

Working with persistent pain: An exploration of strategies utilised to stay productive at work.

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Abstract

Purpose

Maintaining productive employment for people with persistent pain conditions is challenging. This study aims to explore supports—work and non-work— used by employees to assist them in maintaining productive employment.

Methods

An exploratory, mixed-methods study comprising a questionnaire battery followed by semi-structured interviews to collect in-depth qualitative data was undertaken. The questionnaires measured descriptive variables used to select participants for interviews based on maximum heterogeneity sampling. Thirty-five semi-structured interviews were undertaken (14 males; 21 females). The interview schedule covered: employment situation, workplace challenges, workplace supports, coping strategies, motivations, future employment options and any other resources utilised. Inductive content analysis was undertaken using a grounded theory approach to systematically explore the data.

Results

Three key themes were identified: *barriers to working productively*, *enablers to working productively*, *disclosing my condition at work*. A key determinant of maintaining productive employment was a supportive employer. In addition, flexibility in the work organisation was also pivotal in maintaining sustainable, productive employment. An important issue emerged with regard to disclosure of one's condition to an employer. For some, this was a significant barrier to employment.

Conclusions

To ensure sustainable employment is attainable for those with persistent pain conditions, a good match is required between an employee and their work. Workplace accommodations may assist with improving job fit but this requires disclosure of a condition to an employer. Weighing up the risks and benefits of disclosure is difficult, and may be assisted by knowledge of available supports to assist with maintaining ongoing employment.

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Background

Sustainable employment is an important goal for individuals and society; people in work generally report better health than those not employed [1]. However, for the 3.2 million Australians with conditions that result in persistent musculoskeletal pain (PMP), achieving sustainable, productive employment is challenging [2]. Those with chronic conditions which includes arthroses and back pain [2] have reduced workforce participation resulting in substantial economic impact [3] through lost income tax and increased need for government support payments [4], as well as reduced retirement wealth [5]. While enablers to staying at work for the general population may include appropriate provision of workplace modifications to improve person-environment fit, these same issues among individuals with PMP, particularly for those with non-work related conditions, have not been extensively studied [6], and may reasonably vary considering the impact of chronic musculoskeletal conditions on physical and psychosocial wellbeing [7].

Workplace accommodations are one strategy to assist those with PMP to remain at work [8]. The availability of such accommodations may be varied and potentially influenced by the type of compensation schemes operating in the country of employment [9]. In countries, such as Australia, Canada, the United Kingdom and United States, where compensation schemes distinguish between those with work and non-work related conditions, those with non-work related PMP (i.e. the vast majority) may face significant challenges in accessing necessary support to enable them to stay at work [10-12]. Understanding the need for, and nature of, such supports from the perspective of the worker is therefore important.

Individuals with chronic health conditions face additional challenges in making decisions about whether to disclose their condition to an employer, manager, supervisor or colleague as unintended consequences may result, such as job loss, discrimination or failure to gain new employment [13]. Conversely, consequences of disclosure can be positive, with improved access to workplace

modifications to assist with maintaining or improving productivity [14]. Evidence on workplace accommodations suggests that even when made available, uptake is limited by those with PMP [8]. Whether this is because employees with PMP don't require such modifications or they don't access them because it would entail disclosure of their condition, requires further investigation [15, 16].

The efforts expended by those with PMP to maintain employment are considerable; individuals use a range of strategies that could offer insights to inform workplace intervention strategies to improve return to work outcomes or to reduce the risk of disability-related absence [6]. Previous research has focused predominately on returning people to work after absence, usually due to injury, rather than a primary prevention approach to assist them to stay at work with a chronic health condition. In the context of PMP, this last issue is critically important considering the projections for an increased prevalence and impact of these conditions in coming decades in people of prime working age, as well as the trend for an increasing retirement age globally [17, 3]. The aim of this study was to explore in depth the personal experiences of individuals with PMP around strategies currently used, and those potentially needed in the future, to maintain productive employment.

Accepted version

Methods

Study design

A mixed-methods study design was undertaken, with a questionnaire followed by semi-structured, individual interviews to enable deeper exploration of workers' experiences than could otherwise be attained through other methods. A thematic approach using grounded theory principles was used to analyse the data [18].

Sampling

Individuals, currently working with PMP were recruited using Facebook, Twitter, newsletters and websites of the following organisations: Arthritis and Osteoporosis Victoria (A&OV), Chronic Pain Australia, Pain Australia, Male Health Victoria, A&OV peer support groups (Ankylosing Spondylitis Support Group, Men's Support Group, Young Womens' Arthritis Support Group) and A&OV affiliate offices in other Australian states and territories.

Study inclusion criteria required individuals to: have unresolved pain of musculoskeletal origin in one or more body locations for six months or longer; have been working for greater than eight paid hours per week in the previous year; be aged between 25-65 years; and fluent in English. Two employees over 65 years responded to recruitment advertisements and were included in the study provided they met all other criteria. A total of 76 individuals contacted the research team of which 71 were eligible to participate (4 were excluded as they were not currently working) and 50 agreed to participate in the study.

Participation in the study occurred in two stages; i) completion of an online survey, and ii) for a subset of participants, a telephone interview. Participants were offered a \$10 gift voucher for completion of the survey and a further \$40 for those who completed the interview as compensation for their time.

