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The work of return to work. Challenges of returning to work when you have chronic pain: a meta-ethnography

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Key words: chronic pain, return to work, meta-ethnography

ABSTRACT

Aim: To understand obstacles to returning to work, as perceived by people with chronic non-malignant pain, and as perceived by employers.

Design: Synthesis of qualitative research using meta-ethnography.

Data sources: Eleven bibliographic databases from inception to April 2017 supplemented by citation tracking.

Review methods: We used the methods of meta-ethnography. We identified concepts, conceptual categories and developed a conceptual model and line of argument.

Results: We included 41 studies. We identified three core categories in the conceptual model; managing pain, managing work relationships and making workplace adjustments. All were influenced by societal expectations in relation to work, self (self-belief, self-efficacy, legitimacy, autonomy and the meaning of work for the individual), health/ illness/ pain representations, pre-return to work support and rehabilitation, and system factors (healthcare, workplace and social security). A mismatch of expectations between the individual with pain and the workplace contributed to a feeling of being judged, and difficulties asking for help. The ability to navigate obstacles and negotiate change underpinned mastering return to work despite the pain. Where this ability was not apparent, there could be a downward spiral resulting in not working.

Conclusions: For people with chronic pain, and for their employers, navigating obstacles to return to work entails balancing the needs of: (1) the person with chronic pain; (2) work colleagues; and (3) the employing organisation. Managing pain, managing work relationships and making workplace adjustments are central, but not straightforward, and require substantial effort to culminate in successful return to work.

[Word count = 244]

Strengths and Limitations of this study *(five bullet points - one sentence each)*

Strengths

- This is the first study to present employer and employee perspectives together.
- This study draws together what is known from qualitative studies to inform practice.
- This study highlights health and illness and pain representations in relation to return to work.

Limitation

- Only five studies covered employers' perspectives, so there are fewer data on employers' perspectives compared to the perspectives of people with chronic pain.

INTRODUCTION

Chronic pain, defined as pain lasting three months or more[1], is a global public health problem affecting one-in-ten adults.[2] A 2017 mega-ethnography brought together eleven qualitative evidence syntheses to explore the experience of living with chronic non-malignant pain.[3] Previous reviews have identified the importance of the effect of chronic pain on people's work life.[4 5] Chronic pain is strongly associated with claiming disability and unemployment benefit in Australia[1] and with unemployment in the USA.[6] The obstacles to staying in work for people with musculoskeletal pain have previously been explored in a meta-ethnography[7] and factors promoting staying at work are the focus of a previous mixed methods systematic review.[8] A qualitative systematic review of the impact of chronic pain in the workplace[9] takes a broad perspective including impact on employment status, sickness absence and loss of productivity in contrast to a condition. A gender-specific literature review focused on work and rehabilitation for women with fibromyalgia.[10] The lack of focus on return to work for people with chronic non-malignant pain and the perspective of employers presents a knowledge gap in existing reviews. Return to work can refer to the process of returning after a period of sick leave[11] or returning after a period of unemployment.[12] This review uses qualitative evidence synthesis to increase understanding of the obstacles to return to work for people with chronic pain and their employers, and this can then inform intervention development to support return to work.[4 13]

METHODS

Aims and objectives

This meta-ethnography explores experiences of returning to work, as perceived by people with chronic non-malignant pain and by employers.

Study design

There are two main approaches to synthesising qualitative research, one that aggregates findings to describe the literature and one that aims to interpret findings and develop a conceptual understanding.[4 13 14] Meta-ethnography is an interpretative form of knowledge synthesis that was chosen for this study in order to both integrate and develop a greater understanding of existing knowledge and identify any other overarching concepts that would explain the data. The seven phases of meta-ethnography are outlined by Noblit & Hare (1988)[14] and elaborated on by Toye *et al.* (2014b).[13] These are 1) getting started by identifying area of interest 2) deciding what is relevant 3) reading and re-reading the studies 4) determining how the studies are related which involves creating a list of key phrases, ideas, metaphors and concepts 5) translating the studies into one another where direct comparisons are made and similar concepts are sorted into categories 6) synthesising the translations where researchers make sense of the conceptual categories to develop new knowledge and understanding and 7) expressing the synthesis. A line of argument was constructed by examining how the conceptual categories relate to each other.

