgiveness despite both concepts being interpersonal in nature and related to interpersonal transgressions. *Forgiveness*, defined as a positive or prosocial change in thoughts, emotions, motivations or behaviours towards a transgressor (McCullough, Pargament, & Thoresen, 2001; Worthington & Wade, 2019), can be an adaptive, prosocial process which prevents negative consequences of revenge-seeking (McCullough, 2000), and promotes both physical (Cheadle & Toussaint, 2015) and mental health (Griffin, Worthington, Laveock, Wade, & Hoyt, 2015). In line with this, qualitative research conducted with people with psychosis found that whilst certain conditions needed to be in place in order to forgive (e.g., an apology from the transgressor), forgiveness was associated with psychological and interpersonal benefits (Riches et al., 2020).

Given the high prevalence of trauma experiences, adverse life events and difficult social relationships in people with psychosis (Spauwen, Krabbendam, Lieb, Wittchen, & van Os, 2006; Varese et al., 2012), and increased risk of onset of psychotic disorders due to interpersonal stressors (van Os, Kenis, & Rutten, 2010), it would be helpful to gain a better understanding of factors predicting or impeding forgiveness of the person perceived to cause harm. Previous studies have found an inverse relationship between trait forgiveness and trait paranoia (Honeybourne-Ward, 2016; Tangney, Boone, Fee, & Reinsmith, 1999) and a moderating effect of trait forgiveness on state paranoia following an interpersonal

transgression (Honeybourne-Ward, 2016). This makes sense intuitively, as someone who is less forgiving of others may be more likely to feel threatened or suspicious after an interpersonal transgression. However, due to both paranoia and forgiveness being inherently interpersonal in nature, social processes may also be implicated.

### **Characteristics of the Transgressor**

Social psychological research has repeatedly shown the importance of self-definition and social relationships in shaping judgments, emotions and behavioural responses. Part of this self-definition is one's group membership and whether one categorises oneself and others as belonging to the same or different groups, as outlined by social identity theory (Tajfel, Billig, Bundy, & Flament, 1971). Cues that may lead to such identification range from minimal, apparently meaningless criteria (e.g., similar preference for paintings; Tajfel et al., 1971) to more meaningful personal characteristics (e.g., nationality, gender, political identity). In social identity theory, Tajfel and Turner (1979) propose that a person's need for positive self-identity may be satisfied by one's own accomplishments and membership in prestigious social groups, leading to a variety of biases that favourably distinguish the self from others, and ingroups from outgroups (see Gaertner, Dovidio, Guerra, Hehman & Saguy, 2016 for a review).

There is increasing neuroscientific evidence that individuals process information from ingroup and outgroup members differently (Baumgartner, Götte, Gügler & Fehr, 2012; Molenberghs & Louis, 2018). This is consistent with a growing body of evidence showing how transgressor group status (ingroup or outgroup member) influences the experience of transgressions or norm violations (Linke, 2012; Molenberghs, Gapp, Wang, Louis & Decety, 2014; Sommers & Ellsworth, 2000). Transgressions by outgroup members evoke stronger emotional reactions (Mendes, McCoy, Major & Blascovich, 2008; Wu, Yang, & Chiu, 2014) and punitive responses (Yudkin, Rothmund, Twardawski, Thalla & Van Bavel, 2016). Individuals also show greater attentiveness to threat and suspicion towards outgroup members more generally (Bhat, 2007; Combs et al., 2007) and develop more internal, self-blaming attributions following negative experiences with ingroup members (Mendes et al.,

2008; Williams, Cheung, & Choi, 2000). Forgiveness is also offered to ingroup perpetrators more commonly than to outgroup perpetrators (Otten, 2009; Van Tongeren et al., 2014). Collectively, these studies suggest that categorisation of a transgressor as an ingroup or outgroup member may concurrently influence how an individual feels about themselves (e.g., how deserving they feel of the maltreatment) and the person perceived to intend harm following a transgression (e.g., the level of paranoia and forgiveness felt towards the transgressor). This has not been explored in an experimental paradigm such as the PDG before where the immediate impact on state paranoia, forgiveness and deservedness can be investigated.

### **The Current Study**

As outlined above, there are several gaps in the experimental investigation of nonclinical paranoia in considering how an individual's relationship with their transgressor impacts the emotional response following an interpersonal transgression. To address this, the current study conducted an experimental investigation of how interpersonal transgressions by ingroup and outgroup members affect nonclinical paranoia, and related concepts of deservedness and forgiveness. The following hypotheses were predicted:

1. State paranoia will be higher following an interpersonal transgression in the PDG by an outgroup member compared to an ingroup member.
2. State forgiveness will be lower following an interpersonal transgression in the PDG by an outgroup member compared to an ingroup member.
3. Perceived deservedness of persecution will be lower following an interpersonal transgression in the PDG by an outgroup member compared to an ingroup member.

## **Method**

### **Design**

A between-subjects experimental design was used. Participants were randomly assigned to either the ingroup opponent status condition (experienced a transgression by a British opponent) or the outgroup opponent status condition (experienced a transgression by a Polish opponent). The main dependent variables were state paranoia, state forgiveness

and deservedness. Participants also made a choice to either cooperate or compete with their opponent in the game (Participant choice: cooperate, compete).

### ***Ingroup/Outgroup Manipulation***

Consistent with previous PDG studies (Yamagishi et al., 2005), a real social identity category of *nationality* was used to manipulate ingroup/outgroup opponent status. Results from the UK Public Opinion Towards Immigration report (Blinder & Richards, 2020) was used to select Polish as the outgroup nationality due to it being one of the most opposed immigrant groups by British nationals. A username was assigned to each opponent profile to strengthen the manipulation. Participants in the ingroup condition experienced a transgression by a British opponent, assigned the username “evans09”, which was thought to reflect a common British name and had been used in a previous PDG study (Honeybourne-Ward, 2016). Participants in the outgroup condition experienced a transgression from a Polish opponent with the username “maja09”, selected from a website listing Polish names commonly used in the UK (British Baby Names, 2012). At the end of the game, manipulation checks were administered whereby participants recalled the nationality of their opponent, rated how similar they felt to their opponent on a 7-point scale (1 = *not at all similar*, 7 = *very similar*)<sup>2</sup> and provided an explanation as to what they based this rating on. Piloting the manipulation will be discussed below.

## **Participants**

### ***Power Analysis***

Power analyses were undertaken to ascertain the number of participants required for the current study. This analysis was based on Hypothesis 1, which intended to compare state paranoia between those subjected to an interpersonal transgression by an ingroup member and an outgroup member. Honeybourne-Ward’s (2016) unpublished thesis was the

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<sup>2</sup> In using perceived similarity as a check for the categorisation manipulation, we were not intending to suggest a theory as to the relationship between similarity and categorisation, but rather to rely on ordinary linguistic usage. As suggested by Insko, Kirchner, Pinter, Efav and Wildschut (2005), in ordinary language, two women may be seen as more similar than a man and a woman, all else being equal. Therefore, this was thought to be a simplistic manipulation check and has been successfully used before (Insko et al., 2005).

only study to have explored the effect of interpersonal transgressions using the PDG, comparing state paranoia between two groups (those who experienced an interpersonal transgression and those who did not experience a transgression). A significant difference in state paranoia was observed between groups ( $N = 84$ ), yielding  $d = 0.643$ , which corresponds to a medium effect size (Cohen, 1992). An a-priori power analysis on G\*Power was run with values  $f = 0.3$ ,  $\alpha = 0.05$ , power = 0.8, suggesting a minimum sample size of 90 (45 per group) was required for the proposed study.

### ***Sample***

The inclusion criteria for the study were that participants were aged 18 years or over and identified as British nationals. Participants who did not meet these requirements were excluded. In total, 174 participants took part in the study, of which 134 self-reported their nationality as British. Three ceased participation prior to being randomised to a group, leaving 131 British participants who completed the study.

### ***Recruitment***

Participants were recruited through the Royal Holloway University of London (RHUL) student and staff participation pool and via social media advertisement. First year RHUL psychology undergraduate students were awarded course credit for their participation, and all participants were given the option to enter a prize draw to win 5x £20 Amazon vouchers as an incentive to partake in the research study.

### ***Measures***

All self-report measures are provided in Appendix 2.

### ***Demographic Information***

Participants provided information about their age, gender, ethnic group and cultural background, employment status, education level, nationality, marital status, and previous contact with mental health services. This information was used to assess for baseline group differences, however participants were given the option not to report this information if they preferred. Ethnic group and cultural background categories were guided by

recommendations by the Office for National Statistics for use in surveys in England (Office for National Statistics, n.d.).

***Revised-Green et al., Paranoid Thoughts Scale (R-GPTS; Freeman et al., 2019)***

The R-GPTS is an 18-item measure of paranoia designed for both clinical and nonclinical populations. It has two subscales measuring social ideas of reference (Part A) and persecution (Part B) separately. Items are scored on a 5-point scale where individuals rate how frequently they endorsed specific thoughts and feelings about others over the last month (0 = *Not at all*, 4 = *Totally*). Total scores are obtained by summing the response scores to questions in each subscale. Scores on the social reference scale range from 0-32 and scores on the persecution subscale range from 0-40.

Each subscale has shown good reliability (Cronbach alpha above 0.90), with its items being highly discriminative of ideas of social reference and persecution across both non-clinical and clinical paranoia (Freeman et al., 2019). The R-GPTS has shown good model fit to the two-factor structure of paranoia, explaining 69% of the variance in scores. Additionally, endorsement of persecution items was significantly more frequent in clinical samples compared to non-clinical samples, demonstrating criterion validity. Scores on the original GPTS on which the R-GPTS is based on were significantly associated with validated measures of trait paranoia (Fenigstein's Paranoia Scale [PS], Fenigstein & Vanable, 1992), depression (Beck Depression Inventory-II [BDI-II], Beck et al., 1996), anxiety (Beck Anxiety Inventory [BAI], Beck et al., 1988), and preoccupation and distress, but not level of conviction in delusions scores (Psychotic Symptom Rating Scale [PSYRATS], Haddock, McCarron, Tarrier, & Faragher, 1999), demonstrating convergent and divergent validity. In the current study, Cronbach alpha coefficients were 0.89 for each subscale.

***Heartland Forgiveness Scale (HFS; Thompson et al., 2005)***

The HFS is an 18-item measure of trait forgiveness, consisting of three subscales measuring forgiveness of self, of others, and in particular situations. Participants used a 7-point scale anchored with two opposing statements to rate how true the statement is of them (1 = *Almost always false of me*, 7 = *Almost always true of me*). Higher ratings indicated

greater dispositional levels of forgiveness (possible range 18-126). The authors found good internal reliability (Cronbach's alpha = 0.87) and acceptable test-retest reliability with correlations between HFS total, Self, Other and Situation subscales across a 3-week interval ranging from  $r = 0.73$  to  $r = 0.83$ . In the current study, the Cronbach alpha coefficients ranged between 0.77-0.83 for each subscale. The HFS significantly correlated with three other measures of dispositional forgiveness: Mauger, Perry, Freeman and Grove's (1992) Forgiveness of Self ( $r = 0.60$ ) and Forgiveness of Others ( $r = -0.25$ ) scales and Tangney et al.'s (1999) Multidimensional Forgiveness Inventory ( $r = 0.47$ ), demonstrating convergent validity.

#### ***Single-Item Social Identification Measure (SISI; Postmes, Haslam, & Jans, 2013)***

The SISI is a measure of social identification, conceptualised as an individual's relationship to a group as a perceived entity. Participants indicated their level of agreement of the statement, "I strongly identify with my nationality" on a 7-point rating scale (1 = *Fully disagree*, 7 = *Fully agree*). In a Dutch sample, the SISI has significantly correlated with other multi-component self-identification scales and predicted a distally related construct (intergroup distinctiveness) moderately well (Postmes et al., 2013). Test-retest reliability was also significant and remained high after repeated measurement ( $r = 0.59$ ) in this sample. The English version of the SISI has also shown convergent and divergent validity, with significant associations with categorisation, similarity, and overall felt connection to a group, as well as no relationship with measures of social desirability or socioeconomic status variables (Reysen, Katzarska-Miller, Nesbit, & Pierce, 2013).

