

Title

Opportunities and challenges around adapting supported employment interventions for people with chronic low back pain: modified nominal group technique

Running head

Adapting supported employment interventions

Article category

Research Paper

Abstract

Purpose: To identify and rank opportunities and challenges around adapting supported employment interventions for people with chronic low back pain.

Methods: Delegates from an international back and neck research forum were invited to join an expert panel. A modified nominal group technique was used with four stages: silent generation, round robin, clarification, and ranking. Ranked items were reported back and ratified by the panel.

Results: Nine experienced researchers working in fields related to low back pain and disability joined the panel. Forty-eight items were generated and grouped into 12 categories of opportunities/challenges. Categories ranked most important related respectively to policy and legislation, ensuring operational integration across different systems, funding interventions, and managing attitudes towards work and health, workplace flexibility, availability of 'good' work for this client group, dissonance between client and system aims, timing of interventions, and intervention development.

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3 **Conclusion:** An expert panel believes the most important opportunities/challenges around
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5 adapting supporting employment interventions for people with chronic low back pain are
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7 facilitating integration/communication between systems and institutions providing
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9 intervention components, optimising research outputs for informing policy needs, and
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11 encouraging discussion around funding mechanisms for research and interventions.
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14 Addressing these factors may help improve the quality and impact of future interventions.
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18 Keywords

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22 Chronic low back pain; supported employment interventions; Individualised Placement and
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24 Support (IPS); health policy; nominal group technique.
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Main text

Introduction

Improving work participation within sick and disabled populations can improve health outcomes, reduce poverty, and improve quality of life and well-being.[1] Supported employment services comprise interventions that aim to place individuals in jobs, without extended preparation, and with individualised support to help maintain participation.[2] One specific type of supported employment intervention, known as Individual Placement and Support (IPS), is a well-specified intervention involving close integration of occupational and health services to support people to gain and retain employment while they receive the treatment and support that they need after placement (*i.e.* the so-called ‘place then train’ approach).[2, 3] IPS has been shown, in a 2016 systematic review of 17 studies and a 2019 review of 27 studies, to be more than twice as likely to lead to competitive employment than traditional vocational rehabilitation in people with severe mental health difficulties.[4, 5]

Low back pain (LBP) is an extremely common symptom that is experienced by people of all ages.[6] In the USA, LBP accounts for more lost workdays than any other condition.[6] In the UK it was reported to account for around 10 million work days lost among those aged 25 to 64 years old, in 2014.[7] Musculoskeletal conditions (of which LBP is the most common) accounted for one-third of work days lost in Norway in 2017, and in the UK, two-million disabled people with musculoskeletal conditions are not in employment; an unemployment rate for disabled people with musculoskeletal conditions of 54%.[8, 9] While the symptom of LBP is common and accounts for many lost workdays, Chronic LBP (*i.e.* LBP that is present for longer than three months) can have a more diverse impact, and in the 2015 Global Burden

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3 of Disease Study, was ranked number one in terms of Years Lived with Disability
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5 (YLDs).[10, 11] For many people, work is an essential part of their self-identity and an
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7 important activity to maintain despite chronic LBP.[1]

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12 Mental health difficulties are frequently comorbid with chronic LBP; either as a pre-existing
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14 condition, or sequelae to the psychosocial and physical challenges associated with living with
15
16 chronic LBP.[12, 13, 14] It is plausible therefore, that supported employment approaches
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18 might be effective in improving work participation in this population. Furthermore, there is
19
20 some trial evidence that integrated clinical and occupational interventions are effective at
21
22 reducing days lost from work in LBP populations.[15] Work participation during and
23
24 following supported employment interventions may help people with chronic LBP to
25
26 overcome obstacles to gaining and retaining employment, facilitate the restoration of self-
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28 identity, as well as improving socio-economic status, and preventing social withdrawal.[11,
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37 There may be challenges and opportunities in adapting supported employment interventions
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39 for people with chronic LBP, who may for example require specific work-place
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41 accommodations to facilitate work and allow them to consistently meet the requirements of
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43 their role.[16, 17, 18, 19] We aimed to identify what an expert panel believed to be the most
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45 prominent opportunities and challenges associated with adapting supported employment
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47 interventions to help people with chronic LBP gain and retain employment.
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Methods

Nominal group technique (NGT) is a highly structured method of achieving consensus in a face-to-face setting. The method has previously been used to establish priorities for research and services in areas such as critical care, stakeholder priorities for support services, and priorities for a national Breast Cancer Centre.[20, 21, 22]

We invited delegates who attended the International Back and Neck Pain Research Forum 2017, in Oslo, Norway to self-select to join a workshop session as part of an expert panel.