Identifying and appraising the review articles

Search methods

Study selection

Eleven electronic bibliographic databases were searched (AMED; ASSIA; CINAHL; EMBASE; IBSS; MEDLINE; PsycINFO; Social Services Abstracts; Sociological abstracts; Web of Science; Westlaw) from inception up until 25th April 2017 supplemented by backwards and forwards citation tracking using SCOPUS. An academic support librarian undertook the initial search in collaboration with RF in December 2016 and this was updated by MG in April 2017. The search terms used included “Chronic pain” and “Return to work (MeSH) OR Employment OR Employer OR Supported Employment (MeSH)”. In April 2017 two additional search terms were used, ‘pain”–’ to broaden search as ‘chronic pain”–’ was not identifying all relevant papers and “‘qualitative”–’ to focus the search on studies with this type of methodology. All qualitative studies using face to face interviews and focus groups which explored perceptions of obstacles to return to work, in employers and people who were off work, sick-listed and had chronic pain were included. Non-English language texts were excluded.

Quality appraisal

The quality of studies was evaluated using the Critical Appraisal Skills Programme (CASP) qualitative assessment tool.[15] A scoring system was utilised for CASP (yes = 3, can't tell = 2, no = 1). A score of 20 or higher indicates the paper is deemed to be of satisfactory quality. The GRADE-CERQual (Grading of Recommendations Assessment Development and Evaluation - Confidence in the level of Evidence from Reviews of Qualitative research) approach was also completed.[16 17] Confidence in review findings was assessed based on four components: adequacy of data[18], coherence[19], methodological limitations[20] and relevance.[21]

Analysis

Initially, the first ten papers (in alphabetical order of author) were read by MG, KS and JOB in order to identify key 'concepts', the raw data of meta-ethnography.[13] These concepts are ideas drawn from the findings of the original papers. They are also known as second order concepts because they are the authors' interpretations of the participant's narratives (known as first-order concepts).[22] The participants' narratives chosen by the author are examples of second-order concepts.[13] After reading these 10 papers, the concepts identified by each researcher were amalgamated through discussion and grouped into conceptual categories that the team then worked collaboratively to name. This took place over a series of three meetings. These conceptual categories are third-order concepts insofar as they are the researchers' interpretations of second order concepts. This is the way that studies were translated and related to each other. The first author then proceeded to read the rest of the papers and continue this process of analysis. Five additional papers were also read by KS and JOB where MG felt a collaborative discussion would be helpful due to the nature and/ or findings of the studies. All the included papers were uploaded to QSR International's NVivo 11 software[23] and nodes were created for the conceptual categories. The next stage was to make sense of these categories through further discussion, make decisions about which were the core categories and develop a line of argument and conceptual model[13] involving a

further four meetings. The line of argument makes a whole of something more than a sum of the parts.[14] MG, JOB and KS independently drew their own conceptual model before coming together to agree a model, which was revised through several discussions and the final version (the 11th version) which is presented in this paper. The culture described by Toye *et al.* (2013b)[24] of a core team that provided a safe environment in which to freely discuss, agree, disagree and change their position in relation to conceptual analysis and this was seen as a key strength, laying the foundations for a rigorous review. This approach was adopted in this review.

Patient and Public Involvement

A patient and public representative was involved in the development of the research funding submission for the overall study as a co-applicant and endorsed the importance of the focus of this meta-ethnography.