Quantitative measures

Quantitative data were collected via an online survey. Demographic information (age, gender and occupation) was collected, along with work history, diagnostic category of condition(s), and whether the PMP condition had been disclosed to the employer. A previously used discomfort measure was used to calculate an overall discomfort score out of 60 [19], with higher scores indicating greater levels of discomfort. Healthy working populations have previously reported mean scores of 12.5 using this scale [20]. Workability was assessed with a single item from the Workability Index: "Assume that your work ability at its best has a value of 10 points [21]. What score would you give your current work ability?", on a scale of 0 (unable to work) to 10 (excellent). This single item has been highly associated to the whole index, and is accepted for use as a single item [22].

The 11-item Workplace Activity Limitations Survey (WALS) [23] was used to assess employment activity limitations e.g. getting to and from work, as well as activities at the workplace (4-point numeric rating scale). Higher scores indicate greater levels of disability. Internal consistency for this scale was $\alpha=0.84$. Presenteeism was measured using the 6-item Stanford Presenteeism Scale [24], where lower scores indicate a higher degree of presenteeism (decreased productivity). Internal consistency for this scale was $\alpha=0.71$. Productivity was measured using the 25-item Workplace Limitations Questionnaire (WLQ) [25] which assess the percentage of productivity loss due to health problems in the past two weeks, including time management, physical, mental-interpersonal and output demand. A lower score indicating less productivity loss, internal consistency for this scale was $\alpha=0.71$.

Qualitative measures

An interview schedule was developed using relevant literature and input from three researchers (JO, NK and AMB). Broad topic areas, including sample questions, are as follows: current employment situation ("Tell me about your job"), workplace challenges ("Are there any particular parts of your job that make your aches and pains worse?"), workplace supports ("What kind of workplace support is available to help you do your work?"), coping strategies ("What kinds of strategies do you use to minimise the aches/pain you have a work?"), motivations ("What motivates you to continue working in this job despite having aches and pains?"), future options for work ("Do you think your aches and pains will affect your future ability to continue working?") and currently available resources ("Can you

think of any resources or initiatives – either directed towards employees or employers – that would help people who work with persistent pain to do their job more easily or more productively?”).

Following analysis of the quantitative data, interview participants were purposefully sampled using a maximum heterogeneity approach to ensure a balance of gender, age and job type. Once a representative subset of participants was identified, these individuals were invited to participate in telephone interview. All those invited agreed to participate. Interviews were undertaken via telephone and audio-recorded for verbatim transcription and additional notes were taken by researchers. Interviews ranged from 40 to 60 minutes. The first two interviews were conducted by two researchers (JO and NK) and following discussion, minor changes were made to interview schedule. Three interviews were conducted by one of the researchers (JO), and the remaining conducted by one of the authors (NK). Discussions regarding the interviews occurred regularly during data collection to ensure consistency and the key research questions were being addressed. We used grounded theory approaches to data analysis, to construct the categories and then derive the themes. Inductive content analysis, comparisons of data and memo writing were used to support the analysis process .

Data Analysis:

Survey data was analysed using descriptive statistic to characterise the sample. Interview transcriptions were analysed thematically using NVivo software (QSR International, Version 10, Melbourne) to assist with data management. A grounded theory approach was used to define categories, and memo writing used to assist with analysis of emerging categories [18]. Themes and sub-themes were developed to assist with strengthening analysis of the data and reviewed throughout the coding process. This approach enabled the data collected from individuals to inform the coding process and subsequent theme development.

To establish consistency in coding, two interview transcripts were randomly selected, read and coded independently by two researchers (JO and NK). Discussion followed and consensus reached on codes and emerging themes within the data. The remaining transcripts were coded by one researcher (NK), with additional themes added or existing ones elaborated, as required following discussion between all researchers.

La Trobe University Faculty of Human Ethics Committee (FHEC14/048) provided ethics approval.

Study participants provided informed consent following the provision of written and verbal information regarding the study.