The first 15 minutes were used to present three five-minute primer presentations on (1) development of a supported work-placement intervention; (2) IPS interventions and their fidelity; and (3) the ongoing Oslo-IPS in pain trial (NCT02697656).[23] Panellists were then asked to consider the question ‘*What are the most important opportunities and challenges in adapting supported employment interventions for people with chronic low back pain?*’

We followed the four main stages of NGT: silent generation of items for consideration, a so-called ‘round robin’ (*i.e.* where each participant takes a turn) feedback of generated items, clarification, and finally panel voting (ranking).[24] We adopted a modification to NGT timings, similar to that suggested by Varga-Atkins, to facilitate fitting the process into our workshop window—an allotted time of 90 minutes.[25] This pragmatic approach was intended to capitalise on the sesquiannual gathering at this conference of experienced researchers and clinicians with relevant interests.

In the silent generation phase, panellists were given 10 minutes to consider the research question, without discussion. In the ‘round robin’ phase, each panellist in turn fed back one

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3 of the items they generated to the facilitator, who wrote these on a flip-board, without
4 discussion. Twenty minutes were allowed for this stage. Discussion occurred in the
5 clarification phase (20 minutes), where panellists were invited to clarify specifics and to
6 consider whether any of the items could be grouped together or removed. Once the panellists
7 were happy with the refined set of clarified items, they ranked each item for perceived
8 importance using a provided sheet, where higher rankings indicated greater perceived
9 importance. For example, if 12 items were shortlisted following the clarification phase, then
10 each panellist would order these from most important to least important, by awarding 12
11 down to one points for each item, without replacement. Ten minutes were allotted for the
12 ranking stage. Ranks were summed and reported back to the panel. To facilitate this, we
13 designed a spreadsheet that would sum ranks and graph the relative importance as soon as
14 ranks were input after collection. The results were reported back, and ratification of the
15 results was collectively sought from the panellists. Ten minutes were allowed for this final
16 stage. All participants received oral and written information about the study and gave written
17 consent to be acknowledged in the study report.

Results

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46 Nine experts attended our workshop and completed the process (table 1). Of these nine, three
47 identified as British, three as Norwegian, one as American/Canadian, one as Dutch, and one
48 did not provide a nationality. The panel member's ages ranged from 31 to 60 with a mean age
49 of 42.5. Years of experience ranged from one to 30 with a mean of 16.8 years. The gender
50 balance ratio was six females to three males, and panellists identified as coming from across
51 research, clinical, and policy backgrounds.

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3 Forty-eight items were generated during the silent generation and reported in the round robin
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5 phase. Following the discussion and clarification phase, these were condensed into 12 unique
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7 and refined items (table 2).
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17 *Clarification and discussion by item*

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20 The following specific opportunities and/or challenges were identified and discussed in
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22 relation to each item. We note that in some of the responses panellists referred to chronic pain
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24 more generally, and while focus was on chronic LBP, the panel thought that many of the
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26 issues identified may also be applicable to a wider musculoskeletal pain population.
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32 *1. Policy and legislation*

33 The highest-ranked item (table 1) comprised three panel contributions that were grouped
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35 under this category. The contributions concerned challenges to legislation relating to the
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37 disclosure of health issues to an employer, translating research evidence into policy, and
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39 ensuring retention of fidelity once an intervention is scaled-up or integrated into policy.
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45 However, influencing policy was also seen as an opportunity.
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50 *2. Operational integration across different systems*