Results

Search outcome and overview of studies reviewed

We include 41 papers (**see Figure 1 [insert near here]**). The initial 3191 hits were screened by titles and abstracts, duplicates excluded and a further 1466 were excluded at this stage. Following the reading of full texts, papers were excluded as they were neither about chronic pain nor specifically about return to work. All the included studies passed the first two screening questions of the CASP tool that related to whether there was a clear statement of the aims of the research and if qualitative methodology was considered appropriate to address the research goal.[15] CASP scores are presented in Supplementary file 1. Of the 41 articles included, 32 reported interview studies and nine focus group studies. Twenty-one studies were from Scandinavia (14 in Sweden, four in Norway, and three in Denmark), seven were from the UK, seven were from Canada, two in France and one each from Australia, South Africa, Switzerland and USA. Only five studies were from employer's perspectives. One study included in the review did not specify the type of chronic pain, but the majority of

the studies involved people or employers of people with musculoskeletal pain, mainly affecting the back and neck and some were injury/ work related. Studies of people with musculoskeletal disease including arthritis, fibromyalgia and systemic lupus erythematosus were also included (Table 1).

Table 1 Description of included studies

	Author and year of publication	Country	Type of pain	Number, gender and age of participants	Participants	Method of data collection	Methodological approach – Analysis
1	Ahlstrom *et al*. 2017[11]	Sweden	Neck pain	16 women Mean age of 54	People with history of long-term sick leave in human service organisations	Interviews	Constructivist grounded theory approach
2	Andersen *et al.* 2014[25]	Denmark	Back or upper body	4 men and 3 women aged 33-57	Participants in chronic pain self-management programme or tailored physical activity programme	Semi-structured interviews	Systematic text condensation – thematic cross case analysis
3	Angel *et al*. 2012[26]	Denmark	Low back pain	20 (65% women) Mean age of 46	Participants of counselling intervention addressing work place barriers and physical activity	Semi-structured clinical interviews	Narrative analysis
4	Ashby *et al.* 2010[27]	Australia	Chronic low back pain	11 men aged 23-59	Participants in a work hardening programme	Semi-structured interviews (ethnographic)	Thematic content analysis
6	Brooks *et al*. 2013[28]	England	Persistent non-specific low back pain of at least 12 weeks duration	6 women and 3 men Working participants (5) aged 45-52 (mean 49.2) Unemployed participants (4) aged 51-63 (mean 57) and their significant	Participants from hospital pain management clinic	Semi-structured interviews	Template analysis style of thematic analysis

				others			
7	Buus *et al*. 2015[29]	Denmark	Low back pain	25 (56% women) (mean age 46.8)	People who had received counselling intervention designed to motivate them to change work routines and exercise	Semi-structured interviews	Interpretative thematic analysis
8	Coole *et al.* 2010[30]	UK	Low back pain	13 women and 12 men aged 22-58 years (mean age 44.7)	People offered MDT back pain rehabilitation and concerned about ability to work due to low back pain	Semi-structured interviews	Thematic analysis
9	Coutu *et al.* 2010[31]	Canada	Persistent musculoskeletal pain - back pain (10), upper extremities (4), mixed (2)	10 men and 6 women aged 25-56 (mean age 40)	Workers referred to work rehab programme	Semi-structured interviews	Narrative approach – content analysis
10	Coutu *et al.* 2011[32]	Canada	MSD –related pain for more than 12 weeks accepted and compensated by Quebec Workers Compensation Board Back pain (10), upper extremities (4), mixed (2)	16 workers - 10 men six women Aged 25-56 years (mean age 40)	Referred to evidenced based work rehab programme by a third party payer	Semi-structured interviews	Content analysis