Table 1. Participant characteristics

Self-reported characteristic	N (%)* Interviewees (n=35)	N (%)* total cohort (n=50)
Age, mean (SD)	44.6 (13.1)	43.9 (11.8)
Gender		
Male	14 (40)	16 (32)
Female	21 (60)	34 (68)
Occupation sector:		
Education	5 (14)	10 (20)
Health	10 (29)	12 (24)
Manufacturing	1 (3)	2 (4)
Trade	2 (6)	2 (4)
Administration	17 (48)	23 (46)
Hospitality/Retail	0	1 (2)
Work participation:		
full time (≥38hrs per week)	19 (54)	27 (54)
part time (<38hrs>8hrs per week)	16 (46)	23 (46)
mean hours (SD)	34 (12.1)	34.08 (11.9)
Disclosed condition at work to		
everyone	15 (43)	N/A
no-one	5 (14)	N/A
selected few (supervisor/colleagues)	15 (43)	N/A
Diagnosis:**		
rheumatoid arthritis	15 (43)	23 (46)
osteoarthritis	8 (23)	14 (28)
reactive arthritis	1 (3)	1 (2)
fibromyalgia	3 (9)	10 (20)
ankylosing spondylitis	9 (26)	9 (18)
psoriatic arthritis	1 (3)	2 (4)
other area of persistent musculoskeletal pain	9 (26)	13 (20)
Number of diagnosed conditions:		
individuals with one condition	23 (66)	33 (66)
individuals with two conditions	6 (17)	9 (18)
individuals with three or more conditions	6 (17)	8 (16)
Duration of pain condition:		
1-3 years	8 (23)	10 (20)
3-5 years	5 (14)	5 (10)
5-7 years	2 (6)	3 (6)
7-9 years	2 (6)	3 (6)
10+ years	18 (51)	29 (58)
Overall health as self-assessed:		
poor	0	0
fair	14 (40)	19 (38)
good	10 (29)	18 (36)
very good	9 (25)	11 (22)
excellent	2 (6)	2 (4)
Discomfort Score/60: mean (SD), range	24.6 (11.1) range 3-44	26.7 (11.3) range 3 - 50
Work Ability/10: mean (SD), range	6.3 (2.0) range 3-10	6.2 (1.9) range 3-10
Work Activity Limitations Survey (WALS)/36:mean (SD), range	12.0 (6.5) range 1-24	12.7 (5.8) range 1-24
(0-4 no to little disability, 5-8 mod disability, 9+ considerable disability)		
Stanford Presenteeism Score/30 mean (SD)	19.5 (4.0) range 12-25	18.4 (3.9) range 12-30
(6 = high degree of presenteeism ie, less ability to perform tasks, 30 = low degree presenteeism ie, greater ability to perform work tasks despite having health condition)		
Workplace Limitations Questionnaire (WLQ), mean (SD) range of percentage productivity loss	7.6 (4.3) 0.22-19.4%	8.6 (4.4) 0.2-16.6%

*unless otherwise indicated

Results

Quantitative outcomes

Background characteristics of participants are summarised in Table 1. Of the 35 participants in the qualitative phase, 14 were male and 21 were female, aged between 26–70 years. The majority of participants were diagnosed with a form of arthritis (89%) and the remainder a range of other persistent MSK conditions (e.g. back or shoulder pain). Most participants reported having PMP for greater than 10 years. Slightly more participants were working full-time compared to those working part-time. In general, general health was fair to good (69%).

Across the sample discomfort levels varied, but on average were moderate at 24.6 out of a possible 60. Mean Workability was poor at 6.3 [22]. WAL measures indicate considerable levels of disability, but large variability across the sample. Presenteeism was moderate with a mean (SD) score of 19.5 (4.0). Productivity loss, as measured with the WLQ, was low with a range from almost no loss to 19.4%.

Qualitative outcomes

Following analysis of the interview transcripts, three key categories were identified which were then developed into themes: *barriers to working productively*, *enablers to working productively* and *disclosing my condition at work*. Themes and associated sub-themes are described with relevant interview extracts in Tables 2-4. Illustrative quotes are used to support themes and sub-themes

Theme 1: Barriers to working productively

Barriers to working productively were numerous and varied; however, a number of sub-themes were identified: *organisational factors*, *physical work environment* and *personal limitations*. A frequently mentioned factor to workplace participation related to *organisational factors*. Support from

organisations was observed in a range of positive and negative forms. Workplace rosters were one mechanism where flexibility could be offered, providing longer breaks between shifts which assisted with managing fatigue, a common problem reported by participants. Some participants reported being offered flexibility to organize their schedule so that productivity could be maximized depending on their symptoms. In contrast, others reported being offered minimal breaks between shifts, which did not accommodate fatigue. Several participants had chosen to work for themselves to avoid potential issues with rigid work schedules. Others reported feeling compromised and frustrated with few employment options, particularly older participants.

Participants faced a range of potential challenges related to the *physical work environment*, which required them to develop strategies or request modifications to enable them to cope. Modifications were either changes to the design of their job or equipment to enable them to work effectively in the physical environment. Physically demanding work was challenging and many participants discussed a carefully considered decision making process in relation to their choice of employment. However, despite barriers some participants continued in physically challenging jobs but created systems to assist them in managing their condition such as pacing, using different equipment, or doing the difficult tasks when their symptoms were well controlled.

Personal limitations encompassed the highly individual nature of PMP, varying pain levels and the subsequent impact of these on an individuals' work performance. Participants used a range of strategies to manage their work, but at times they felt their workability was negatively impacted through fatigue, side effects of medications, and stiffness.

Table 2: Barriers to working productively

Sub-themes	Interview extracts
Organisational factors	<p>"I couldn't keep being sick because that affects the man hours and ... the budget, she [the manager] doesn't get her bonus from head office ... so that's when I said 'For six weeks I'll reduce my shifts' and of course I took them leave without pay so that doesn't affect the man hours or the budget where theoretically I should've taken sick leave because I've been there for 20–30 years, I've got heaps of sick leave ... she would've been grumpy and made your life miserable" (female, nurse, 43 yrs).</p> <p>I went to the Director of Care over it at one stage when I was not coping, and if they'd listened, or had a talk and tried to maybe see if</p>

	there was a way we could deal with it, that would have been nice... they're only putting a day in between my days off (male, nurse assistant, 29 yrs)
Physical work environment	"I was in the performing arts industry, which is what I always wanted to do, and because that's physical type of work I ended up having to give that away ... I thought full-time work was too hard because my arthritis was really quite crazy at that time, so I looked at part-time work" (female, research officer, 46 yrs).
Personal limitations	"I can notice from what I am producing that I am in pain, because I'll write a word and the spelling will be completely wrong or I'll relook at it and the writing doesn't actually make sense because my head's in a different spot" (female, health manager, 32 yrs).