#### ***State Paranoia Scale (SPS: Ellett et al., 2013)***

The SPS is a 4-item scale assessing state paranoia, which was developed for the PDG. Participants used a 7-point scale anchored with two opposing statements to rate how they perceive the other person in the game. The four paranoia items were: (a) "Friendly towards me" vs. "Hostile towards me"; (b) "Wants to please me" vs "Wants to upset me"; (c) "Wants to help me" vs Wants to harm me"; and (d) "Respects me" vs "Has it in for me". Each item contains a negative pole that explicitly relates to a perception that the other player

intended to harm them - a key feature of persecutory thinking (Freeman & Garety, 2000). Higher ratings indicate higher levels of state paranoia (possible range = 4-28). In Ellett et al.'s (2013) undergraduate sample, the SPS demonstrated good internal consistency (Cronbach's alpha = 0.92) and construct validity as it significantly correlated with the PS (Fenigstein & Vanable, 1992) ( $r = 0.415$ ). Test-retest reliability of the SPS has not yet been established however in the current study, the Cronbach alpha coefficient was 0.87.

### ***State Forgiveness Measure (SFM; Brown & Phillips, 2005)***

The SFM is a 7-item measure of general negative feelings towards an offender for a specific offense. Participants used a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*) to indicate their thoughts and feelings towards the other player in the PDG following a transgression. Higher ratings indicate higher levels of state forgiveness (possible range = 7-49). The authors have found good internal reliability (Cronbach's alpha = 0.91) and construct validity, with SFM scores correlating with several dispositional forgiveness measures: Brown's (2003) Tendency to Forgive scale ( $r = .31$ ), Attitudes Towards Forgiveness ( $r = .21$ ) and Berry, Worthington Jr, Parrott, O'Connor and Wade's (2001) Transgression Narrative Test of Forgiveness measure ( $r = .18$ ). SFM scores correlated positively with offence severity, ( $r = .19$ ) whether the offender had apologised ( $r = .37$ ), and agreeableness ( $r = .19$ ), and negatively with verbal and hostility components of aggression ( $r = -.12$ ,  $r = -.24$ ), indicating construct validity. In the current study, the Cronbach alpha coefficient was 0.87.

### ***Persecution and Deservedness Scale (PaDS; Melo et al., 2009)***

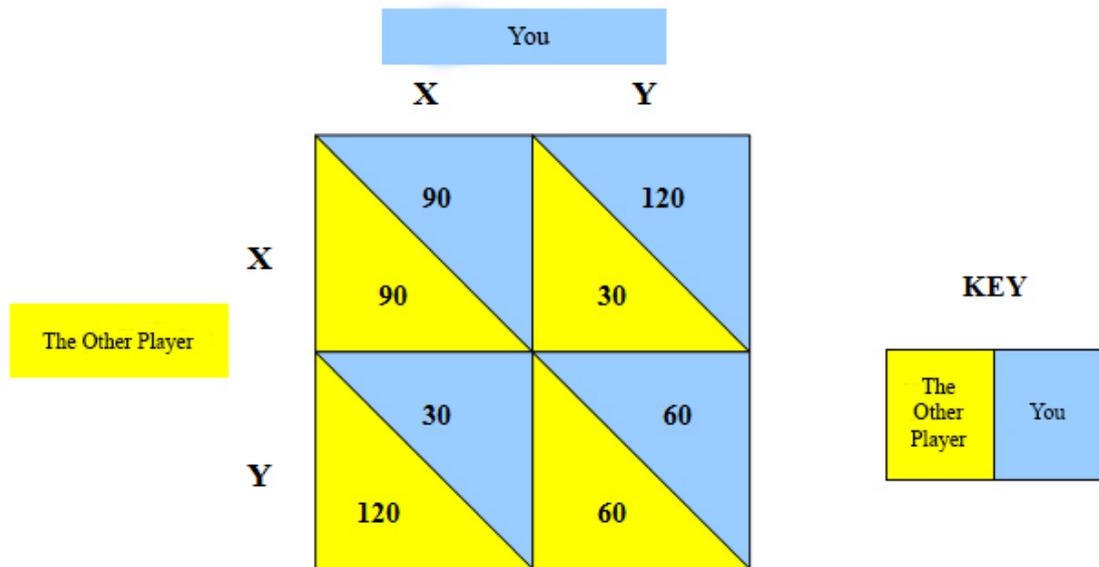
The PaDS is a 20-item measure of persecutory beliefs and perceived deservedness of persecution, consisting of two subscales. The persecution ("P") subscale measures persecutory ideation as participants rate their beliefs on 10 statements of persecutory content using a 5-point scale (0 = *certainly false*, 4 = *certainly true*). A deservedness item follows each persecution item and participants only complete the item if they scored greater than 1 on the related persecution item. This deservedness ("D") subscale uses a 5-point scale (0 = *not at all*, 4 = *very much*) to measure if the respondent feels that they deserve the type of persecution described. Mean scores are calculated for both subscales, with a

possible range of 0-4 for each scale. Participants are required to have at least three valid deservedness scores in order for a deservedness score to be calculated (Melo et al., 2009).

In a sample of Portuguese and British students, both the P (Cronbach's alpha = 0.84, ICC = 0.32) and D subscale (ICC = 0.38) showed good internal reliability. Both subscales significantly correlated with a measure of trait paranoia (PS, Fenigstein & Vanable, 1992) ( $r_P = 0.78$ ,  $r_D = 0.28$ ) and a depression measure (Beck Depression Inventory [BDI], Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) ( $r_P = 0.57$ ,  $r_D = 0.35$ ) indicating construct and concurrent validity respectively. It is important to acknowledge that the D subscale was less evidenced, because of large amounts of missing data due to the nature of the scale and impossibility of deservedness in the absence of persecution. In the current study, the Cronbach alpha coefficient was 0.85 for the P scale. For the D scale, Cronbach's alpha cannot be calculated because only applicable items are answered.

### **The Prisoner's Dilemma Game (PDG)**

The PDG is an experimental paradigm where two players are required to make a choice to either cooperate or compete against each other, for limited resources (Ellett et al., 2013). The choice that yields the highest reward is to compete (selecting "Y"), however, if both players choose to compete, they each gain less than if they both cooperated (selecting "X"). The payoff matrix shown below in Figure 3.



**Figure 3**

*Prisoner's Dilemma Game Matrix*

As shown in the diagram, the payoff received by each player depends on both their decision ("X" or "Y") and their opponent's decision ("X" or "Y"). For example, if both players choose to cooperate ("X"), they each receive 90 credits. However, if "You" choose to cooperate and "The Other Player" competes, then "You" would receive 30 credits and "The Other Player" receives 120 credits. Participants simply choose their strategy for each round of the game by selecting "X" (the cooperative strategy) or "Y" (the competitive strategy).

**Development of the Online Programme**

The online study was developed using Qualtrics software, which allowed participants to easily access the study through their personal devices using a web link. The development of the programme occurred from June to July 2020, ensuring its compatibility with various internet browsers and different devices. Following this, the programme was piloted with eight people from the general population who met the inclusion criteria (adult British nationals). Each person was asked for general feedback alongside specific feedback about the study functionality, how easy the instructions were to understand, and the length of time taken to complete the study. Additionally, three manipulation checks were piloted at the end of the

study: (a) participants were asked to recall the nationality of their opponent; (b) participants rated how similar they felt to their opponent (“perceived similarity”); and (c) participants rated the extent to which they thought their opponent was a real person. Feedback was also gathered on how incentivised participants were by the prize draw. A number of alterations were made based on this initial pilot feedback (detailed in Chapter IV) and the study was piloted with seven additional participants.

Results from the second pilot showed accurate recall of opponent nationality, improved believability in the realness of the opponent and greater perceived similarity reported by participants in the ingroup condition. Due to the small sample size, statistical analyses were not conducted however descriptive statistics suggested the manipulation was effective.

### **Procedure**

Ethical approval was obtained by RHUL’s Research Ethics Committee on 23<sup>rd</sup> June 2020 (application ID: 2068, Appendix 3). Participants were required to sign up to a timeslot to take part and were emailed details on accessing the study. This correspondence also confirmed participants had been matched with another player and provided a link which they were informed to only access at their agreed timeslot, in order to ensure both players were online at the same time. Unbeknownst to participants, the opponent was not real, and all responses were pre-programmed.

Upon activating the link, participants were directed to the online Qualtrics survey platform and presented with an information sheet (Appendix 4) and online consent form (Appendix 5). Participants then provided demographic information and completed the R-GPTS, HFS, and SISI. Participants were also asked to provide a “username” and were informed that the username and nationality of each opponent would be shared during the game. Participants were then given detailed instructions on the PDG as used previously in Ellett et al. (2013) and were informed they would play between one and six rounds of the PDG though in reality, only played one round. This minor deception has been used previously to avoid an increase in competition when participants know they are only playing

one round. Participants were informed that the number of credits they accumulated would equate to the number of lottery tickets entered into a prize draw worth five £20 Amazon vouchers.

Following practice rounds and a check to confirm participants understood the game, they briefly entered a virtual waiting room before being introduced to their opponent of either British or Polish nationality. This was randomly assigned by the Qualtrics platform and participants only saw the username and nationality of their opponent. Participants were given the opportunity to send a message to their opponent and saw a message from their opponent indicating a desire to cooperate (“Hi, I think we should both choose X”). Participants made their choice (“X” or “Y”) and the opponents’ competitive strategy was revealed. Following the transgression, the number of credits earned by the participant and their opponent was shown. Due to the fixed “Y” (competitive) response from the opponent, participants either won 30 or 60 credits depending on whether they had chosen “X” or “Y” respectively. Following this, participants were informed that the game was over and completed the SPS, SFM and PaDS.

Finally, participants completed manipulation checks (recall of opponent nationality, a perceived similarity rating to their opponent with a qualitative description to explain the rating and stating if they found anything odd or suspicious during the study (“Yes” or “No”, with an explanation if indicated “Yes”) and provided an email for the prize draw. As part of the data protection information policy, all emails were kept confidential and were used only as required (i.e., to provide a summary of the study results if requested and/or for the prize draw), before being immediately deleted. A full debrief was provided outlining the aims of the study, the minor deception used, and reiterating sources of support available should participants have been left with any element of distress due to having taken part (Appendix 6).

## **Data Analytic Strategy**

### ***Data Checking and Exploration***

All continuous variables were assessed for normality of distributions, significance of skew and kurtosis, and outliers. For variables where skew or kurtosis were identified, square root transformations were used to produce normal distributions. Exploratory correlations were also conducted between dependent measures to assess for interrelatedness of variables. Statistical tests were conducted to assess groups for baseline equivalence on sociodemographic and baseline variables. Additionally, completers and non-completers, those with and without previous access to mental health services, and participants who passed and failed manipulation checks were compared. For all analyses, non-parametric equivalents were conducted if parametric assumptions were violated.

### ***Main Analyses***

Three one-way independent analysis of variance (ANOVA) tests were used to investigate the effect of opponent status (ingroup vs. outgroup) on state paranoia, state forgiveness and state deservedness. A post-hoc decision was made to include participants' choice (co-operative or competitive strategy) as a quasi-independent variable in the analyses. Therefore, three two-way independent ANOVAs were also conducted to investigate the effect of opponent status and participant choice on state paranoia, state forgiveness and state deservedness.

## **Results**

### **Sample**

One hundred and thirty-one British participants completed the study. Of these, two participants failed to recall the nationality of their opponent (first manipulation check) and were therefore excluded. The final sample consisted of 129 British participants who were between 18-61 years old (mean age = 24.9 years) and were predominantly female (74%), of White ethnicity (63%), single (78%), employed or in full-time education (94%), had a degree or equivalent level of education (56%), and had no previous contact with mental health services (60%).

### **Preliminary Analyses**

#### ***Manipulation Checks***

There were three main manipulation checks: (a) whether participants correctly recalled the nationality of their opponent; (b) participant ratings on the perceived similarity measure with qualitative descriptions to explain their rating; and (c) participant ratings on the suspicion measure with qualitative descriptions of what was deemed suspicious. As nationality was the only determinant of ingroup/outgroup status, only the 129 participants who were able to accurately recall the nationality of their opponent were included in the final analyses.

With regards to the perceived similarity measure, an independent samples t-test revealed that participants in the ingroup ( $M = 2.98$ ,  $SD = 1.45$ ) and outgroup ( $M = 2.91$ ,  $SD = 1.62$ ) opponent status conditions did not differ on perceived similarity towards their opponent ( $t(127) = -0.28$ ,  $p = .78$ ). As this was unexpected, a post-hoc decision was made to explore participants' qualitative responses using an empirical, methodological approach. Due to the unstructured nature of the data, content analysis was most appropriate to summarise the data into thematic categories and represent them numerically, allowing inferences to be drawn (Braun & Clarke, 2012; Harper & Thompson, 2013; Krippendorff, 1989; Smith, 2000). This was done in accordance with content analysis guidance (Krippendorff, 1989; Mayring, 2000). As shown in Table 4 below, participants based their similarity rating on a number of factors, including being in the same situation as their opponent, strategy choice in the game, the transgression, and opponent characteristics (e.g., ethnicity, nationality, gender). Some participants also felt they did not have sufficient information or interaction with their opponent to make a judgement, and few questioned the realness of their opponent.