11	Coutu *et al.* 2013[33]	Canada	MSD –related pain for more than 12 weeks accepted and compensated by Quebec Workers Compensation Board Back pain (8), upper extremities (2), both (2)	12 workers (8 men and 4 women) aged 25-56 (mean age 31) and five clinicians	Participants from workers starting a work rehab programme at a hospital research centre	Multiple case study design-semi-structured interviews with workers and rehab clinicians at four points in time	Thematic analysis & constant comparison method (grounded theory)
12	Crooks 2007[34]	Canada	MSD (fibromyalgia, arthritis, RA, OA, Lupus)	18 women aged 26-69 (mean age 44)	Women who developed MSD while involved in the labour market	In-depth interviews	Thematic analysis
13	Dionne *et al.* 2013[35]	Canada	Work-disabling back pain	Workers with work-disabling back pain 9 = returned to work (7 men, 2 women) aged 30-59 10= not returned or recently returned (7 men, 2 women) aged 30-60+	Recruited through newspaper adverts	Focus groups (two)	Content analysis
14	Edén *et al.* 2007[36]	Swedish	MSD (type not specified)	17 individuals (two men, 15 women) aged 41-62 years	People going back to work by means of the Swedish 'resting disability pension'	Interviews	Inductive analysis relevant to research question
15*	Fassier *et al.* 2015[37]	France	Low back pain	Three employers,	Recruited from work	Interviews and	Qualitative content

				one manager and one worker	places with high rates of absence for low back pain – car maker, association providing home services for the dependent and two university hospitals	focus groups	analysis
15	Gard & Sandberg 1998[38]	Sweden	Musculoskeletal pain (shoulder, neck and low back pain) for at least one year with a period of at least four weeks during that time	10 patients (9 females and one male) aged 30-54 years (mean age 47)	People sick listed with musculoskeletal pain	Interviews with a low degree of structure	Phenomenological structural analysis
16	Glavare *et al.* 2012[39]	Sweden	Long-term musculoskeletal pain (whiplash, fibromyalgia, nerve injury (neck), arthrosis of foot)	11 (8 women and 3 men) aged 22-58 (median age 39)	Participants in a multi-professional pain rehab programme followed by a coached work-training programme	Thematised research interviews	Grounded theory – constant comparative method
17*	Grataloup *et al.* 2016[40]	France	Supervisors of people with musculoskeletal disorders	Employees' supervisors (61 charge nurses, and head nurses supervising one or more workers with restrictions for heavy lifting or repetitive movements)	Staff from three public hospitals	12 focus groups (charge nurses and head nurses separate)	Thematic qualitative analysis by constant comparison each focus group analysed before the next held
18	Hansson *et al.* 2001[41]	Sweden	Spine-related	5 people (4 female	People granted	Interviews	Based on grounded

			pain	and 1 male) aged 51-64 (median 55)	disability pension in 1996	conducted as conversations – approach based on symbolic interactionism	theory
19	Hansson *et al.* 2006[42]	Sweden	Neck or low back pain (spine related pain)	33 (20 women and 13 men) aged 32-61 years (median age 48)	Sick listed participants	Qualitative interviews	Qualitative analysis
20	Johansson *et al.* 1997[43]	Sweden	Undefined musculoskeletal pain disorders	20 female patients aged 21 – 61	Females sick listed due to MSD in urban health centre	Repeated thematic interviews	Grounded theory
21	Juuso *et al.* 2016[44]	Sweden	Fibromyalgia	15 women aged 38-64 (median 54)	From a rehabilitation centre (4), associations for rheumatism and FM (11)	In-depth qualitative interviews	Hermeneutic approach
22	Kalsi *et al.* 2016[45]	UK	Chronic pain (type not specified)	17 patients (8 male, 9 female) aged 18-65+ but majority (14/17) were 18-34	Patients attending a 3 week high intensity pain management programme	Semi-structured focus group discussion	Thematic analysis
23	Kvam *et al.* 2013[46]	Norway	Prolonged musculoskeletal pain (unspecified pain in back, neck and shoulders due to fibromyalgia, arthritis, and rheumatism)	4 men and 6 women aged 26-57	Volunteers from people undergoing vocational rehabilitation	Semi-structured interviews	Constant comparative analysis
24	Kvam & Vik 2015[47]	Norway	Prolonged musculoskeletal	6 women, 4 men aged 26-57	People undergoing vocational	In-depth interviews	Discourse analysis