Theme 2: Enablers to working productively

Six sub-themes were identified to support the theme 'enablers to working productively': *having a supportive employer, job design, modifying the physical work environment, medication/therapies, access to resources* and *personal characteristics*. These enablers allowed participants to implement strategies to facilitate the management of their condition at work.

A strong theme throughout the interviews was the importance of a *having a supportive employer*. The role of the employer was consistently mentioned as fundamental in providing a buffer between organizational policies and enabling participants to work productively. A supportive employer allowed and encouraged flexibility in the overall number of hours worked and amount of control afforded to individuals in organizing their work routine. Making choices about the numbers of hours work, taking work home, and ability to take regular breaks was described by many as key factors in enabling productive work.

Participants in more senior roles or those that were self-employed reported having greater control in negotiating their *job design* than those in positions of less authority. One participant reported making a career choice very early after the diagnosis of his condition, so he could control his work schedule. Another early career participant was working as a consultant, but considering future options as she expected her condition to worsen and she would be unable to manage the travel required for the role.

Modifications to the *physical work environment* included factors such as appropriately designed workstations, improved access to the workplace and assistance from colleagues with more physically demanding tasks. Access to ergonomic assessments, properly fitted workstations and other appropriate equipment such as lifts, trolleys and handles was a big employment enabler: “I have now got a standing desk. It’s the best thing I’ve ever had ... really made a difference to my working life” (female, senior executive, 54 yrs).

However, most participants reported that appropriate *medication* was critical to maintaining a high function. Other supports or therapies were also utilised such as heat packs, transcutaneous electrical nerve stimulation (TENS) machines, massage, diet supplements, exercise, cushions or orthotics. Medication was also identified as a barrier due adverse side effects on concentration or increased fatigue.

Many participants reported that *access to resources*, in the form of support groups, websites, pamphlets and appropriate health professionals was important for maintaining productive work. Support groups allowed people to discuss and solve problems in a non-threatening environment. It allowed participants to feel they were not alone in the issues they faced in maintaining work. Several participants reported using a government-funded scheme, which provided useful workplace supports such as equipment; however, only a few participants had accessed this scheme. Participants identified that greater availability of resources to inform employers about various conditions resulting in PMP was needed, as this would assist workers in seeking organisational supports.

Participants highlighted a range of *personal characteristics* they considered essential in maintaining employment. These characteristics included the ability to develop practical strategies to overcome problems, having a positive approach, having determination and the ability to develop strategies to manage pain. A range of practical strategies were utilised, often specific to the participant’s workplace: “I have a pen and paper with me at all times; so anytime somebody’s asked me to do something, I’ll always write it down because I don’t trust my brain fog” (female, administration, 43yrs). In addition, the ability to become absorbed in one’s work served as a distractor from pain so that for

some participants, work itself contributed positively to pain management: 'but if my mind is occupied, then the pain's not there. Participants also described a range of coping strategies for their pain and fatigue so they could continue working rather than take time off, stating their priority was to ensure work was not compromised.

Table 3. Enablers to working productively

Sub-themes	Interview extracts
Having a supportive employer	"I have half a flex day a couple of times a month but the supervisor I had at the time and I still have him now, he sort of went past those rules and just said, 'Look, do your 38 hour week and meet your milestones. Do whatever you need to do to get by.' They have an onsite physio, which I've utilised on a number of occasions, and any request on the odd occasion where I've needed to do something or not do something they've been more than accommodating" (male, engineer, 41 yrs).
Job design	"For me it's really important that on days I'm just too tired...I'll rest for half of today and just pick up the work, make up my time and do the work another day" (female, OHS consultant, 27yrs). "Twenty years ago I set up my own consulting practice which gave me the flexibility to work the hours and the days I wanted, so when you get an assignment you might work full-time for three months, but then you have a month off, that sort of thing" (male, consultant, 59 yrs).
Modifying the physical work environment	"They sent in an OT just to assess the work situation, they actually provided the specialised chair ... making sure that all of the benches are at correct heights that the computers – that everything basically is set up as best it can be for someone with my situation ... they've put in ramps ... I use music as a distraction to the pain ... there's bars around the toilets" (female, health worker, 51 yrs).
Medication/therapies	"I'm on panadeine forte pretty much all day every day. So I do need to take tablets basically throughout the day, but that's easy enough, I've always got them in my bag, I just have a drink with me at my desk so I just put them in ... I take my medications and things at the right times so that I'm generally quite functional at work " (female, administration, 43 yrs).
Access to resources	"...whether it be Arthritis Victoria, or another type of association or organisation like that, in their local community for some guidance and information, because I know that that helped me" (male, manager, 34 yrs).
Personal characteristics	"Positive thinking is quite powerful in this situation. I'm very determined and I've got a lot of inner strength, I can push the pain into the background to an extent. I'm quite conscientious, and I want to do a good job" (female, administration, 69 yrs).