**Table 4**

*Categories of Responses Explaining Perceived Similarity Ratings*

Category	Description	Frequency	Illustrative Quote
Transgression	Participants felt betrayed and	63	"The player deliberately set out to
Experience	scapegoated by their		deceive me into choosing a worse off

	<p>opponent following the experience of a transgression and this reduced level of similarity felt towards their opponent.</p>	<p>choice. They dressed it up as them being co-operative but in reality, they were trying to ensure I picked the worse option for me. I on the other hand chose to send no messages”</p> <p>“I don’t feel THAT similar to him/her because we have different values clearly I mean he could’ve just said nothing of relevance instead he/she deliberately undercut me lol but I get it, who doesn’t want to increase their chances of winning an amazon voucher? all’s fair in a competitive game to win something”</p> <p>“I think my opponent prioritised themselves and was willing to throw me under the bus, to their benefit whereas I trusted my opponent”</p> <p>“I wouldn’t deceive someone in a game like that! It’s lame.”</p>
<p>Opponent characteristics</p>	<p>Participants used sociodemographic information provided (nationality, username) or assumed information about their opponent when assigning level of similarity. The more in common with respect to the different sociodemographic</p>	<p>30</p> <p>“We’re both British citizens”</p> <p>“Their name was evans09 which sounds like a very common White British name and their nationality was British so I am assuming they are White British and as I am not White British, I don’t feel similar to my opponent”</p>

	categories, the higher the perceived similarity.		“Different nationality and thought they were male but may still be similar in many ways”
Insufficient information	Participants reported they did not have enough information or interaction with their opponent to rate how similar they were.	26	“I don’t know them, I can’t judge how similar I am to them”  “I do not feel either similar or dissimilar to this person based on the limited interaction I had with them”
Picking a similar strategy in the game	Participants compared the choice used by their opponent to their own strategy in the game. Participants who chose to compete themselves felt more similar to their opponent.	16	“We both wanted to deceive the other to win”  “Same motivations for our choices in the game. Did what we had to for winning game”  “I could tell that he wanted to get 120 from me choosing X, which I wanted from him too”
The same situation	Participants felt partaking in the same study made them more similar.	5	“They are doing the same quiz as me”  “I know very little about them, but if we’re both willing to help out in a study we could well have similar values and interests”  “We are both volunteering to take part in a study in a game”.
Realness of opponent	Participants were questioning the realness of the opponent.	3	“I’m not a bot”  “They completed the questionnaires at the exact same time as me to enter

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into the game (bit odd given the extensive instructions and questionnaire). Instructions indicated several rounds, but the game only had one round. Bot?"

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With regards to the suspicion measure, half of the final sample ( $N = 64$ ) responded “Yes” to the question “Did you find anything odd or suspicious in the study?”. These were equally divided between ingroup/outgroup conditions ( $N = 32$  in each group). Importantly, only 18 of the 64 “suspicious” respondents made a specific comment regarding their opponent being fake when asked to explain their answer. In order to determine whether suspicion levels varied between experimental conditions, a chi-square analysis was conducted using opponent status (ingroup vs. outgroup) as the independent variable. The analysis yielded a nonsignificant difference,  $\chi^2(1) = 0.07$ ,  $p = .79$ , indicating that suspicion about the game did not vary based on whether participants were in the ingroup or outgroup condition. Suspicious and non-suspicious individuals were also compared on baseline measures, where no differences were found on sociodemographic variables or baseline outcome measures (all  $p > .05$ ). Therefore, data from these individuals were retained.

### ***Missing Data***

A “forced response” option on Qualtrics software resulted in complete data for most variables, except for one participant who was missing one score the R-GPTS Persecution subscale, due to a Qualtrics error. This was considered missing completely at random, and therefore replaced with a participant median value (Enders, 2010; Field, 2018).

### ***Normal Distribution and Bias***

Skew, kurtosis and histograms were examined for each continuous variable per group to establish whether parametric assumptions were met. Positive skew ( $z > 2.58$ ) was indicated for two variables which following square root transformations, achieved normal

distributions. Boxplots were examined and data points greater than three standard deviations from the mean were considered outliers (Field, 2018). No outliers were identified.

### **Baseline Equivalence Between Groups**

No significant differences were observed between experimental groups on sociodemographic variables, as shown in Table 5 below.

**Table 5**

#### *Sociodemographic Information for the Total Sample and Results from Baseline Between-Group Comparisons*

Sociodemographic Characteristics	Total sample (N = 129)	Outgroup (N = 66)	Ingroup (N = 63)	Test Statistic	p-value
Age - <i>M</i> ( <i>SD</i> )	24.9 (8.58)	25.24 (9.48)	24.46 (7.58)	<i>U</i> = 2076	<i>p</i> = .99
Gender - <i>n</i>				Fisher's exact $\chi^2 = 2.93$	<i>p</i> = .24
Male	30	15	15		
Female	96	51	45		
Other (gender fluid, gender non-conforming and non-binary)	3	0	3		
Marital status - <i>n</i>				Fisher's exact $\chi^2 = 2.82$	<i>p</i> = .44
Single	100	52	48		
Married or cohabiting	26	14	12		
Divorced	2	0	2		
Prefer not to say	1	0	1		
Education status - <i>n</i>				Fisher's exact $\chi^2 = 1.85$	<i>p</i> = .69
O-level/GCSE	2	0	2		
A level or equivalent	24	12	12		
Degree or equivalent	72	38	34		
Post-graduate or equivalent	31	16	15		

Employment status - <i>n</i>				Fisher's exact $\chi^2 = 3.23$		$p = .34$	
Employed	61	35	26				
Unemployed	6	3	3				
Full-time education	60	28	32				
Prefer not to say	2	0	2				
Ethnicity - <i>n</i>				Fisher's exact $\chi^2 = 3.61$		$p = .46$	
White	81	44	37				
Mixed	12	5	7				
Asian	28	12	16				
Black	1	0	1				
Other	7	5	2				
Previous contact with mental health services - <i>n</i>				Fisher's exact $\chi^2 = 1.08$		$p = .65$	
Yes	48	23	25				
No	77	40	37				
Prefer not to say	4	3	1				

\* $p < .05$

Similarly, there were no group differences in baseline trait paranoia, trait forgiveness or level of nationality identification, as shown in Table 6. Therefore, these variables were not controlled for in any subsequent analyses.

**Table 6**

*Means and Standard Deviations of Baseline Study Variables for the Total Sample, Each Experimental Condition, and Results of Between-Group Comparisons*

Baseline Study Variable	Total Sample ( <i>N</i> = 129)		Outgroup ( <i>N</i> = 66)		Ingroup ( <i>N</i> = 63)		<i>t</i> (127)	<i>p</i> - value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Nationality Identification Scale (range = 1-7)	4.75	1.47	4.86	1.45	4.63	1.51	0.88	.38
R-GPTS Social Reference (range = 0-29)	10.06	7.27	9.05	6.99	11.13	7.45	-1.67	.10

R-GPTS Persecution (range = 0-28)	0.52	0.42	0.50	0.41	0.54	0.44	-0.59	.56
HFS Trait Forgiveness Total (range = 52-126)	84.55	14.19	84.39	15.36	84.71	12.98	-0.13	.90
HFS Forgiveness of Self (range = 8-42)	27.28	6.33	27.86	6.56	26.67	6.06	1.08	.28
HFS Forgiveness of Others (range = 16-42)	29.38	5.74	28.56	6.21	30.24	5.09	1.67	.10
HFS Forgiveness of Situations (range = 9-42)	27.89	6.72	27.97	6.95	27.81	6.54	0.14	.89

Note. HFS = Heartland Forgiveness Scale; R-GPTS = Revised Green et al. Paranoid Thoughts Scale

\* $p < .05$

### **Exploratory Correlations**

Correlational analyses were conducted between state paranoia, forgiveness, and deservedness to assess and control for potential confounds in the main analyses. State paranoia was significantly associated with state forgiveness ( $r(127) = -0.64, p < .001$ ) but not with state deservedness ( $r(111) = -0.01, p = 0.89$ ). The correlation between state forgiveness and deservedness was also nonsignificant ( $r(111) = -0.02, p = 0.86$ ). Findings were corrected for family wise error rate using Bonferroni correction ( $\alpha = 0.008$ ).

### **Main Analyses**

Means and standard deviations of scores for the main outcome measures across the whole sample and for each experimental condition, alongside results from the one-way ANOVA analyses, are presented in Table 7.

**Table 7**

*Means and Standard Deviations of Study Variables for the Total Sample and Each Experimental Condition, and Results of One-Way ANOVAs*

Study Variable	Total Sample (N = 129)		Outgroup (N = 66)		Ingroup (N = 63)		Test Statistics
	M	SD	M	SD	M	SD	
State Paranoia (range = 4-28)	18.26	5.08	18.73	5.37	17.76	4.75	$F(1, 127) = 1.16, p = .28$
State Forgiveness (range = 7-49)	32.15	10.06	32.15	10.06	34.08	9.34	$F(1, 127) = 1.27, p = .26$
Deservedness (range = 0-3.43)	0.87	0.78	0.74	0.79	1.00	0.75	$F(1, 111) = 4.85, p = .03^*$ , $d = 0.42$

\* $p < .05$

With regards to participants' choice in the PDG, 95 (74%) participants chose the cooperative "X" strategy and 34 (26%) chose the competitive "Y" strategy. There was no association between choice and experimental condition,  $\chi^2(1, N=129) = 1.84, p = .12$ .

***Hypothesis 1: State Paranoia Will be Higher Following an Interpersonal Transgression in the PDG by an Outgroup Member Compared to an Ingroup Member.***

A one-way independent ANOVA was used to compare state paranoia scores between ingroup and outgroup opponent status conditions. Homogeneity assumptions were met ( $F(1, 127) = 1.34, p = .25$ ). Although state paranoia scores were higher when the transgression was committed by an outgroup compared to an ingroup member, the difference was not statistically significant. Therefore, Hypothesis 1 was not supported.

Post-hoc exploratory analyses<sup>3</sup> were conducted using a 2 (Opponent status: ingroup, outgroup) x 2 (Participants' Choice: cooperate, compete) independent ANOVA on state paranoia scores. There was a main effect of choice, with participants who chose the cooperative "X" choice showing greater state paranoia than those who chose the competitive "Y" choice ( $F(1, 125) = 12.6, p = .001$ ). The main effect of opponent status ( $F(1, 125) = 0.06, p = .82$ ) and the opponent status x choice interaction ( $F(1, 125) = 0.62, p = .43$ ) were both nonsignificant.

***Hypothesis 2: State Forgiveness Will Be Lower Following an Interpersonal Transgression in the PDG by an Outgroup Member Compared to an Ingroup Member.***

A one-way independent ANOVA was used to compare state forgiveness scores between ingroup and outgroup opponent status conditions. Homogeneity assumptions were met ( $F(1, 127) = 0.307, p = .58$ ). Although state forgiveness scores were lower when the transgression was committed by an outgroup compared to an ingroup member, the difference was not statistically significant. Therefore, Hypothesis 2 was not supported.

Post-hoc exploratory analyses were conducted using a 2 (Opponent status: ingroup, outgroup) x 2 (Choice: Cooperate, Compete) independent ANOVA on state forgiveness scores. There was a main effect of choice ( $F(1, 125) = 14.35, p < .001$ ), with participants who chose the cooperative "X" choice showing lower forgiveness than those who chose the competitive "Y" choice. The main effect of opponent status ( $F(1, 125) = 0.01, p = .94$ ) and opponent status x choice interaction ( $F(1, 125) = 1.42, p = .24$ ) were both nonsignificant.