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52 This item comprised 17 grouped contributions from the panel. The item concerned the
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54 integration of health, employment and social (benefits) systems. Several opportunities were
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56 identified. The panel's view was that there were many people in linked roles with an interest
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3 in supporting chronic LBP patients into work, and so there is likely to be a range of potential
4 case managers (*e.g.* occupational health nurses, occupational therapists, physiotherapists,
5 psychologists, *etc.*). It was asserted that many clinicians in pain clinics want to support
6 patients in valued activities and that work may be among these. However, it was suggested by
7 another member that there may be a lack of work focus in the interventions patients with
8 chronic pain receive in pain clinics. Opportunities for academic study in the application of the
9 ‘one plan’ principle (*i.e.* integrating patient, work/healthcare, employer, partner, and
10 occupational health) and the place and train principle, were noted. It was proposed that
11 through increased involvement of the workplace and supported employment managers, it
12 may be possible to better develop interventions in terms of defining what is necessary to gain
13 and retain competitive employment. It was suggested that opportunities may exist in
14 increasing training and education of *all* health professionals to ensure that they ask their
15 patients about work, and identifying training needs, and developing new approaches. The
16 challenges identified under this heading comprised changing the nature of systems, which
17 panellists suggested may be siloed (insular/unlinked); engaging with employers and
18 identifying any modified work processes that may be necessary; providing suitable support to
19 gain and retain at the right times; and gaining the support of supervisors and the work group
20 of the affected individual to make appropriate work adaptations. Finally, the group was aware
21 of no clear joined-up pathways that bridge the primary and secondary health care and work
22 arenas (*e.g.* vocational rehabilitation services), and it was suggested that the case manager
23 would either need to be that bridge, or to build a bridge. To facilitate this, it was thought that
24 support from others and key systems would be needed.
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3. Funding the intervention

Four **grouped** contributions from the panel were condensed at the clarification stage to form **this item relating to** who funds and who benefits **from the intervention**. This issue was viewed as both a challenge and an opportunity. It was viewed as an opportunity insofar as there was scope to consider new approaches to funding these types of interventions, and a challenge in that the alignment of financial incentives for both the participant and the employer/funder needed consideration. The perceived challenge related to which authorities might feel responsible for funding; in terms of whether funding for such an intervention would fall under government departments, healthcare funders, insurers, employers, *etc* ...

4. Attitudes and beliefs about work and health

This item comprised four **grouped** contributions from the panel. These were concerned with common myths about clinical interventions for chronic LBP having to come before work/vocational rehabilitation efforts, and in-particular that to have an ‘effective’ work-life a person must be 100% fit (*i.e.* in this case, pain free). Challenges were noted in terms of changing stakeholders’ beliefs about work and pain, where stakeholders comprise patient (including family members and carers), employers, employees, healthcare, and government. It was also suggested that increasing public understanding of the benefits of work for health may be challenging, and that social and cultural changes may be necessary for this change to be fully realised.

5. Employer/workplace flexibility

There were three **grouped** contributions from the panel relating to this item. Finding employers willing to employ people with chronic musculoskeletal pain generally was viewed

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3 as a challenge. Nevertheless, the growing evidence base of the effectiveness of workplace
4 interventions was viewed as an opportunity, in that it might motivate increased participation
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6 of stakeholders.
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10 11 12 13 **6. A shortage of 'good' work/jobs for this client group** 14

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16 This item comprised two **grouped** contributions from the panel that were concerned with
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18 quantifying and understanding the availability (challenge) and influence (opportunity) of
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20 'good' work (*i.e.* rather than just any work). It was noted that at times when a nation's
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22 economy is challenged there may be knock-on effects for the availability of good/desirable
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24 jobs, especially for those in chronic LBP who are out of work. It was suggested that some of
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26 those with chronic LBP who have fallen out of work, may have characteristics of low
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28 socioeconomic status, low education, low skills, and low return to work self-efficacy.
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34 35 **7. Dissonance between client/patient and system aims** 36 37

38 This item comprised three **grouped** contributions that were identified as challenges. The panel
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40 was concerned with how an intervention might get all relevant stakeholders on board (general
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42 practitioners, employers, *etc*), whether the care was client-driven or society-driven (for
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44 example, whether gaining/regaining work was a goal of the patient, or society) and how to
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46 involve people close to the participant in the intervention.
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52 53 **8. Timing of the intervention** 54