Theme 3: Disclosing my condition at work

The issue of whether to disclose a PMP condition was contentious, and participants' views on the subject were polarized (see Table 1). Some expressed that they were comfortable in disclosing their condition, whilst a few had made a conscious decision to avoid disclosure, fearing adverse consequences. Three sub-themes were identified; open disclosure (usually within the environment of a supportive workplace), avoidance of disclosure (did not disclose, usually due to expectations of discrimination) or incidental disclosure (their symptoms were noticed or they had completed a pre-employment health check).

Participants preferred open disclosure as it enabled them to develop a transparent system of work, access necessary resources and modifications in consultation with their employer, and better opportunities to maximize their productivity. Many participants in this category described good relationships with their employer and colleagues. In contrast, those who avoided disclosure feared discrimination as felt they would not have been employed or they would face challenges being promoted if they were open about their condition.

Participants reported employers were reluctant to employ them because of a perception of an increased likelihood they would submit a worker's compensation claim, and so avoided disclosure. In two cases where participants had to disclose their condition, they developed and signed a contract to allay the employer's fears, stating they would not submit a claim in relation to their condition.

For some, disclosure was incidental. The nature of their condition meant that at times their mobility was visibly reduced so colleagues asked questions or offered to assist. Some reported needing to take sick leave and felt an explanation of why they required time off work was appropriate.

Table 4. Disclosing my condition at work

Sub-themes	Interview extracts
Open disclosure	“Because of the nature of my work and my disability is relevant to my work, I talk about it with my students and my colleagues and I let them know ... It’s actually much better for me to be able to speak up rather than keep it to myself and pretend it’s not there ... then my employer has more opportunity to consider any additional supports” (male, lecturer, 49 yrs).
Disclosure avoidance	“I actually made him sign a document to say he would not use it against me or if he sold the company he would not divulge the information to another company, because I felt it would harm me, like if he did happen to sell the company, somebody came in and found that out they may not want you” (female, administration, 58 yrs).
Incidental disclosure	“I had to have time off for that operation last year, so obviously I gave a bit of an explanation as to why that was the case ... I don’t really want them to think that I’m just slacking off and not doing any work” (female, health professional, 27 yrs).

Discussion

Sustainable and productive employment is of benefit to society and individuals, providing opportunities for better health and financial outcomes than early exit from the workforce by people with chronic conditions. Participants in this study were highly motivated to remain productively employed. Despite the impact of their PMP on discomfort levels and disability, only moderate levels of presenteeism and limited productivity loss was evident from our quantitative data. This suggests that individuals were highly adaptive and had developed effective strategies to manage their conditions so that the impact on their work was minimal. Our qualitative data support this theory where personal and organisational strategies were identified as important factors identified for achieving sustainable employment. Personal characteristics included: highly developed self-management strategies, an ability to adopt a flexible approach to work, and appropriate pain management strategies. Maintaining work and a career path was a high priority for participants of this study and most made substantial personal sacrifices to ensure they were able to maintain sufficient energy for their work.

Organisational factors included a supportive employer, flexible work arrangements and access to workplace modifications if required.

The relationship between an individual and organisation is critical to enabling those with PMP to stay at work and remain productive. Taking into account individual capacities and matching work to these should be standard practice for all workers—with and without PMP. This concept of person-

environment (PE) fit is not new and has been linked with improved productivity and reduced adverse health outcomes [26, 27]. Ergonomics and occupational health professionals routinely use PE-fit frameworks to address workplace problems to ensure a comprehensive and systematic approach to a particular issue is taken [28]. Benefits of adopting the PE-fit framework exist for individuals and the organisations in which they work [29] and the need for such a systematic approach to ensure the complexities of managing chronic conditions at work are adequately addressed has been previously identified [30]. The barriers to productive employment described by participants which included organisational, physical and personal factors, provide insights into strategies required to improve PE-fit. A multilevel, systematic approach is needed to adequately address these factors.

Participants in the current study described numerous examples of behaviours aimed at matching their capacities to the work environment, including the prioritization of other activities to ensure they had sufficient energy to maintain their paid employment, and is consistent with the findings of others [31]. The effectiveness of these strategies is reflected in the low productivity loss scores, despite moderate to high disability scores, as derived from the quantitative data. A key factor in maintaining productivity was related to the ability of participants to employ a range of strategies to maximise work capacity. The implementation of these strategies was facilitated by the availability of appropriate enablers which allowed individuals to use these strategies. Attention to work tasks was consistently identified as a strategy to divert attention away from pain. This strategy is analogous to the use of mindfulness based training for the management of persistent pain [32], where individuals intentionally direct attention to a current experience (typically breathing) and maintain it with openness and acceptance as a means to dampen central nervous system responsiveness to nociception.