***Hypothesis 3: Perceived Deservedness of Persecution Will Be Lower Following an Interpersonal Transgression in the PDG by an Outgroup Member Compared to an Ingroup Member.***

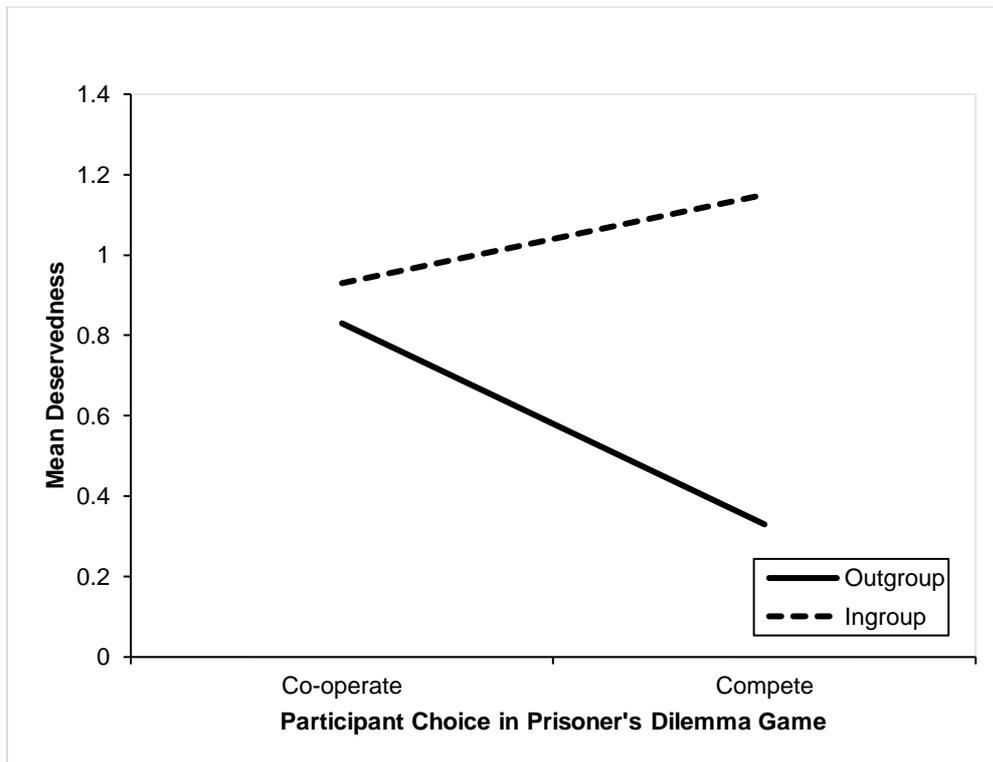
A one-way independent ANOVA was used to compare deservedness scores between ingroup and outgroup opponent status conditions. Homogeneity assumptions were

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<sup>3</sup> The post-hoc decision to include participant choice (cooperate or compete) as a quasi-independent variable was made based on previous studies showing an association between the competitive choice and state paranoia (Ellett et al., 2013).

met ( $F(1, 111) = 0.68, p = .41$ ). Participants in the ingroup opponent status condition reported higher deservedness compared to participants in the outgroup opponent status condition, supporting Hypothesis 3.

Post-hoc exploratory analyses were conducted using a 2 (Opponent status: ingroup, outgroup) x 2 (Choice: Cooperate, Compete) independent ANOVA on deservedness scores. There was a main effect of opponent status ( $F(1,109) = 10.3, p = .002$ ), no main effect of choice ( $F(1, 109) = 1.42, p = .24$ ), and a significant opponent status x choice interaction ( $F(1, 109) = 5.35, p = .02$ ). Decomposing the interaction using Fisher's protected independent sample t-tests showed that deservedness scores did not significantly differ between participants in ingroup and outgroup opponent status conditions who had chosen the cooperative "X" strategy ( $t(83) = -0.89, p = .37$ ), however did differ significantly among participants who had chosen the competitive "Y" strategy ( $t(26) = -3.33, p = .003$ ). Among participants who chose to compete, those in the ingroup opponent status condition reported significantly higher deservedness ( $M = 1.15, SD = 0.73$ ) than participants in the outgroup opponent status condition ( $M = 0.33, SD = 0.40$ ). The interaction is presented graphically in Figure 4 below.



**Figure 4**

*Level of Deservedness Reported by Participants in Ingroup and Outgroup Conditions Who Chose to Compete and Cooperate in the PDG*

## Discussion

The current study aimed to assess the impact of interpersonal transgressions committed by ingroup and outgroup members on state measures of paranoia, forgiveness and deservedness. The findings will be discussed in relation to previous literature, alongside limitations, implications and future research directions.

## Key Findings

### **Paranoia**

The current study was the first to experimentally manipulate the social membership of a transgressor in the PDG and examine its effect on state paranoia. Findings suggested there was no difference in state paranoia when the transgressor was either an ingroup or outgroup member. There are a number of reasons that might explain the lack of a significant difference. Firstly, it is possible that the manipulation of opponent group status was

unsuccessful, and participants did not view British/Polish opponents as ingroup and outgroup members respectively. This is indicated by similar scores on the perceived similarity measure by both groups. However, there were issues with the use of this perceived similarity measure as a manipulation check. More specifically, qualitative responses showed that the transgression impacted perceived similarity ratings, with half the sample referencing the transgression experience in their explanation. This suggests that the timing of the manipulation check was confounded by the transgression. Qualitative responses also showed that participants assumed other aspects of opponent identity including gender, student status, and ethnicity, which may have also (unexpectedly) confounded the effect of the manipulation.

The current sample also reported lower nationality identification ( $M = 4.75$ ,  $SD = 1.47$ ) compared to American samples ( $M = 6.11$ ,  $SD = 1.01$ ) on which the SISI was validated (Reysen et al., 2013). This is important because level of identification is a known moderator of intergroup bias (Cairns, Kenworthy, Campbell, & Hewstone, 2006). While the finding supports studies showing younger British people (age 20-34 years) report greater indifference towards national identity (Fenton, 2007), this may have also weakened the effects of the manipulation. Therefore, as it is unclear if the perceived similarity measure captured whether participants viewed their opponent as an ingroup or outgroup member on the basis of nationality, and whether the manipulation was successful, it is not possible to conclude whether ingroup/outgroup status of the transgressor had an effect on paranoia.

The second reason for the lack of a significant effect may be related to the negative experience of a transgression in the PDG. State paranoia scores in both experimental conditions (Ingroup:  $M = 17.76$ ,  $SD = 4.75$ ; Outgroup:  $M = 18.73$ ,  $SD = 5.37$ ) were descriptively comparable to participants who experienced a transgression in a previous PDG study ( $M = 19.00$ ,  $SD = 3.98$ ; Honeybourne-Ward, 2016). Scores were also descriptively higher compared to participants who did *not* experience a transgression ( $M = 16.47$ ,  $SD = 3.88$ , Honeybourne-Ward, 2016;  $M = 13.17$ - $14.84$ ,  $SD = 3.2$ - $3.46$ , Ellett et al., 2013). This suggests that paranoia was slightly elevated following the experience of a transgression in

both groups and could indicate that the experience was equally paranoia-inducing, regardless of the group status of the transgressor. Therefore, the impact of the transgression may have outweighed the effect of transgressor group status on paranoia. Finally, it is possible that the current findings reflect that a true effect of transgressor group status on paranoia does not exist.

### ***Forgiveness Towards the Transgressor***

Contrary to predictions, there was also no difference in state forgiveness between ingroup and outgroup conditions. This contradicted previous studies which have found greater forgiveness towards ingroup members (Linke, 2012; McCullough & Witvliet, 2002; Sommers & Ellsworth, 2000; Van Tongeren et al., 2014). Once again, this finding may relate to the methodological issues outlined earlier whereby the manipulation was unsuccessful and therefore did not evoke intergroup processes hypothesised to impact forgiveness. Secondly, although the PDG is a paradigm that replicates an interpersonal interaction, the interaction occurs within the context of a game. It may be that participants were more forgiving of the transgression because of prior expectations of the way people behave during games, or because the transgression only happened once and was therefore not perceived as a “severe” offence, which people have more difficulty forgiving (McCullough & Witvliet, 2002). In support of this, state forgiveness levels (Ingroup:  $M = 32.15$ ,  $SD = 10.06$ , Outgroup:  $M = 34.08$ ,  $SD = 9.34$ ) were descriptively similar to participants who did not experience a transgression ( $M = 35.61$ ,  $SD = 7.31$ ) in a previous PDG study (Honeybourne-Ward, 2016). The lack of a finding may have also been a result of the SFM measure. Brown and Phillips (2005) found that scores on the SFM measure are relatively high for “less severe” offences, which fits with elevated scores reported in the current study. Finally, as with state paranoia, the lack of a significant effect of opponent group status on state forgiveness may have been because a true effect does not in fact exist.

Post-hoc analyses showed that participants who competed felt more forgiving towards their opponent compared to those who cooperated. This was also reflected in qualitative responses, where some participants explained that they rated themselves more

similarly to their opponent if they had also chosen the competitive strategy in the game. Together these results suggest that participants were generally quite forgiving of the transgression regardless of group status, and even more so if they had chosen the same strategy as their transgressor. As with paranoia, this preliminarily suggests participants own behaviour and the behaviour of the transgressor were important in determining level of forgiveness.

### ***Deservedness of Persecution***

As predicted, participants reported higher levels of deservedness following an interpersonal transgression by an ingroup member compared to an outgroup member. This is the first empirical evidence demonstrating the impact of interpersonal transgressions on deservedness. It builds on previous studies showing heightened sensitivity to social stress in PM/BM paranoia groups (Udachina et al., 2017) and studies which have found that individuals with BM paranoia report greater occurrence of recent stressful events (e.g., events where they felt they have failed) compared to PM groups (Melo et al., 2006).

The findings are also consistent with social identity literature emphasising that transgressions committed by ingroup and outgroup members produce different emotional and behavioural responses (Mendes et al., 2008; Sacco, Bernstein, Young, & Hugenberg, 2014; Schaafsma & Williams, 2012; Zourrig, Chebat, & Toffoli, 2015). Several authors have proposed that negative experiences (e.g., exclusion) by ingroup members are likely to result in more internal, self-blaming attributions (Mendes et al., 2008; Williams, Cheung, & Choi, 2000). Increased internalising of negative events (i.e., blaming negative events on oneself) has also been correlated with deservedness (Melo et al., 2006; Melo & Bentall, 2012), and may explain the relationship found between deservedness and transgressions committed by ingroup members. However, post-hoc analyses found that this effect was only present in participants who chose to compete, with participants in the ingroup condition showing the highest level of deservedness. These findings need to be replicated but preliminarily suggest that level of deservedness was a product of participants' own behaviour (competitive choice) and the social membership of the transgressor (ingroup/outgroup).

## Implications

### *Theoretical Implications*

Participants in the current study reported a range of trait and state paranoia scores, supporting the occurrence of paranoid experiences in nonclinical samples (Bebbington et al., 2013; Ellett et al., 2013; Freeman et al., 2019, 2011) and the continuum of psychotic experiences (Strauss, 1969). Furthermore, the skewed distribution of trait paranoia scores supports the proposed hierarchy of nonclinical paranoia (Bebbington et al., 2013; Freeman et al., 2005). The study also provides further support for the presence of deservedness in nonclinical populations (Brock et al., 2016; Melo & Bentall, 2010; Neubert, 2012; Pickering et al., 2008; Serrone et al., 2018) and of the dimensional distribution of deservedness in this population (Freeman, 2007).

Trower and Chadwick's (1995) original cognitive-developmental formulation of PM/BM paranoia focussed largely on intrapersonal factors (e.g., cognitive, emotional, behavioural and attachment patterns). However, the results showed that deservedness, a dimension of paranoid experience, increased to a greater degree following the experience of a transgression by an ingroup member than by an outgroup member. Therefore, the current study draws attention towards interpersonal factors which may be relevant in predicting deservedness, such as characteristics of the transgressor. This is in line with the Hearing Voices movement and social-developmental accounts of paranoia which highlight how paranoid beliefs often relate to life experience (Rhodes & Jakes, 2000; Romme & Escher, 2000, 2010; van Os et al., 2010).

Moreover, these accounts challenge the notion of *falsity* in paranoia whereby the illegitimacy of the threat has historically been emphasised in psychiatric diagnosis. In the current study, it could be argued that the (descriptively) elevated paranoia experienced by participants was *not* unfounded as the opponent did intentionally mislead and betray them. Therefore, the implication of this is that nonclinical paranoia in the current study can be viewed as a normal response to threat, instead of an unfounded belief. Ellett et al. (2003) were the first to suggest that the ability to detect and respond to threat in our environment

can be viewed as an evolutionarily advantageous trait, inherited due to its adaptive value. Normalising and reframing nonclinical paranoia in this way and placing it among “normal” behaviour may help to destigmatise paranoia and detach it from its associations with mental ill-health (Ellett & Chadwick, 2007). A further discussion of this can be found in Chapter IV.