55 One contribution from the panel noted that for any given work-focused intervention in the
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57 context of chronic LBP, there might be questions surrounding the timing of the intervention
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3 with respect to the natural history of the pain, its relationship with work, and that there is a
4 challenge in identifying the importance and effect of timing.
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10 **9.** *Intervention development*

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13 Three opportunities for intervention development were suggested **and grouped together**. It
14 was asserted that healthcare alone is not getting this population back into work (even if it
15 meets some health goals/outcomes), and that there may be opportunities in transferring
16 evidence-based interventions from severe mental illness to this population, and in
17 incorporating exposure *in vivo* approaches in interventions.
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27 **10.** *The spectrum of issues faced by people out of work with chronic pain*

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30 This item comprised three **grouped** contributions from the panel. It was noted that those who
31 have fallen out of work and have no job may be particularly hard to help. There was a
32 suggestion that in order to be pragmatic, we may need to broaden the target population for
33 future trials. However, there was also some sentiment that generally in work-focused
34 interventions, populations are already broad. Additionally, a challenge was noted with respect
35 to it being methodologically desirable to reduce heterogeneity and thus the criteria for entry
36 into a study may need to consider a balance of these considerations. Apart from the variance
37 between people, it was also suggested that within-person variation may be important to
38 understand in the context of transitions in employment as a function of the natural history of
39 chronic LBP (as intervention opportunities may vary at different stages of experience of
40 chronic LBP – some overlap here with Item 8 is noted.).
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11. Cost-effectiveness

One contribution noted that there is both challenge and opportunity in identifying the cost-effectiveness of supported employment interventions.

12. Research methods and recruitment

There were four **grouped** contributions from the panel under this heading. These were broadly concerned with research methodology. Concerns comprised the willingness of people to participate in supported employment interventions, accessing register data, and the notion that pain is multifactorial, and accepting this, it was questioned whether primary health outcomes should only include the gaining/regaining of employment, or also other domains. It was further suggested that gaining/regaining employment is also multifactorial, which makes it challenging to accurately study what works, when, and for whom.

Figure 1 shows how the panel collectively ranked the identified and categorised items. As **the panel ranked** there were 12 items (i), and nine panel members (k), we note that the sum of the total NGT ranking scores is $\sum_{i=1}^n \cdot k = 702$. Each of the 12 items clarified gained between 31% and 81% of the maximum possible score for a single item.

Discussion

Main challenges and opportunities identified

The challenges and opportunities identified and judged most important related to policy and legislation; ensuring operational integration across different systems; funding interventions;

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3 and managing attitudes towards work and health. Five areas were then ranked more centrally
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5 in the distribution of rated importance; these comprised ensuring employer/workplace
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7 flexibility; a perceived shortage of good work for the client group; the potential for
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9 dissonance between client/patient and system aims; the timing of the intervention; and the
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11 development of the intervention more generally. Finally, three items were identified and
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13 ranked as being relatively less important; these comprised the spectrum of people; cost-
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15 effectiveness; and research challenges.
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22 *Implications*

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25 Although matters of policy and legislation were rated most important by the panel, accepting
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27 that these should be evidence-based, forming policy and legislation is necessarily dependent
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29 upon empirical work. The design of this work may be dependent on some other items rated as
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31 relatively less important by our panel. Thus, this set of identified challenges and opportunities
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33 may describe something of a hermeneutic circle given the existence of inter-item
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35 dependencies.
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42 An overview of the issues at the intersection of researcher and policy maker interests might
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44 be summarised as whether we can (1) trial interventions that act in existing health and work
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46 systems—which is dependent on there being sufficient infrastructure to permit the necessary
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48 interactions and communications between existing systems; while (2) ensuring that research
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50 outputs are readily consumable for policy makers; and (3) that research and policy making
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52 can be coordinated in such a way that the information yielded from research can be used by
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54 policy makers at the right times. The implications are that integration and communication
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56 between different systems, from which intervention components will arise, needs
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3 improvement, as does the communication between academics and policy makers regarding
4 research outputs and ensuring these are made useful for informing policy needs.
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10 *Comparisons to existing research and policy, and future recommendations*