In terms of supportive employment it was supervisors who were identified as instrumental in enabling employees to modify their work to improve PE-fit. The significant role of supervisors in managing employees with chronic conditions has been previously reported [33, 34]. Our findings offer further insights into the skills required and potential need for education in the development and provision of appropriate workplace accommodations and the subsequent impact on productivity and reduction of absenteeism. Engaging in a focus more aimed at primary prevention is important to improve employment outcomes for those with PMP [35] as high employer and social costs and reduced

personal wealth are associated with employees being off work and subsequent challenges in returning them to work [36]. This is especially the case for people with arthritis and back problems [37, 38]. Other enablers were more personal in nature, such as an appropriate medication regime and personal characteristics, and these have been previously documented as important in the maintenance of employment [39].

Despite moderate pain levels and chronicity of pain, presenteeism was only moderate in our study, suggestive that workplace accommodations and personal coping strategies, when implemented, were effective. Participants were aware of times when they were unable to work to their full capacity due to the effects of pain or the associated medications to reduce pain. To minimise the impact on their work, which may in explain the relatively moderate levels of presenteeism, participants utilised range of personal strategies to manage their conditions and some reported penalties for adopting such strategies aimed at improving their productivity such as supervisors who refused to approve leave requests or roster changes. The findings confirm the importance of educating those in roles responsible for supervising employees with chronic conditions so they can make informed decisions about appropriate provision of workplace accommodations. Other studies have reported gaps in the knowledge of individuals in managing their own symptoms and proposed the need for education to improve self management [40]; this was not evident in the current study where participants were competently utilising a range of strategies to maintain work performance as indicated by the presenteeism scores recorded. However, this may be indicative of the population involved in the study who had a range of conditions but many with long standing arthroses.

Disclosure of chronic conditions such as PMP is difficult and challenging as highlighted in the current study. Previous research involving people with arthritis has explored the area of disclosure and the challenges involved in making a decision to reveal the presence of a chronic condition to a current or potential employer [13]. These issues are particularly pertinent in countries where workplaces differentiate between work and non work-related conditions. Employers are concerned that employees with PMP may be more likely to claim compensation because of their pre existing condition; this is of relevance in Australia where exacerbations through workplace exposures of non-work conditions are covered by the workers' compensation scheme. Several participants in the

current study supported this notion of employer concern. However, employees who choose not to disclose their condition may not have access to equipment or workplace modifications needed to enable them to work at their maximal efficiency. This situation is complex and requires further discussion and debate between policy makers, employers and advocacy groups who represent those with chronic conditions.

In relation to policy and practice a range of opportunities exist to improve the availability of adequate support for those with PMP to remain at work. These strategies include education of employers on the importance of accommodations to maximise productivity, access to providers who specialise in the development of recommendations regarding workplace accommodations, and ensuring that employers are aware of their legal responsibilities in relation to workers' compensation and discrimination regulations.

Finally, whilst there appears to be a disconnect between the literature concerning return to work and that related to staying at work, substantial overlap exists [6]. Moreover, people who stay at work with PMP have much to offer in terms of skills they have developed to enable them to maintain employment. Improved connections between primary and secondary prevention is needed to keep those with PMP at work, providing them with skills to effectively manage their condition in complex work conditions.

Strengths and limitations.

Qualitative research affords both strengths and weaknesses. The use of interviews provides an in depth view from employees with PMP which would not be achieved without such an approach. This limits the number of participants that can be included in the study, but the data are rich, offering insights not attainable through quantitative methods. The range of ages and occupations included in the study provides some depth to exploration of challenges at different career stages. The use of purposeful sampling enabled the collection of views from participants who varied in age, gender and occupation. Our sampling strategy utilised social media and email, this may have precluded

recruitment of individuals without internet access. However, as most working age individuals have access to the internet either at work or home this was considered to be a low risk [41].

Telephone interviews offer both advantages and disadvantages [42, 43]. Convenience for both interviewer and participants was a key reason this method was chosen. Interviews could be conducted before and after work, at times mutually convenient for interviewers and participants. Telephone interviews enabled participants from regional and interstate locations to participate, which would not have been possible if face-to-face interviews were conducted. A second reason was the anonymity offered by telephone interviews, participants might feel less confronted in discussing their personal workplace situations when they are not in front of the interviewer. On the negative side, it may be harder to develop rapport and the use of non-verbal communication, an important component of interviewing is restricted, therefore the interviewer must use other methods to ensure high levels of engagement are achieved with the participant.

All participants were currently employed; inclusion of people with PMP who had not managed staying at work could have provided a useful contrast to those involved in the current study. This could form the basis for future studies. Following workers with PMP over time is essential to establish the success and failure of workplace accommodations and other personal strategies employed by individuals during their careers to stay at work. To ensure that sustainable employment is an option for all, this is urgently needed.

A final potential limitation was that all participants in the study were covered by a compensation system that distinguishes between work and non-work related conditions and as such for those without a work-related condition provision of workplace accommodations is not covered by the employers' insurance scheme. Findings from this study, and others, need to be considered within the relevant compensation jurisdictions.

Conclusions

The success of individuals managing to remain productive at work is complex and dependent on a range of factors both personal and organisational. Therefore, in order to maximise productivity a multi-

level response is required to develop and implement appropriate workplace accommodations aimed at improving the fit between individuals and their work environment.