Fluctuations in deservedness found in previous studies (Melo et al., 2006; Melo et al., 2012) could be related to characteristics of the persecutor in paranoid beliefs. However, it is important to acknowledge that Trower and Chadwick (1995) did not claim that PM/BM paranoia could be distilled into a single measure of deservedness of persecution. Therefore, whilst the current findings suggest a differential effect of transgressor group status on nonclinical deservedness, this does not necessarily extend to PM/BM paranoia as defined by Trower and Chadwick. It is also interesting that the experimental groups differed in deservedness levels, but not paranoia. This may indicate a Type I error, distinct mediating variables, or the choice of paranoia measure used, and therefore replication is crucial to further elucidate the findings.

### ***Clinical Implications***

Given that the current study recruited a nonclinical population, discussion of clinical implications of the findings is done extremely tentatively. The current findings suggest that assessments of paranoid experiences should include an examination of deservedness alongside paranoia. Where deservedness is indicated, further assessment of characteristics of the persecutor may be a useful avenue to explore. Drawing focus towards social dimensions and considering the experience of deservedness within the interpersonal context may be normalising and validating. Finally, if appropriate, assessment of level of forgiveness may be important where paranoia is found to be heightened following negative interpersonal experiences, as these were inversely correlated in the current study.

### **Strengths, Limitations and Future Research**

A strength of the current study was the use of an experimental design with random allocation of groups, allowing more confidence in causal interpretations. An experimental design also facilitates replication of the methodology and increases internal validity of the

study. Moreover, measurement of trait paranoia, trait forgiveness and level of nationality identification at baseline permitted greater control of third-factor variables. However, it is also recognised that the PDG is a laboratory-based manipulation and thus lacks ecological validity. It would be helpful for future studies to consider use of a naturalistic design to capture participants' experiences of transgressions in their daily lives. This would provide a more nuanced understanding of how transgressions of varying severity committed by different transgressors may differentially affect paranoia, deservedness and forgiveness. It would also be useful for future studies to qualitatively explore how participants perceive the transgression in the PDG, and how this compares to transgressions experienced in everyday life.

There were also other methodological limitations that warrant consideration. Firstly, low levels of nationality identification reported by the current sample may indicate that nationality was not an important social category for this group of individuals, therefore weakening the strength and success of the manipulation. There were also two main issues with the manipulation checks administered in the study: (a) the timing of the perceived similarity measure was confounded by the transgression; and (b) the simplified perceived similarity measure may not have captured how participants categorised their opponent (ingroup or outgroup member). As a result, these limitations make it difficult to be confident in the success of the manipulation and consequently the effect of transgressor group status on the dependent variables. A more thorough reflection and critique of the manipulation is presented in the Impact, Integration and Dissemination section. Future research could improve the study by including a pre-experimental questionnaire as in Schaafsma and Williams (2012) to identify which social memberships are important to participants' self-definition (e.g., political status, religion, ethnicity). Participants could also be presented with vignettes varying in social group information (e.g., gender, nationality, ethnicity) and asked to categorise individuals presented in the vignettes as ingroup or outgroup members. Once finalised, it would be useful to include multiple "outgroup" conditions so that the findings represent a response to different outgroups and not one group specifically. Finally, it would

be beneficial to employ a pre-post design where state measures are administered both before and after the experimental conditions, allowing for control of baseline levels of paranoia, deservedness and forgiveness and a better understanding of levels of change in outcome variables across time. There are also issues with the PaDS-D scale in that it is the first scale of this kind and validity has not yet been fully established. Future studies could include other measures of deservedness or PM/BM paranoia more broadly, such as conducting interviews with participants (Fornells-Ambrojo & Garety, 2009; Freeman et al., 2001).

A further shortcoming of the current study was that narrow sample which predominantly consisted of educated White females, in line with demographics of self-selecting online samples (Dutton & Blank, 2011). This therefore raises issues regarding generalisability of the findings towards groups where high rates of psychosis are prevalent, including non-White (Mandy et al., 2001), immigrant (Cantor-Graae & Selten, 2005) and socially deprived groups (Wickham et al., 2014). More severe paranoid thinking has also been more commonly reported in low educational achievement (Johns et al., 2004) and ethnic minority groups (Freeman et al., 2010). Therefore, the demographic profile of the current sample was undoubtedly narrow and has been shown in previous studies to less commonly report paranoid thoughts. Furthermore, due to the significance of trauma experiences and adverse life events experienced by people with clinical paranoia, it is possible that the experience of a transgression in the PDG will be different for people with nonclinical and clinical levels of paranoia. Therefore, it is not possible to generalise the findings to a clinical sample. It is also important to note that 18 participants (15% of the final sample) thought their opponent was fake or automated, and therefore may have experienced the transgression differently to the remaining sample. Ellett et al. (2013) found that participants responded differently in the PDG when believed to be playing against another person (i.e., when the task is interpersonal) or a computer (i.e., when the task is impersonal). Therefore, low believability in a subsample of the final participants potentially increases the risk of Type II error.

Post-hoc analyses suggested that state paranoia and forgiveness were influenced by participant choice in the PDG, with those who selected the cooperative “X” choice demonstrating higher paranoia and lower forgiveness. It has also been discussed that the transgression may have unexpectedly confounded the effect of opponent status on the outcome variables of interest. Further exploration of the interaction between these variables on state paranoia and forgiveness, for example by using a multifactorial 2 (transgression, no transgression) x 3 (ingroup, outgroup, stranger) x 2 (cooperative choice, competitive choice) design, would be welcomed.

### **Conclusions**

The current study found that participants who experienced a transgression from an ingroup and outgroup member in the PDG did not differ in state paranoia or state forgiveness. However, participants reported higher deservedness of persecution following an interpersonal transgression by an ingroup member, particularly if they themselves had chosen to compete. Therefore, deservedness may be a product of one’s own behaviour, and the behaviour and social identity of a transgressor. Post-hoc analyses also suggested that participants own strategy in the game was also important in determining paranoia and forgiveness levels, with those who cooperated showing greater paranoia and lower forgiveness. While future studies are necessary to increase confidence in the current findings, it is clear that the social dimensions of deservedness warrant further investigation. Contextualising experiences of deservedness would have significant implications in improving our understanding of this particular dimension of paranoid experience.

## **Chapter IV: Integration, Impact and Dissemination**

### **Overview**

The aim of this chapter is to discuss the process through which the systematic review and empirical study were developed and undertaken as two distinct yet interconnected pieces of research, and to offer an integration of their findings. It will describe the evolution of the research questions and study design, including service user involvement, choice of measures and the main manipulation used in the empirical study. Next, an overview of the potential impact of both research components on academic and non-academic beneficiaries will be provided, including members of the general public, service-users, clinicians and researchers. Finally, plans for broader dissemination of the research findings will be outlined.

### **Integration**

#### ***Synergy Between the Systematic Review and Empirical Study***

The current thesis consisted of two interconnected chapters. The systematic review aimed to elucidate which psychological factors have been associated with deservedness or PM/BM paranoia in clinical and nonclinical populations. The empirical study, on the other hand, used a live experimental paradigm to explore the relationship between interpersonal transgressions, paranoia and deservedness in a nonclinical sample. It was also interested in the relationship between paranoia and forgiveness within a live interpersonal context. As demonstrated by these two chapters, the aim of the project as a whole was to gain a better understanding of psychological factors related to paranoia, with a specific focus on Poor Me/Bad Me paranoia, also referred to as beliefs regarding deservedness of persecution. Informed by Strauss' (1969) continuum model of psychotic symptoms and Freeman and Garety's (2000) conceptualisation of paranoia, the project was consistent with the theoretical and empirical viewpoints that paranoid beliefs are dimensional in nature and exist across both clinical and nonclinical populations. The use of clear criteria ensured a focus on pure phenomena and facilitated comparisons across the systematic review and empirical study, in line with recommendations for paranoia research (Freeman, 2007).

It could be argued that a limitation of the Freeman and Garety (2000) definition is that it does not reference the *legitimacy* of the perception of harm (i.e., if it is real or unfounded). Therefore, paranoid experiences described in both chapters, particularly with regards to nonclinical populations, may not represent “true” paranoia. However, as pointed out by Harper (2004), the criterion of inaccuracy or falsity implies that it is relatively easy to distinguish the veracity of a belief, and yet this is often typically made by clinicians on the basis of “common sense”, not systematic evaluation of empirical data (Maher, 1992). It could also be argued that non-psychotic individuals hold many paranormal beliefs about UFOs, ghosts, telepathy and various other conspiracy theories despite strong evidence against them (Aaronovitch, 2009; Ramsay, 2006). It is also interesting to consider how diagnostic systems like the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) have moved away from the requirement that delusions are required to be deemed false and instead state that it needs to be clearly implausible. Therefore, through adopting the Freeman and Garety (2000) definition of paranoia, both chapters were more interested in whether individuals *perceived* intended harm from others, and less so on the falsity of this belief.

Although both chapters had a focus on paranoia and more specifically, PM/BM paranoia, they also diverged in their central questions. In particular, the systematic review focussed on relationships between deservedness and potentially modifiable psychological variables related to an individual’s internal state (e.g., cognitive, affect, behavioural) whilst the empirical study drew attention to the interpersonal nature of paranoia. Therefore, both chapters focussed on equally important, yet distinct processes implicated in paranoia.

Due to the doctoral course timetable, a focussed literature search was conducted to inform the empirical study, prior to conducting the systematic review. Conducting the systematic review highlighted the lack of experimental studies investigating causal relationships between deservedness and relevant psychological factors. This further highlights the value and contribution made by the empirical study which used an experimental design to examine deservedness. However, completing the systematic review

earlier may have suggested potential mediator variables between the hypothesised relationship between interpersonal transgressions and deservedness. For example, self-esteem was a key variable associated with deservedness in the systematic review and the empirical study could have explored if the mediating effect of self-esteem on paranoia (Kesting & Lincoln, 2013) extended to deservedness of persecution.

### ***Reflections on the Study Design***

**Ingroup/Outgroup Manipulation.** Issues with the manipulation of ingroup/outgroup opponent status and consequently with interpretations of the study findings have led to reflections regarding this aspect of the study design. Firstly, a key decision was made to use a naturally occurring social identity category (e.g., gender, nationality, ethnicity) instead of an externally assigned laboratory group (e.g., using a minimal group design where participants are led to believe they and others are similar in some way, such as liking the same painting). This was informed by research showing that externally assigned social categorisations are not reliably internalised by group members and do not always evoke the necessary intergroup processes (Jetten, Spears, & Manstead, 1996; Mullen, Brown, & Smith, 1992). Reviewing ingroup/outgroup manipulations in previous studies showed successful use of various naturally occurring categories including nationality, ethnicity, religion and political affiliation to group participants and explore intergroup processes (Schaafsma & Williams, 2012; Weisel & Bohm, 2015). Furthermore, at the time when I was making this decision, the UK was approaching its Brexit deadline on 31 October 2019. Conversations regarding Brexit were rife across all platforms and support for Brexit varied across the constituent territories of the UK. This sparked an interest in using national identity to determine ingroup/outgroup status and was considered feasible for recruitment given the study was being conducted in the UK.

As the study aimed to recruit a nonclinical sample, it was likely that a large number of participants would be recruited through the Royal Holloway University of London student and staff pool. Based on previous doctoral projects which also recruited using this method, it was highly likely that the sample would be predominantly younger, white British females, limiting

the number of social categories available for the manipulation of ingroup/outgroup status that would be relevant for the majority of this group. As a person with South Asian heritage and consequently part of a “minoritised” group within the clinical psychology field which has historically explored psychological phenomena in majority White samples, it was really important for me to not further contribute to this problem in my own research project. I thought about using ethnicity to manipulate ingroup/outgroup status and recruiting a purely non-White sample, but worried about failing to recruit my target sample and facing underpowered analysis. With more time and resources to link with community services, I think this would have been more feasible. In the end approximately 40% of the sample identified as Asian, Black, mixed race or “other”, which was a small victory in itself.

The decision to use *Polish* as the outgroup nationality was made in a data-driven way, using results from the UK Public Opinion Towards Immigration report (Blinder & Richards, 2020). This report draws on data from the British Social Attitudes Survey, British Election Studies, European Social Survey and International Social Survey programme, and highlighted clear distinctions made between non-British immigrants based on country of origin. These results were used to define the outgroup nationality of “The Other Player” as Polish due to relatively high level of opposition towards Polish immigrants. However, upon reflection, it is acknowledged that the use of manipulation could have resulted in implicit messaging, particularly when considering the position and power held by research institutions such as Royal Holloway University of London. Importantly, there was no apriori intention of any implicit messaging in relation to the use of the manipulation, the study received full ethical approval and no concerns were raised by service users who piloted the manipulation.