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14 Cullen *et al* systematically reviewed studies of workplace-based return to work interventions,
15 and reported finding strong evidence that multiple-domain interventions (*i.e.* interventions
16 that spanned at least two of three intervention domains comprising health-focused
17 interventions; service coordination interventions; and/or work modification interventions)
18 improve outcomes in workers with musculoskeletal and mental health difficulties.[26] There
19 is thus some evidence that developing interventions featuring components that span health
20 and work systems is both already possible, and useful.
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32 In 2016, the UK Joint Work and Health Unit published a consultation document (Green
33 Paper) on work, health, and disability which outlined policy thinking and the need for change
34 by employers, the welfare system, health and care providers, and the general public.[9] The
35 UK government's response was published in 2017 and contained details of a 10-year strategy
36 emphasising the importance of joining up welfare, employment, and the healthcare
37 systems.[27] The strategy prioritises addressing mental health and musculoskeletal
38 conditions, as the most common conditions that affect work participation, and making
39 significant research funding available to support the objective. It is noted that stakeholders
40 will be encouraged to disseminate knowledge to policy makers. Additionally, desires to
41 encourage changes in culture and mind-set across society (including employers, health
42 services, and individuals themselves) were detailed, as was the desire to better utilise
43 technology to remove barriers (*sic*) to work and to facilitate interaction between people and
44 health and welfare services. The NHS's 2019 10-year plan references the government's
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3 framework for voluntary reporting on disability, mental health, and wellbeing in the
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5 workplace.[28, 29]
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10 Similarly, the European Agency for Safety and Health at Work has emphasised needs for
11 building cross-disciplinary bridges and for focusing on higher-quality intervention studies
12 that apply a multi-risk approach in order to promote evidence-based practice in the
13 prevention of musculoskeletal disorders.[30] The Societal Impact on Pain platform, operated
14 under the auspices of the European Pain Federation (EFIC), has called, as part of an advocacy
15 plan, for the establishment of an EU platform for the exchange of best practices between
16 member states on pain and its management and impact on society. Using the platform to
17 monitor trends in pain management, services, and outcomes to “*provide guidelines to*
18 *harmonize effective levels of pain management to improve the quality of life of European*
19 *Citizens*” has been recommended.[31] Against this, Societal Impact on Pain has reported
20 that, as of 2014, eight countries (seven in continental Europe) had completed the launch of a
21 national pain action plan.
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40 Several of the proposed areas of focus across these policy documents and calls match with
41 our panel’s rated nominations. Governments may already be recognising that changes to
42 policy, framework, and legislation, and that improvements in communication are needed. It
43 has been suggested that in low and middle-income countries, where the burden of LBP is
44 increasing, that a particular concern is that as most employment is informal, possibilities for
45 job modification may be completely absent.[6] However, Lebanon is among the eight
46 countries Societal Impact on Pain reports has already completed national pain action plans.
47 Such steps may go some way toward helping to highlight the benefits of job modifications in
48 low and middle-income countries.
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5 We are aware of several calls for work and health research for people with chronic pain (most
6 of which is chronic LBP) from Norwegian and UK funders. However, funding has previously
7 been noted as an obstacle in providing IPS services in the US for people with mental health
8 difficulties.[32] Qualitative approaches and cross-sectional studies may be useful for
9 exploring the willingness of funders and government departments to funding supported
10 employment interventions, and possible funding mechanisms.
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21 Several of the other challenges and opportunities identified by our panel may be able to begin
22 to be addressed relatively straight-forwardly with research. For example, researcher and
23 policy makers' views could be explored with regards to how policy and evidence from the
24 academic sector might be better reported and integrated. What is valued by people who are
25 off-work or have fallen out of the workforce with chronic LBP, and what these people feel
26 they need to gain or regain employment, might be explored not only with qualitative
27 approaches, but also with discrete choice experiments, where people's perceived unmet needs
28 and value attributes relating to intervention characteristics could be quantified and used to
29 inform intervention development.[33] Qualitative work and discrete choice experiments
30 might also be of more direct use to policy makers for exploring what incentives business
31 would need to employ or provide payed work placements to people with chronic LBP who
32 would like to gain/regain employment. Using outputs of these studies to inform development
33 of interventions that are more attractive to a target population may then help to improve
34 recruitment. Trials of these interventions could explore/model timing of the delivery of the
35 intervention as an objective/factor. Finally, ongoing analysis of routine data from active
36 programmes may help to identify what characteristics are associated with the
37 gaining/regaining of employment, by intervention, and help to categorise what works, when,
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3 and for whom, amongst a broad spectrum of people. To this end, some work on determining
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5 and standardising what work outcomes should be included in routine datasets may also be
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7 needed.
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10 11 12 *Strengths and limitations*