However, development of appropriate accommodations is dependent on employees disclosing their condition to their employer. This is a complex issue and may or may not be beneficial to the employee depending on the legislative framework in which the organisation is operating. Further research is required to explore this issue and its impact on employees with PMP. Employees with PMP have demonstrated the successful use of multiple strategies to enable them to remain at work; these can usefully inform prevention strategies to improve participation of those with chronic conditions at work. Workplaces that are supportive are likely to be rewarded with productive employees, as any modifications required can be done in an open and transparent manner.

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References

1. Waddell G, Burton AK. Is work good for your health and well-being? The Stationery Office; 2006.
2. Schofield DJ, Shrestha RN, Cunich M, Tanton R, Kelly S, Passey ME et al. Lost productive life years caused by chronic conditions in Australians aged 45-64 years, 2010-2030. *Med J Aust* 2015; 203(6):260.
3. Arthritis and Osteoporosis Victoria. A problem worth solving. The rising cost of musculoskeletal conditions in Australia. Melbourne: Arthritis and Osteoporosis Australia with Deloitte. Access Economics. <http://www.arthritisvic.org.au/Research/AOV-Funded-Research/Completed/A-Problem-Worth-Solving.2013>.
4. Schofield D, Shrestha RN, Percival R, Passey ME, Callander EJ, Kelly SJ. The personal and national costs of lost labour force participation due to arthritis: an economic study. *BMC Public Health* 2013; 13:188. doi:10.1186/1471-2458-13-188.
5. Schofield D, Kelly S, Shrestha R, Callander E, Passey M, Percival R. The impact of back problems on retirement wealth. *Pain* 2012; 153(1):203-10. doi:10.1016/j.pain.2011.10.018.
6. de Vries HJ, Brouwer S, Groothoff JW, Geertzen JH, Reneman MF. Staying at work with chronic nonspecific musculoskeletal pain: a qualitative study of workers' experiences. *BMC Musculoskeletal Disord* 2011; 12:126. doi:<http://dx.doi.org/10.1186/1471-2474-12-126>.
7. Storheim K, Zwart J-A. Musculoskeletal disorders and the Global Burden of Disease study. *Ann Rheum Dis* 2014; 73(6):949-50.
8. Gignac M, Cao X, McAlpine J. Availability, Need for, and Use of Work Accommodations and Benefits: Are They Related to Employment Outcomes in People With Arthritis? *Arthritis Care Res (Hoboken)* 2015; 67(6):855-64. doi:10.1002/acr.22508.
9. Lippel K. Preserving workers' dignity in workers' compensation systems: an international perspective. *Am J Ind Med* 2012; 55(6):519-36. doi:10.1002/ajim.22022.
10. Shaw WS, Tveito TH, Geehern-Lavoie M, Huang YH, Nicholas MK, Reme SE et al. Adapting principles of chronic pain self-management to the workplace. *Disabil Rehabil* 2012; 34(8):694-703. doi:<http://dx.doi.org/10.3109/09638288.2011.615372>.

11. Briggs AM, Slater H, Bunzli S, Jordan JE, Davies SJ, Smith AJ et al. Consumers' experiences of back pain in rural Western Australia: access to information and services, and self-management behaviours. *BMC Health Serv Res* 2012; 12:357. doi:10.1186/1472-6963-12-357.
12. Arthritis Australia. The ignored majority. The voice of arthritis. GSB Consulting and Communications Pty Ltd. 2011 Sydney, Australia.
<http://www.arthritisaustralia.com.au/index.php/reports/the-voice-of-arthritis-2011.html>. Accessed 14 July 2015.
13. Gignac M, Cao X. "Should I tell my employer and coworkers I have arthritis?" A longitudinal examination of self-disclosure in the work place. *Arthritis Rheum* 2009; 61(12):1753-61. doi:<http://dx.doi.org/10.1002/art.24889>.
14. Munir F, Jones D, Leka S, Griffiths A. Work limitations and employer adjustments for employees with chronic illness. *Int J Rehabil Res* 2005; 28(2):111-7.
15. de Vries HJ, Reneman MF, Groothoff JW, Geertzen JH, Brouwer S. Factors promoting staying at work in people with chronic nonspecific musculoskeletal pain: A systematic review. *Disabil Rehabil* 2012; 34(6):443-58. doi:<http://dx.doi.org/10.3109/09638288.2011.607551>.
16. Munir F, Leka S, Griffiths A. Dealing with self-management of chronic illness at work: predictors for self-disclosure. *Soc Sci Med* 2005; 60(6):1397-407. doi:<http://dx.doi.org/10.1016/j.socscimed.2004.07.012>.
17. Ackerman IN, Bucknill A, Page RS, Broughton NS, Roberts C, Cavka B et al. The substantial personal burden experienced by younger people with hip or knee osteoarthritis. *Osteoarthritis Cartilage* 2015. doi:10.1016/j.joca.2015.04.008.
18. Charmaz K. A constructivist grounded theory analysis of losing and regaining a valued self. In: *Five ways of doing qualitative analysis*. New York: Guildford: 2014.
19. Oakman J, Macdonald W, Wells Y. Developing a comprehensive approach to risk management of musculoskeletal disorders in non-nursing health care sector employees. *Appl Ergon* 2014; 45(6):1634-40. doi:10.1016/j.apergo.2014.05.016.
20. Oakman J, Chan S. Risk management: where should we target strategies to reduce work-related musculoskeletal disorders? . *Safety Science* 2015; 73:99-105.