To ensure the success and appropriateness of the manipulation, the study was piloted with 10 members of the general population. It was thought that if participants were asked a direct categorisation question such as “Would you categorise your opponent as an ingroup or outgroup member?” before the transgression, this would reveal that group membership was central to the study and scores on the outcome variables of interest would

be biased. In hindsight, the exclusion of a direct measure of categorisation before the transgression also caused difficulties as ratings on perceived similarity towards their opponent appeared to be highly influenced by the transgression. A third group could have been included where participants were not exposed to an interpersonal transgression, in order to measure the success of the manipulation.

**Deception.** Mild deception was used in the study including: a) participants were led to believe they were playing the PDG against a real person; b) participants thought they were playing the PDG against opponents from across Europe (not specifically Polish opponents), and c) participants were told they would be playing between one and six rounds of the game but in reality, only played one round. The use of mild deception is common in psychological research (Kimmel, 2004) and the rationale for these decisions were based on previous literature showing that levels of paranoia and competition vary if playing one round of the PDG or with a computer (Ellett et al., 2013). Additionally, it was thought that if it was specifically advertised that participants would be competing against Polish nationals, this would potentially draw further suspicion or increase social desirability bias. It is acknowledged that the use of deception in the current study impacted participants ability to provide informed consent and may have caused mild discomfort or undermined the trust inherent in the implicit contractual relationship between researcher and participant, potentially fostering negative attitudes towards future psychological research participation (Kimmel, 2012). However, this was not raised by members of the pilot sample, the use of deception was approved by the ethics committee and participants were fully debriefed at the end of the study alongside being provided information on how to access support. Many participants also emailed the lead researcher to share that they wish the study had lasted longer, permitting them to play more rounds of the PDG.

### ***Reflections on User Involvement***

The importance and benefits of patient and public involvement in research has been widely emphasised and UK standards for public involvement documented in various guidelines by the Department of Health (2005) and National Institute for Health Research

(NIHR; 2021). INVOLVE's definition of *user involvement* includes patients, carers, and members of the general public who use health and social care services (NIHR, 2012). As the current study was focussed on gaining a better understanding of paranoia in members of the general population, it was important to include perspectives of people who do not have a professional role in health and social services. Therefore, 12 members of the public (three with significant gaming experience) were consulted during the pilot phase of the study. These individuals were asked to provide feedback on various aspects of the study including: (a) the experience of the game as whole; (b) authenticity of the game and how much their opponent felt like a real person; (c) clarity of instructions; (d) time taken to participate; (e) readability and understandability of the information and debriefing sheet; and (f) whether the incentive was effective.

Feedback from these individuals led to changes in the study procedures. Half of the pilot sample commented on how they did not believe their opponent was real and suggested that participants should be required to sign up to a fixed time slot when they play the game. This way it would be more believable as their opponent would have had to sign up to the same timeslot. It was also suggested to include a message in the game that "another player had been found", and to give participants the option to send a message to their opponent. These features were included and improved the level of believability reported by the second half of the pilot sample. It is planned that these individuals will also be contacted to provide feedback on the lay summary of the findings ahead of dissemination.

Despite this consultation, there was limited user involvement in the development of the aims of the project. On reflection, facilitating service user involvement prior to the development of the project proposal would have furthered the level of participation from "consultation" to "collaboration" (NIHR, 2021). Additionally, whilst it is possible that individuals who participated in the pilot will have experienced paranoid thoughts due to the prevalence of paranoid thoughts in nonclinical populations, it may have been helpful to consult individuals with more severe experiences of paranoia. With greater access to funding and resources, this could have been done through making contact with existing

service user involvement groups or trying to set up my own advisory group. It would have been especially useful to think if an online game would be an activity that people with more regular experiences of paranoid thoughts would want to engage in. With digital exclusion faced by at least 20% of people with psychosis, especially older people (Robotham, Satkunanathan, Doughty, & Wykes, 2016), it would have been useful to think with an advisory group about how to facilitate recruitment and inclusion of this population.

## **Impact**

### ***Academic Beneficiaries***

This project provides a unique contribution to the paranoia literature that would be of interest to researchers in clinical psychology, social psychology and psychiatry. The empirical study finding of heightened state paranoia and deservedness following an interpersonal transgression, and the systematic review finding of heightened stress sensitivity in individuals with PM/BM paranoia were both concordant with the traditional stress-vulnerability model (Zubin & Spring, 1977) and more recent social-developmental models of psychosis (van Os et al., 2010). Social-developmental models emphasise the effects of the environment on elevating risk of onset of psychotic disorders through context-specific stressors such as early life adversity and trauma, growing up in an urban environment, being a member of a minority group, and cannabis use. However, elevated paranoia as found in the empirical study can also be viewed as an advantageous response to an interpersonal transgression. Ellett et al. (2003) propose an understanding of paranoia from an evolutionary perspective, whereby paranoia may have been evolutionarily selected and inherited as a trait due to its adaptive value. There is clear value in being able to rapidly detect threat and remain vigilant when detected (Ellett et al., 2003; Green & Phillips, 2004). Consideration of potentially hostile intentions of others can be highly appropriate to ensure survival and the ability to reproduce. In this way paranoia may be viewed as a by-product of a cognitive system designed to tolerate false-positives and avoid false negatives in conditions of threat (Dodgson & Gordon, 2009). More simply, fearing harmless people (false positive) is safer than failing to fear people who pose a genuine threat (false negative). The

evolutionary maxim “better safe than sorry” has been proposed as a way to help explain why paranoia persists in nonclinical populations.

The empirical study finding that people had different responses to ingroup and outgroup members with regards to level of deservedness supports the social identity threat literature (Branscombe, Ellemers, Spears, & Doosje, 1999) and studies showing negative treatment by ingroup and outgroup members produce different emotional responses (Mendes et al., 2008; Schaafsma & Williams, 2012). Whilst future research addressing the methodological considerations of the empirical study is necessary, it makes sense why people would want to maintain positive relations with group members despite experiencing an interpersonal transgression from an ingroup member. Branscombe et al. (1999) argue that transgressions by ingroup members are appraised as an *acceptance threat* (i.e., people may become uncertain about their position within their group) and the empirical study suggests that one way to maintain group membership may be to blame yourself and not your fellow in-group member. This would be particularly interesting to researchers in social psychology.

### ***Non-Academic Beneficiaries***

The empirical study focussed on nonclinical paranoia, with 60% of participants reporting no previous contact with mental health services. It would be helpful to raise awareness in members of the general public that the experience of paranoid thoughts is common among individuals without mental health difficulties. Families, carers and communities of these individuals may also benefit from increased awareness regarding prevalence of paranoid experiences in order to reduce mental health stigma and increase access to mental health support.

The findings may also help to relocate paranoia within the rich human repertoire of interpersonal behaviour that can emerge even after a *single* negative interpersonal experience with a *virtual* opponent in an online game. It is hoped that in doing so it adds to campaign to destigmatise paranoia and detach it from associations with mental ill-health (Ellett & Chadwick, 2007). There is a wealth of literature showing high endorsement of

stigmatising attitudes towards people with psychotic disorders and even people at risk of psychosis (Colizzi, Ruggeri, & Lasalvia, 2020). Both public and internalised stigma significantly affect the lives of people with mental health difficulties by increasing social isolation (Lysaker, Davis, Warman, Strasburger, & Beattie, 2007), exclusion from work (Stuart, 2006), delaying help-seeking (Clement et al., 2015) and overall poorer physical health care (Henderson et al., 2014). Therefore, challenging public and internalised stigma is essential and consistent with movements in mental health provision towards recovery models for severe mental health which have been found to improve outcomes and empower people with psychotic disorders (Anthony, 2003; Repper & Perkins, 2003; Warner, 2010).

### ***Service Users and Clinicians***

Like members of the general population, it is hoped that service users who experience paranoia themselves will find it normalising to learn about the project and the prevalence of nonclinical paranoia. Participants who took part in the study and individuals who will access the study summary may feel encouraged to seek appropriate support from mental health services if they experience mild but distressing paranoid beliefs. The systematic review may support individuals to gain a better understanding of how paranoid experiences may be accompanied or predicted by a range of psychological processes. It also highlights how experiences of paranoia can be vastly different for different individuals.

As milder paranoia experiences may be overlooked by clinicians, the findings encourage clinicians to assess for milder forms of paranoia in both members of the general population but also people with non-psychotic disorders (e.g., depression, anxiety) where subclinical paranoia has been found (Krabbendam & van Os, 2005; McElroy et al., 2019). For clinicians working with more severe paranoia and persecutory beliefs, it promotes greater assessment for feelings of deservedness and thinking collaboratively with service users about the relevance of correlates identified in the systematic review in perpetuating PM/BM paranoia. Furthermore, the current study encourages clinicians to normalise relationships between social stressors such as interpersonal transgressions and paranoia, validating the distress that these experiences undoubtedly cause.

### ***Researchers Interested in the Explored Topics***

The current thesis has the potential to shape the direction of future research. There is a need for further research investigating causal relations between deservedness and the various psychological variables that have been explored thus far. Gaining a better understanding of what constitutes PM/BM paranoia and what is a product of the experience of PM/BM paranoia would support the development of targeted clinical interventions. Future researchers could improve the PaDS-D measure or develop a new measure that fully encapsulates PM/BM paranoia as proposed by Trower & Chadwick (1995). More specifically, differences in threats to self-construction, developmental histories, views of the self and others, emotional, and behavioural patterns were theorised but are not included in the measure.

Alongside addressing the methodological concerns outlined in the empirical study, researchers may be interested in exploring the effects of interpersonal transgressions in the PDG on clinical samples, to allow for comparison with the current findings. If the effect of the identity of a transgressor on deservedness is replicated in future studies, it would also be important to understand what mediates this relationship, for example self-esteem or negative beliefs about the self. Finally, future researchers should also focus on identifying factors which buffer and attenuate nonclinical paranoia experiences, in order to further understand factors that prevent development of more severe forms of psychosis. For example, the social identity hypothesis of paranoia has shown how secure social identities and meaningful social relationships may protect against paranoia (Amedy, Monsonet, Kwapil, & Barrantes-Vidal, 2020) in line with the socio-developmental models of paranoia mentioned earlier. Forgiveness has also been found to attenuate the effects of a transgression on state paranoia (Honeybourne-Ward, 2016). Longitudinal studies would also allow for researchers to assess the persistence of paranoia and deservedness following a transgression in the PDG.

### **Dissemination**

The current research will be communicated to a range of audiences. The findings from both the systematic review and empirical study will be submitted for peer review and publication in academic journals. Peer-reviewed journals such as the *Journal of Consulting and Clinical Psychology*, *British Journal of Clinical Psychology*, *Personality and Individual Differences*, *Psychiatry Research*, and the *Journal of Behavior Therapy and Experimental Psychiatry* will be targeted. The impact factors of these five academic journals range from 1.96-4.6. These journals are known to publish on the topics of clinical and nonclinical paranoia and being published in these journals would increase the likelihood that the research findings are communicated to academics, researchers and clinicians within these specific fields. The empirical study findings will be disseminated to trainee clinical psychologists and staff members in the Clinical Psychology Doctoral Course. Finally, a lay summary of the project will be shared with appropriate local groups (e.g., the London paranoia and beliefs network, Positive connections, Bow Cool to Believe) and national organisations such as the National Paranoia Network and the BPS faculty of psychosis.