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16 Like Delphi technique, NGT is an approach that is often used for achieving panel consensus
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18 when empirical evidence on a topic is either impractical or impossible to obtain.[34] It is
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20 important to note that such approaches must not be interpreted as a correct answer.[35] More
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22 empirical approaches that accurately estimate important parameters using inference may be
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24 possible. We fitted a modified approach into a relatively typical conference workshop
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26 structure to make good use of having subject experts in one place, and we note the limitations
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28 of the approach accordingly.
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35 It may be necessary to distinguish between implications and corollaries of 'expert panel' size
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37 and 'sample' size. In statistical inference, there is a proportional relationship between sample
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39 size and the accuracy of parameter estimates that follow from measuring quantities in the
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41 sample which, through inference, are used as proxies of unknown parameters in the
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43 population from which the sample was drawn. Inference is not operated in this way when
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45 using an expert panel. As noted by the RAND Corporation when developing consensus
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47 methods, the idea of pooling expert views is a near tautology.[36] However, in experiments
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49 with expert panel sizes ranging from seven to 30, RAND found in practice that n experts
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51 performed better than one, for estimating quantities that in normal circumstances would be
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53 empirically inestimable, or when information was not readily available.[36, 37] When the
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55 approaches were applied to health, early consensus studies on surgical techniques often used
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57 panel sizes of nine experts, on the basis that nine is "*large enough to permit diversity of*
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3 *representation while still being small enough to allow everyone to be involved in group*
4 *discussion”*. [38] In recent years, the size of expert panels has increased quite dramatically
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6 (most notably in on-line Delphi studies in health research). One driving force of this may be
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8 the ease with which on-line studies can now be conducted; however, another may be belief
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10 that the propagated view that sample sizes need to be large (which is correct of course in
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12 matters of inference) should carry to an expert panel. This does not necessarily follow, since
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14 inference is not operated in an expert panel (experts are not sampled from, and nor are they
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16 representative of, the relevant population of interest). As well as information, there could also
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18 be misinformation in n expert’s heads which aggregates to form a less reliable opinion than
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20 might be obtained from a single expert alone. [36] Thus, appropriateness of panel composition
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22 may be better qualified in terms of its ‘expertness’ rather than its size.
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31 With the above considerations in mind, we may have lacked expert input from the
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33 perspectives of patients with chronic LBP, employers, and potential funders of research and
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35 interventions. The issue of who is considered an expert deserves consideration. Definitions
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37 of experts vary widely. [39] The suggested definition of Fink *et al*, that an expert is defined as
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39 “...representative of their professional group with sufficient expertise not to be disputed or
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41 the power required to instigate the findings”. [40] We suggest this has definition has good
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43 face validity; however, our self-selected expert panel made up from participants from the
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45 International Back and Neck Pain Research Forum 2017 may be only partially consistent
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47 with the definition. While our panel has good academic standing and an average of 16.8
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49 years’ experience (SD=9.8), on the whole, it may have more power to instigate findings
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51 relating to research than policy matters. One must also consider the possibility that experts
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53 who attend the same conference may be anthropologically similar in their views. Thus, there
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55 may be extant views of non-present experts that are valid and differ but were not captured.
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3 Accordingly, we emphasise that a 'true' answer is not being claimed to have been found, but
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5 that the panel's views might be informative in the absence of empirical evidence.
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10 Some components of the categories identified might be in need of clarification, or further
11 consideration or investigation through research. For example, in **Item 6**, a perceived shortage
12 of 'good' work/jobs is referenced. However, it may not be clear what constitutes a 'good' job
13 and this may be subjective and dependent upon the job being desirable or agreeable to a
14 given individual.
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23 As we anticipated, careful time management was essential to achieving our study aims in
24 limited workshop time. Some of the panel commented that while the session was intensive,
25 they were pleased with the outcome and thought that the output of the session would be
26 useful to others.
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34 Finally, we note that our question focused on the adaptation of supported employment
35 interventions and their use in helping people with chronic LBP to gain/regain and retain
36 employment. We would note caution in interpreting results in relation to populations of sick-
37 listed people (*i.e.* where people have a job to which they may return) as these priorities may
38 not be appropriate to interventions intended solely for sick-listed populations. We also
39 emphasise that in some of the responses panellists referred to chronic pain more generally
40 and while focus was on chronic LBP many of the issues identified might reasonably be
41 transferable to a wider musculoskeletal pain population.
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Conclusion