21. Illmarinen J. Work ability - A comprehensive concept for occupational health research and prevention. *Scand J Work Environ Health* 2009; 35(1):1-5.
22. Ahlstrom LM, Grimby-Ekman AP, Hagberg MMD, Dellve LP. The work ability index and single-item question: associations with sick leave, symptoms, and health - a prospective study of women on long-term sick leave. *Scand J Work Environ Health* 2010; 36(5):404-12.
23. Gignac M, Sutton D, Badley EM. Arthritis symptoms, the work environment, and the future: measuring perceived job strain among employed persons with arthritis. *Arthritis Rheum* 2007; 57(5):738-47.
24. Koopman C, Pelletier KR, Murray JF, Sharda CE, Berger ML, Turpin RS et al. Stanford presenteeism scale: health status and employee productivity. *J Occup Environ Med* 2002; 44(1):14-20.
25. Lerner D, Amick BC, 3rd, Rogers WH, Malspeis S, Bungay K, Cynn D. The Work Limitations Questionnaire. *Med Care* 2001; 39(1):72-85.
26. Caplan RD. Person-environment fit theory and organizations: commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational behavior* 1987; 31(3):248-67.
27. Macdonald W. Workload, performance, health and wellbeing: a conceptual framework. . In: Karwowski. W, editor. *International Encyclopedia of Ergonomics and Human Factors*. London: Taylor and Francis; 2006. p. 2794 - 9.
28. Oakman J, Wells Y. Working longer: What is the relationship between person-environment fit and retirement? . *Asia Pacific Journal of Human Resources* (accepted, in press) 2015.
29. Wilson JR. Fundamentals of systems ergonomics/human factors. *Appl Ergon* 2014; 45(1):5-13.
30. Wynne-Jones G, Main CJ. Overcoming pain as a barrier to work. *Curr* 2011; 5(2):131-6.
doi:<http://dx.doi.org/10.1097/SPC.0b013e3283460b3a>.
31. Kaptein SA, Backman CL, Badley EM, Lacaille D, Beaton DE, Hofstetter C et al. Choosing Where to Put Your Energy: A Qualitative Analysis of the Role of Physical Activity in the Lives of Working Adults With Arthritis. *Arthritis Care Res (Hoboken)* 2013; 65(7):1070-6. doi:10.1002/acr.21957.
32. la Cour PP, Petersen ME. Effects of Mindfulness Meditation on Chronic Pain: A Randomized Controlled Trial. *Pain Med* 2015; 16(4):641-52.

33. Shaw WS, Robertson MM, Pransky G, McLellan RK. Employee Perspectives on the Role of Supervisors to Prevent Workplace Disability After Injuries. *J Occup Rehabil* 2003; 13(3):129-42. doi:<http://dx.doi.org/10.1023/A:1024997000505>.
34. Johnston V, Way K, Long MH, Wyatt M, Gibson L, Shaw WS. Supervisor competencies for supporting return to work: A mixed-methods study. *Journal of Occupational Rehabilitation* 2015; 25:3-17.
35. McCluskey S, Burton AK, Main CJ. The implementation of occupational health guidelines principles for reducing sickness absence due to musculoskeletal disorders. *Occup Med (Oxf)* 2006; 56(4):237-42.
36. Patel S, Greasley K, Watson PJ. Barriers to rehabilitation and return to work for unemployed chronic pain patients: A qualitative study. *Eur J Pain* 2007; 11(8):831-40. doi:10.1016/j.ejpain.2006.12.011.
37. Schofield DJ, Callander EJ, Shrestha RN, Percival R, Kelly SJ, Passey ME. Labour force participation and the influence of having arthritis on financial status. *Rheumatol Int* 2015; 35(7):1175-81.
38. Schofield DJ, Callander EJ, Shrestha RN, Percival R, Kelly SJ, Passey ME. Labor force participation and the influence of having back problems on income poverty in Australia. *Spine* 2012; 37(13):1156-63.
39. Gignac M, Cao X, Lacaille D, Anis AH, Badley EM. Arthritis-related work transitions: a prospective analysis of reported productivity losses, work changes, and leaving the labor force. *Arthritis Rheum* 2008; 59(12):1805-13. doi:<http://dx.doi.org/10.1002/art.24085>.
40. Hutting N, Heerkens YF, Engels JA, Staal JB, Nijhuis-van der Sanden MWG. Experiences of employees with arm, neck or shoulder complaints: a focus group study. *BMC Musculoskeletal Disord* 2014; 15:141-. doi:10.1186/1471-2474-15-141.
41. Sensis. 2015. Sensis social media report. https://http://www.sensis.com.au/content/dam/sas/PDFdirectory/Sensis_Social_Media_Report_2015.pdf. Accessed 2 October 2015.
42. Novick G. Is there a bias against telephone interviews in qualitative research? *Research Nurse Health* 2008; 31:391-8.

43. Sturges J, Hanrahan KJ. Comparing telephone and face-to-face qualitative interviewing: A research note. *Qualitative Research* 2004; 4:107-18.

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