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## Appendices

**Appendix 1. Quality Assessment Tool for Quantitative Studies (Thomas, Ciliska,  
Dobbins & Micucci, 2004)**

**QUALITY ASSESSMENT TOOL FOR  
QUANTITATIVE STUDIES**



**COMPONENT RATINGS**

**A) SELECTION BIAS**

**(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?**

- 1 Very likely
- 2 Somewhat likely
- 3 Not likely
- 4 Can't tell

**(Q2) What percentage of selected individuals agreed to participate?**

- 1 80 - 100% agreement
- 2 60 – 79% agreement
- 3 less than 60% agreement
- 4 Not applicable
- 5 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**B) STUDY DESIGN**

**Indicate the study design**

- 1 Randomized controlled trial
- 2 Controlled clinical trial
- 3 Cohort analytic (two group pre + post)
- 4 Case-control
- 5 Cohort (one group pre + post (before and after))
- 6 Interrupted time series
- 7 Other specify \_\_\_\_\_
- 8 Can't tell

- 1 Cross-sectional study
- 2 Cohort study / prospective
- 3 Case-control / retrospective

**Was the study described as randomized? If NO, go to Component C.**

- No
- Yes

**If Yes, was the method of randomization described? (See dictionary)**

- No
- Yes

**If Yes, was the method appropriate? (See dictionary)**

- No
- Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**C) CONFOUNDERS**

**(Q1) Were there important differences between groups prior to the intervention?**

- 1 Yes
- 2 No
- 3 Can't tell

**The following are examples of confounders:**

- 1 Race
- 2 Sex
- 3 Marital status/family
- 4 Age
- 5 SES (income or class)
- 6 Education
- 7 Health status
- 8 Pre-intervention score on outcome measure

**(Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?**

- 1 80 – 100% (most)
- 2 60 – 79% (some)
- 3 Less than 60% (few or none)
- 4 Can't Tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**D) BLINDING**

**(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?**

- 1 Yes
- 2 No
- 3 Can't tell

**(Q2) Were the study participants aware of the research question?**

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**E) DATA COLLECTION METHODS**

**(Q1) Were data collection tools shown to be valid?**

- 1 Yes
- 2 No
- 3 Can't tell

**(Q2) Were data collection tools shown to be reliable?**

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

**F) WITHDRAWALS AND DROP-OUTS**

**(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?**

- 1 Yes
- 2 No
- 3 Can't tell
- 4 Not Applicable (i.e. one time surveys or interviews)

**(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).**

- 1 80 -100%
- 2 60 - 79%
- 3 less than 60%
- 4 Can't tell
- 5 Not Applicable (i.e. Retrospective case-control)

RATE THIS SECTION	STRONG	MODERATE	WEAK	
See dictionary	1	2	3	Not Applicable

**G) INTERVENTION INTEGRITY**

**(Q1) What percentage of participants received the allocated intervention or exposure of interest?**

- 1 80 -100%
- 2 60 - 79%
- 3 less than 60%
- 4 Can't tell

**(Q2) Was the consistency of the intervention measured?**

- 1 Yes
- 2 No
- 3 Can't tell

**(Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?**

- 4 Yes
- 5 No
- 6 Can't tell

**H) ANALYSES**

**(Q1) Indicate the unit of allocation (circle one)**

community    organization/institution    practice/office    individual

**(Q2) Indicate the unit of analysis (circle one)**

community    organization/institution    practice/office    individual

**(Q3) Are the statistical methods appropriate for the study design?**

- 1 Yes
- 2 No
- 3 Can't tell

**(Q4) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?**

- 1 Yes
- 2 No
- 3 Can't tell

**GLOBAL RATING**

**COMPONENT RATINGS**

Please transcribe the information from the gray boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

<b>A</b>	<b>SELECTION BIAS</b>	<b>STRONG</b>	<b>MODERATE</b>	<b>WEAK</b>
		1	2	3
<b>B</b>	<b>STUDY DESIGN</b>	<b>STRONG</b>	<b>MODERATE</b>	<b>WEAK</b>
		1	2	3
<b>C</b>	<b>CONFOUNDERS</b>	<b>STRONG</b>	<b>MODERATE</b>	<b>WEAK</b>
		1	2	3
<b>D</b>	<b>BLINDING</b>	<b>STRONG</b>	<b>MODERATE</b>	<b>WEAK</b>
		1	2	3
<b>E</b>	<b>DATA COLLECTION METHOD</b>	<b>STRONG</b>	<b>MODERATE</b>	<b>WEAK</b>
		1	2	3
<b>F</b>	<b>WITHDRAWALS AND DROPOUTS</b>	<b>STRONG</b>	<b>MODERATE</b>	<b>WEAK</b>
		1	2	3
				Not Applicable

**GLOBAL RATING FOR THIS PAPER (circle one):**

- 1      STRONG                      (no WEAK ratings)
- 2      MODERATE                    (one WEAK rating)
- 3      WEAK                            (two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

No      Yes

If yes, indicate the reason for the discrepancy

- 1      Oversight
- 2      Differences in interpretation of criteria
- 3      Differences in interpretation of study

**Final decision of both reviewers (circle one):**

- 1      STRONG**
- 2      MODERATE**
- 3      WEAK**

**Appendix 2: Measures**  
**Demographic Information**

**Age (in years):** \_\_\_\_\_

**Please describe your gender:**

Male

Female

Prefer to self-describe as: \_\_\_\_\_

Prefer not to say

**Please describe your employment status:**

Employed

Unemployed

Full-time education

Prefer not to say

**Please state your education status:**

O-level/GCSE equivalent

A-level or equivalent

Degree or equivalent

Post-graduate or equivalent

Prefer not to say

**Which of the following best describes your ethnic group or cultural background?**

White (including English / Welsh / Scottish / Northern Irish / British / Irish / Gypsy or

Irish Traveller / Any other White background)

- Mixed / Multiple ethnic groups (including White and Black Caribbean / White and Black African / White and Asian / Any other Mixed Ethnic background)
- Asian / Asian British (including Indian / Pakistani / Bangladeshi / Chinese / Any other Asian Background)
- Black / African / Caribbean / Black British (including African / Caribbean / Any other Black/African/Caribbean background)
- Other ethnic group
- Prefer not to say

**Which of the following best describes your nationality? If you hold multiple nationalities, please select which one represents you best at present.**

British

Non-British. Please specify: \_\_\_\_\_

**What is your current marital status?**

Single

Married or cohabiting

Widowed

Divorced

Prefer not to say

**Have you had previous contact with mental health services?**

Yes

No

Prefer not to say

**Single Item Social Identification Measure (Postmes et al., 2013)**

Using the scale below, how much you agree with the following statement: "I strongly identify with my nationality".

	1	2	3	4	5	6	7
	Fully disagree						Fully agree
I strongly identify with my nationality	<input type="radio"/>						

**Revised-Green et al., Paranoid Thoughts Scale (Freeman et al., 2019)**

Please read each of the statements carefully. They refer to thoughts and feelings you may have had about others over the last month. Think about the last month and indicate the extent of these feelings from 0 (Not at all) to 4 (Totally).

(N.B. Please do not rate items according to any experiences you may have had under the influence of drugs.)

	Not at all				Totally
<i>Part A</i>					
1. I spent time thinking about friends gossiping about me.	0	1	2	3	4
2. I often heard people referring to me.	0	1	2	3	4
3. I have been upset by friends and colleagues judging me critically.	0	1	2	3	4
4. People definitely laughed at me behind my back.	0	1	2	3	4
5. I have been thinking a lot about people avoiding me.	0	1	2	3	4
6. People have been dropping hints for me.	0	1	2	3	4
7. I believed that certain people were not what they seemed.	0	1	2	3	4
8. People talking about me behind my back upset me.	0	1	2	3	4
<i>Part B</i>					
1. Certain individuals have had it in for me.	0	1	2	3	4
2. People wanted me to feel threatened, so they stared at me.	0	1	2	3	4
3. I was certain people did things in order to annoy me.	0	1	2	3	4
4. I was convinced there was a conspiracy against me.	0	1	2	3	4

5. I was sure someone wanted to hurt me.	0	1	2	3	4
6. I couldn't stop thinking about people wanting to confuse me.	0	1	2	3	4
7. I was distressed by being persecuted.	0	1	2	3	4
8. It was difficult to stop thinking about people wanting to make me feel bad.	0	1	2	3	4
9. People have been hostile towards me on purpose.	0	1	2	3	4
10. I was angry that someone wanted to hurt me.	0	1	2	3	4

**Heartland Foundation Forgiveness Scale (HFS: Thompson et al., 2005)**

**Directions:** In the course of our lives negative things may occur because of our own actions, the actions of others, or circumstances beyond our control. For some time after these events, we may have negative thoughts or feelings about ourselves, others, or the situation. Think about how you **typically** respond to such negative events. Next to each of the following items write the number (from the 7-point scale below) that best describes how you **typically** respond to the type of negative situation described. There are no right or wrong answers. Please be as open as possible in your answers.

1	2	3	4	5	6	7
Almost Always False of Me		More Often False of Me		More Often True of Me		Almost Always True of Me

- \_\_\_ 1. Although I feel bad at first when I mess up, over time I can give myself some slack.
- \_\_\_ 2. I hold grudges against myself for negative things I've done.
- \_\_\_ 3. Learning from bad things that I've done helps me get over them.
- \_\_\_ 4. It is really hard for me to accept myself once I've messed up.
- \_\_\_ 5. With time I am understanding of myself for mistakes I've made.
- \_\_\_ 6. I don't stop criticizing myself for negative things I've felt, thought, said, or done.
- \_\_\_ 7. I continue to punish a person who has done something that I think is wrong.
- \_\_\_ 8. With time I am understanding of others for the mistakes they've made.
- \_\_\_ 9. I continue to be hard on others who have hurt me.
- \_\_\_ 10. Although others have hurt me in the past, I have eventually been able to see them

as good people.

\_\_\_ 11. If others mistreat me, I continue to think badly of them.

\_\_\_ 12. When someone disappoints me, I can eventually move past it.

\_\_\_ 13. When things go wrong for reasons that can't be controlled, I get stuck in negative thoughts about it.

\_\_\_ 14. With time I can be understanding of bad circumstances in my life.

\_\_\_ 15. If I am disappointed by uncontrollable circumstances in my life, I continue to think negatively about them.

\_\_\_ 16. I eventually make peace with bad situations in my life.

\_\_\_ 17. It's really hard for me to accept negative situations that aren't anybody's fault.

\_\_\_ 18. Eventually I let go of negative thoughts about bad circumstances that are beyond anyone's control.

**State Paranoia Scale (Ellett et al., 2013)**

Instructions: Please select the boxes which best describe **how you experienced the other player** during the game. It is usually your initial response that is most accurate so please do not spend a long time considering each item.

1.

	Definitely friendly towards me	Probably friendly towards me	Maybe friendly towards me	Unsure	Maybe hostile towards me	Probably hostile towards me	Definitely hostile towards me	
Friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Hostile

2.

	Definitely wants to please me	Probably wants to please me	Maybe wants to please me	Unsure	Maybe wants to upset me	Probably wants to upset me	Definitely wants to upset me	
Wants to please me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Wants to upset me

3.

	Definitely wants to help me	Probably wants to help me	Maybe wants to help me	Unsure	Maybe wants to harm me	Probably wants to harm me	Definitely wants to harm me	
Wants to help me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Wants to harm me

4.

	Definitely respects me	Probably respects me	Maybe respect s me	Unsure	Maybe has it in for me	Probably has it in for me	Definitely has it in for me	
Respect s me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Has it in for me

### State Forgiveness Measure (Brown & Phillips, 2005)

Please consider your thoughts and feelings **towards the other player** in the game.