Twelve categories of opportunities and challenges associated with adapting supported employment interventions for people with chronic LBP were identified. These were ranked in order of importance: 1. Policy and legislation matters; 2. Operational integration across different systems; 3. Funding the intervention; 4. Attitudes and beliefs about work and health; 5. Employer/workplace flexibility; 6. A shortage of ‘good’ work/jobs for this client group; 7. Dissonance between client/patient and system aims; 8. Timing of the intervention; 9. Intervention development; 10. The spectrum of issues faced by people who are out of work with chronic pain; 11. Cost effectiveness; and 12. Research methods and recruitment. Researchers and policy makers working on adapting supported employment interventions for use with people with chronic LBP might consider these items; in particular those rated most important, where concerns span the issues of improving integration/communication between different systems that would provide intervention components, improving communication of research outputs for policy needs, and encouraging discussions about potential funding mechanisms.

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1
2
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5 Hospital.
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9 Contributions

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13 The study was conceived by RF, designed by RF, MU, KB, TP, and VS, administered by RF,
14
15 MU, VS, TP, and PA. RF did the analysis and wrote the first draft of the paper. All authors
16
17 contributed comments and edits to successive drafts.
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21 Declaration of interest

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25
26 RF is part of an academic partnership with Serco Ltd related to return-to-work initiatives, and
27
28 a shareholder and director of Clinvivo Ltd. MU was Chair of the NICE accreditation advisory
29
30 committee until March 2017 for which he received a fee. He is chief investigator or co-
31
32 investigator on multiple previous and current research grants, on low back pain and other
33
34 disorders, from the UK National Institute for Health Research (NIHR), Arthritis Research
35
36 UK and is a co-investigator on grants funded by the Australian NHMRC. He is an NIHR
37
38 Senior Investigator. He has received travel expenses for speaking at conferences from the
39
40 professional organisations hosting the conferences. He is a director and shareholder of
41
42 Clinvivo Ltd that provides electronic data collection for health services research. He is part of
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44 an academic partnership with Serco Ltd related to return to work initiatives. He is a co-
45
46 investigator on a study receiving support in kind from Orthospace Ltd. He is an editor of the
47
48 NIHR journal series, and a member of the NIHR Journal Editors Group, for which he
49
50 receives a fee. He has published multiple papers on chronic pain some of which are
51
52 referenced in this paper. MFR is a steering group member of the EFIC Societal Impact of
53
54 Pain Steering Group and co-chair of the Pain Alliance Netherlands. KB is an occasionally
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2
3 receives consultancy fees from occupational health providers, and is an expert advisor to the
4
5 UK Department for Work and Pensions. NEF is chief investigator or co-investigator on
6
7 multiple previous and current research grants, on low back pain and other disorders, from the
8
9 UK NIHR, Versus Arthritis, and other funders. She is an NIHR Senior Investigator. She has
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11 received travel expenses for speaking at conferences from the professional organisations
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13 hosting the conferences and has received research funding to develop, test and implement
14
15 interventions that support people with musculoskeletal pain in staying at, and returning to,
16
17 work. PA, TP, TLJ, VS, SB, MCB and GJ declare that they have no conflicts of interest.
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24 The views and opinions expressed by authors in this publication are those of the authors and
25
26 do not necessarily reflect those of the NHS, the NIHR, MRC, CCF, NETSCC, the Health
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28 Technology Assessment programme or the Department of Health and Social Care.
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34 Data availability statement

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38 The data that support the findings of this study are available from the corresponding author,
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40 RF upon reasonable request.
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Tables