1. I have forgiven this person.

Strongly Disagree							Strongly Agree
<input type="radio"/>							

2. I feel angry towards this person.

Strongly Disagree							Strongly Agree
<input type="radio"/>							

3. Even though his/her actions hurt me, I do not feel ill-will toward him/her.

Strongly Disagree							Strongly Agree
<input type="radio"/>							

4. I dislike this person.

Strongly Disagree							Strongly Agree
<input type="radio"/>							

5. I feel warmly toward this person.

Strongly Disagree							Strongly Agree
<input type="radio"/>							

6. I hope this person gets what's coming to them for what they did to me.

Strongly Disagree							Strongly Agree
<input type="radio"/>							

7. If I met this person, I would try to avoid interacting with him/her.

Strongly Disagree							Strongly Agree
<input type="radio"/>							

## The Persecution and Deservedness Scale (Melo et al., 2009)

Please read each of the following statements carefully and indicate the extent to which they are true or false by circling a number on the scale

1. There are times when I worry that others might be plotting against me.

0                      1                      2                      3                      4

If you've answered 2 or above to the last question, please answer to the following question:

1.1 Do you feel like you deserve others to plot against you?

0                      1                      2                      3                      4

2. I often find it hard to think of anything other than the negative ideas others have about me.

0                      1                      2                      3                      4

If you've answered 2 or above to the last question, please answer to the following question:

2.1 Do you feel like you deserve people to have negative ideas about you?

0                      1                      2                      3                      4

3. My friends/others often tell me to relax and stop worrying about being deceived or harmed.

0                      1                      2                      3                      4

If you've answered 2 or above to the last question, please answer to the following question:

3.1 Do you feel like you deserve being deceived or harmed?

0                      1                      2                      3                      4

4. Every time I meet someone for the first time, I'm afraid they've already heard bad things about me.

0                      1                      2                      3                      4

If you've answered 2 or above to the last question, please answer to the following question:

4.1 Do you feel like you deserve to have people hearing bad things about you?

0                      1                      2                      3                      4

(continues on next page)

5. I'm often suspicious of other people's intentions towards me	<i>Certainly false</i>	<i>Possibly false</i>	<i>Unsure</i>	<i>Possibly true</i>	<i>Certainly true</i>
	0	1	2	3	4
If you've answered 2 or above to the last question, please answer to the following question:					
5.1 Do you feel like you deserve people having bad intentions towards you?	<i>Not at all</i>	<i>Possibly not</i>	<i>Unsure</i>	<i>Possibly</i>	<i>Very much</i>
	0	1	2	3	4
6. Sometimes, I just know that people are talking critically about me.	<i>Certainly false</i>	<i>Possibly false</i>	<i>Unsure</i>	<i>Possibly true</i>	<i>Certainly true</i>
	0	1	2	3	4
If you've answered 2 or above to the last question, please answer to the following question:					
6.1 Do you feel like you deserve people to talk critically about you?	<i>Not at all</i>	<i>Possibly not</i>	<i>Unsure</i>	<i>Possibly</i>	<i>Very much</i>
	0	1	2	3	4
7. There are people who think of me as a bad person.	<i>Certainly false</i>	<i>Possibly false</i>	<i>Unsure</i>	<i>Possibly true</i>	<i>Certainly true</i>
	0	1	2	3	4
If you've answered 2 or above to the last question, please answer to the following question:					
7.1 Do you feel like you deserve people to think of you as a bad person?	<i>Not at all</i>	<i>Possibly not</i>	<i>Unsure</i>	<i>Possibly</i>	<i>Very much</i>
	0	1	2	3	4
8. People will almost certainly lie to me.	<i>Certainly false</i>	<i>Possibly false</i>	<i>Unsure</i>	<i>Possibly true</i>	<i>Certainly true</i>
	0	1	2	3	4
If you've answered 2 or above to the last question, please answer to the following question:					
8.1 Do you feel like you deserve people to lie to you?	<i>Not at all</i>	<i>Possibly not</i>	<i>Unsure</i>	<i>Possibly</i>	<i>Very much</i>
	0	1	2	3	4
9. I believe that some people want to hurt me deliberately.	<i>Certainly false</i>	<i>Possibly false</i>	<i>Unsure</i>	<i>Possibly true</i>	<i>Certainly true</i>
	0	1	2	3	4
If you've answered 2 or above to the last question, please answer to the following question:					
9.1 Do you feel like you deserve people to hurt you deliberately?	<i>Not at all</i>	<i>Possibly not</i>	<i>Unsure</i>	<i>Possibly</i>	<i>Very much</i>
	0	1	2	3	4
10. You should only trust yourself.	<i>Certainly false</i>	<i>Possibly false</i>	<i>Unsure</i>	<i>Possibly true</i>	<i>Certainly true</i>
	0	1	2	3	4
If you've answered 2 or above to the last question, please answer to the following question:					
10.1 Do you feel like you deserve to have no one you can trust?	<i>Not at all</i>	<i>Possibly not</i>	<i>Unsure</i>	<i>Possibly</i>	<i>Very much</i>
	0	1	2	3	4

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**Appendix 3. Ethical Approval from Research Ethics Committee at Royal Holloway,  
University of London**

**From:** Ethics Application System <Ethics@rhul.ac.uk>

**Date:** Tuesday, 23 June 2020 at 19:15

**To:** "Khan, Fareeha (2018)" <Fareeha.Khan.2018@live.rhul.ac.uk>, "Ellett, Lyn" <Lyn.Ellett@rhul.ac.uk>, "ethics@rhul.ac.uk" <Ethics@rhul.ac.uk>

**Subject:** Result of your application to the Research Ethics Committee (application ID 2068)

PI: Dr Lyn Ellett

Project title: Social Transgressions, Forgiveness and Paranoia

REC ProjectID: 2068

Your application has been approved by the Research Ethics Committee.

Please report any subsequent changes that affect the ethics of the project to the University

Research Ethics Committee ethics@rhul.ac.uk

## Appendix 4. Participant Information Sheet

### INFORMATION SHEET

#### 1. WHAT IS THE STUDY ABOUT?

In this study, we hope to explore different factors which influence our beliefs about ourselves and others, following interactions with other people.

#### 2. WHAT WILL THE STUDY INVOLVE?

To start, we will collect basic demographic information such as your age, gender, education level, nationality and ethnicity. You will be asked to complete 2 questionnaires before playing a short online game against another live player. The game will be explained to you before you start, and you will have a chance to practice before it starts to ensure you understand the rules. After the game has finished, you will be asked to fill in three short questionnaires about how you feel.

As you are playing the game against another player, it is not possible to logout and then login at a later point; you must complete the study in one go. **Please allow 20 minutes to complete the study.** At the end, you will be given a debrief sheet to read, which will include more detailed information about the research study. At this point, there will be an opportunity to ask more questions about the study, and to discuss your experiences completing the different questionnaires and tasks, if you would like to.

#### 3. WHO IS INVOLVED IN THE STUDY?

The main researcher of this study is Fareeha Khan, a Trainee Clinical Psychologist under the supervision of Dr Lyn Ellett, Reader in Clinical Psychology. Both researchers are from Royal Holloway, University of London.

#### 4. WHY HAVE I BEEN ASKED TO TAKE PART?

We are recruiting people aged between 18-65 years old.

## 5. DO I HAVE TO TAKE PART?

It is up to you to decide to take part. If you do decide to take part in the study, you will be asked to complete an online consent form to agree that you have read and understood the study information.

## 6. CAN I WITHDRAW FROM THE STUDY?

Yes! You can withdraw at any time even if you have already completed the consent form. The information you have provided up to that point will be removed and won't be used in the study. You can skip any question you do not wish to answer.

## 7. WHAT ARE THE INCENTIVES AND RISKS?

During the study every participant will have the opportunity to win credits. The number of credits you earn will equate to the number of lottery tickets entered into a prize draw for an Amazon voucher (1 credit = 1 lottery ticket). There are 5x £20 Amazon vouchers available to be won.

Additionally, by participating in this study, you will be contributing to advancing our knowledge in this area of psychological science and you will have the opportunity to learn more about the research area at the end of completing the study. If you are a first-year undergraduate psychology student at Royal Holloway, participation in the study will also earn you course credit.

It is highly unlikely that participating in this study will have any negative impact on your wellbeing. However, if you do feel worse after taking part in the study and you feel you need some support to help with difficult emotions, please contact your GP and inform the main researcher via email (see question 10 for details). Royal Holloway University offers a counselling service if you are a student at the university, or you may also wish to contact the Samaritans.

### Royal Holloway Counselling Service

<http://www.rhul.ac.uk/ecampus/welfare/counselling/home.aspx>  
Telephone: 01784 443 128  
Email: [counselling@rhul.ac.uk](mailto:counselling@rhul.ac.uk)  
Location: FW171

### Samaritans

<http://www.samaritans.org/>  
Telephone: 08457 90 90 90 (UK) or  
1850 60 90 90 (ROI)  
Email: [jo@samaritans.org](mailto:jo@samaritans.org)

## 8. WILL MY TAKING PART BE KEPT CONFIDENTIAL?

All information which is collected during the course of the research will be kept strictly confidential. The questionnaire scores and task data will be anonymised and stored securely on a database. Only the researchers will have access to the information you give during the study. This information will be kept securely for 5 years following the end of the study before it is deleted.

## 9. WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY?

The research study will be written up and submitted as part of the requirements of the Doctorate in Clinical Psychology. The findings of the study will also be written up and submitted to a peer-reviewed journal. There will be no identifiable information in the write-ups. If you are interested in hearing about the results and conclusions of the study, please inform the principal researcher via email who will send you a summary once the research is complete.

## 10. HOW CAN I GET MORE INFORMATION?

If you would like to find out more about any aspect of this study, please contact the researchers who will do their best to answer your questions. Please email:

**Fareeha Khan:** [fareeha.khan.2018@live.rhul.ac.uk](mailto:fareeha.khan.2018@live.rhul.ac.uk)

**Dr Lyn Ellett:** [Lyn.Ellett@rhul.ac.uk](mailto:Lyn.Ellett@rhul.ac.uk)

## 11. DATA PROTECTION INFORMATION

Royal Holloway, University of London is the sponsor for this study and is based in the UK. We will be using the information from you in order to undertake this study and will act as the data controller for this study. This means we are responsible for looking after your information and using it properly. Any data you provide during the completion of the study will be stored securely on local servers. Royal Holloway is designated as a public authority and in accordance with the Royal Holloway and Bedford New College Act 1985 and the Statutes, which govern the College, we conduct research for the public benefit and in the public interest. Royal Holloway has put in place appropriate technical and organisational security measures to prevent your personal data from being accidentally lost, used or accessed in any unauthorised way or altered or disclosed. Royal Holloway has also put in place procedures to deal with any suspected personal data security breach and will notify you and any applicable regulator of a suspected breach where legally required to do so.

To safeguard your rights, we will use the minimum personally identifiable information as possible (i.e. the email address you provide us). The lead researcher will keep your contact details confidential and will use this information only as required (i.e. to provide a summary of the study results if requested and/or for the prize). The lead researcher will keep information about you and data gathered from the study for 5 years after the study has finished. Certain individuals from Royal Holloway may look at your research records to check the accuracy of the research study. If the study is published in a relevant peer-reviewed journal, the anonymised data may be made available to third parties. The people who analyse the information will not be able to identify you. You can find out more about your rights under the GDPR and Data Protection Act 2018 by visiting <https://www.royalholloway.ac.uk/about-us/more/governance-and-strategy/data-protection/> and if you wish to exercise your rights please contact [dataprotection@royalholloway.ac.uk](mailto:dataprotection@royalholloway.ac.uk)

**The study has been reviewed and approved by the Research Ethics Committee at Royal Holloway, University of London.**

**CLICK THE NEXT BUTTON TO PROCEED TO THE CONSENT FORM**

**Appendix 5. Consent Form**

**Consent Form**

***The Impact of Life Experiences***

***on Beliefs about the Self and Others***

I have read the information sheet and understand what this study involves.

The nature, purpose and potential benefits or risks of the study have been explained in the information sheet.

I understand that my participation in the study is entirely voluntary and that I am free to withdraw at any time without giving a reason.

I am aged between 18 and 65 years old and agree to take part in the study.

## Appendix 6. Debriefing Statement

### DEBRIEFING STATEMENT

Thank you very much for taking part in the study. Below is more information about the study that we could not tell you before you took part as it may have affected the decisions you made during the study.

The study used some minor deception. You were made to think that you were playing the game against another player, when in actual fact you were playing against a computer which was pre-programmed. The minor deception was necessary to investigate which strategy you would choose if you were playing against a real person. Please do NOT share this information with others if they plan to complete the study.

The questionnaires that you completed measured paranoia (i.e. thoughts that others may harm you) and your general attitudes toward forgiveness. Some of you played the game against an opponent of the same nationality (British), and some of you played against an opponent of different nationality (Polish). We wanted to see if that made a difference to the choices that were made in the game, and how you felt afterwards. We also wanted to investigate if being more similar to your opponent would affect how paranoid you felt after the game, how forgiving you felt towards your opponent, and how much you thought you deserved what happened in the game.

Your participation in this study will help our understanding of paranoia, which is very important as paranoid thoughts and beliefs are commonly experienced in the general population.

Paranoid-like thoughts are a common everyday experience and are not anything to worry about. However, if you do feel worse after taking part in the study and you feel you need help to manage difficult emotions, please contact your GP and inform the principal researcher (Fareeha Khan) via email. If you are a student, the university also offers a counselling service, or you may also wish to contact the Samaritans.

#### **Royal Holloway Counselling Service**

**Website:** <http://www.rhul.ac.uk/ecampus/welfare/counselling/home.aspx>

**Telephone:** 01784 443 128

**Email:** [counselling@rhul.ac.uk](mailto:counselling@rhul.ac.uk)

**Location:** FW171

#### **Samaritans**

**Website:** <http://www.samaritans.org/>

**Telephone:** 08457 90 90 90 (UK) or 1850 60 90 90 (ROI)

**Email:** [jo@samaritans.org](mailto:jo@samaritans.org)

**Prize Draw information: If you have won an Amazon voucher in the prize draw you will be contacted by researcher by February 2021.**