Table 1 – Characteristics of NGT participants

Participant	Discipline/background	Age	Gender	Experience [†] (years)	Nationality
1	Research and Health Psychology	31	Female	6	Norwegian
2	Policy Research (Work and health)	46	Female	20	British
3	Physiotherapy	46	Female	21	British
4	Nursing, epidemiology, and trials	40	Female	13	British
5	Research, and Physical Medicine and Rehabilitation	ND	Male	25	ND
6	Research, and Physical Medicine and Rehabilitation	34	Female	10	Norwegian
7	Rehabilitation Medicine	52	Male	25	Dutch
8	Research and Osteopath	31	Male	1	Norwegian
9	Research and Physiotherapy	60	Female	30	American/ Canadian

[†] *i.e.* Experience in their stated discipline/background

Table 2 – Table of items following the clarification and discussion stage and their subsequent ranking

Item description	NGT rank [†]
Policy and legislation	1
Operational integration across different systems	2
Funding the intervention	3
Attitudes and beliefs about work and health	4
Employer/workplace flexibility	5
Shortage of 'good' work/jobs for this client group	6
Dissonance between client/patient and system aims	7
Timing of the intervention	8
Intervention development	9
The spectrum of issues faced by people out of work with chronic pain	10
Cost effectiveness	11
Research methods and recruitment	12

[†] lower NGT rank numbers here indicate greater perceived importance

Figure captions

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3 Figure 1 – Bar chart showing item ranking. A higher NGT ranking score indicates greater
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5 perceived **item** importance, **and here lower ranks indicate greater importance**. Table 2
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8 provides an item legend.
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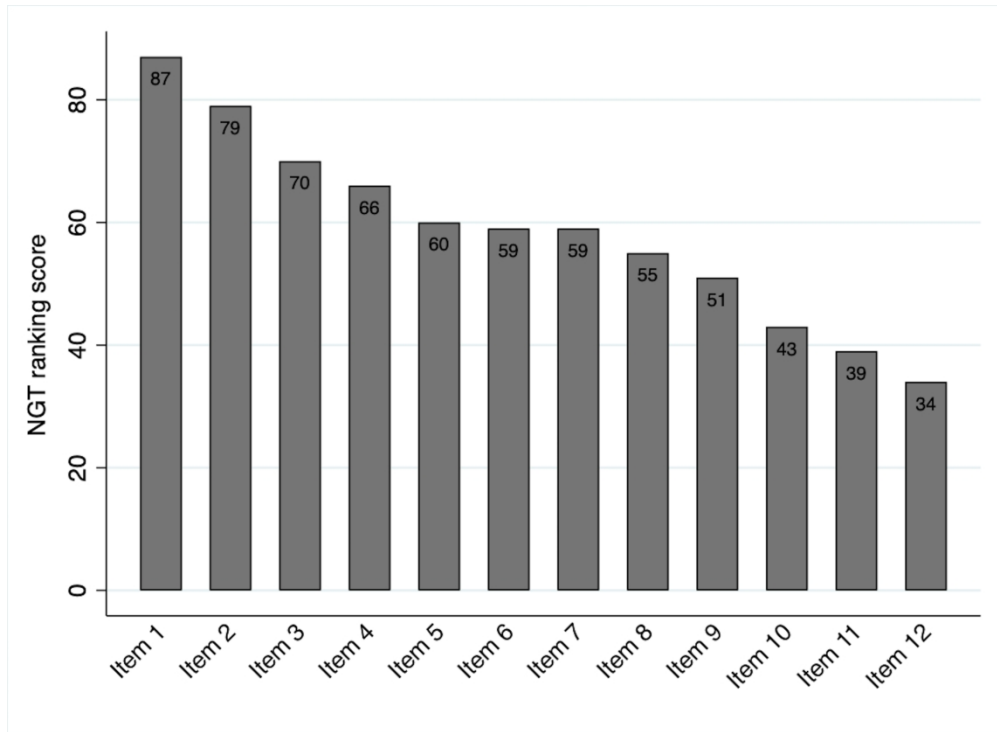


Figure 1 – Bar chart showing item ranking. A higher NGT ranking score indicates greater perceived item importance, and here lower ranks indicate greater importance. Table 2 provides an item legend.

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