			pain (unspecified pain in back, neck and shoulders due to fibromyalgia, arthritis, and rheumatism)		rehabilitation		
25	Liedberg & Henriksson 2002[48]	Sweden	Fibromyalgia	39 women aged 35-63 (mean 49.5)	Patients from a pain and rehab centre	Interviews	Analysed into categories and subcategories
26	Magnussen *et al.* 2007[49]	Norway	Back pain	12 women, 5 men aged 38-56 years (mean age 49)	Part of a larger study evaluating the effect of a vocational rehabilitation related intervention	Three focus groups	Analysis of themes and subthemes
27	McCluskey *et al.* 2011[50]	UK	Persistent back pain	5 dyads (4 male & 1 female claimants) – aged 29-54 years (mean age 40.2)	Disability claimants and their significant others	Semi-structured interviews	Template analysis
28	McCluskey *et al.* 2014[51]	UK	Persistent low back pain	18 (9 benefits claimants - 5 males and 4 females aged 29-63 - mean age 48.1) and 9 significant others (6 females and 3 males aged 21-68 mean age – 49.7)	Work disability benefits claimants and significant others	Semi-structured interviews	Template analysis
29	Nilsen & Anderssen 2014[52]	Norway	Non-malignant chronic pain (neck and back pain, traffic	10 men and 10 women aged 26-63 (in the year 2006) - mean age 42.7	From a specialist pain clinic	Open ended interviews	Narrative analysis Phenomenological meaning condensation

			injuries)				framework
30	Nordqvist *et al.* 2003[53]	Sweden	Back, neck or shoulder diagnoses	13 women and 5 men	People who in 1985 were 25-34 years old and had a new sick leave spell of at least 28 days.	Five focus groups	Grounded theory coding and categorising
31	Patel *et al.* 2007[12]	UK	Chronic musculoskeletal pain	38 patients (15 male 23 female) aged 29-62 years (mean age 49.4)	Unemployed and in receipt of long-term social welfare benefits	In-depth semi-structured interviews	Framework approach and thematic analysis
32	Rydstad *et al.* 2010[54]	Sweden	Whiplash Associated Disorders	9 people (5 females, 4 males) aged 32-53 years	Participants of a work-oriented MDT rehab programme	Thematised interviews	Constant comparison method – grounded theory
33	Saunders *et al.* 2015[55]	Canada	MSK injury Arm (1), knee (1), back injuries(7)	9 people (5 females, 4 males) aged 34-56 years	People with long-term work disability and job loss due to an MSK injury from work rehab and chronic pain programmes	Interviews (27) with 9 people	Thematic analysis (phenomenological approach guided by life world concept)
34	Scheermesser *et al.* 2012[56]	Switzerland	Low back pain	13 (9 men, 4 women) aged 38-60 years (mean age of men – 52, mean age of women 48)	Patients with a Southeast European cultural background attending a rehab centre in Switzerland	In-depth semi-structured interviews (5) & two focus groups	Qualitative content analysis
35	Shaw & Huang 2005[57]	USA	Occupational low back pain	Focus group - 28 people (15 male, 13 female) aged 31-65 (mean age 46) Interviewees – 23 people (11 male, 12	Focus group participants - people recently (<6 months) returned to work after injury responding to newspaper advert	Focus group & interviews	Content analysis

				female) aged 25-64 (mean age 42.6)	Interview participants - patients referred by physios from collaborating OH network		
36	Sjöström *et al.* 2011[58]	Sweden	MSK disorders - mainly back and neck pain	10 people (7 women, 3 men) aged 29-61 (mean age 48)	Attended a rehab programme and still on full time sick leave 2 years after completion	Semi-structured interviews	Qualitative content analysis
37	Soeker *et al.* 2008 [59]	South Africa	Back injury	26 people (18 males, 8 females) aged 18 – 60	Selected by random sampling from a hospital rehab department	Focus groups	Qualitative analysis
38*	Soklaridis *et al.* 2010[60]	Canada	Low back pain – work-related injury	59 stakeholders including 6 injured workers and 5 small and 9 large employers	Various contacts of the research team	Nine focus groups	Grounded theory approach
39	Svensson *et al.* 2010[61]	Sweden	Back neck or shoulder diagnosis	13 women and 5 men	People aged 25-34 years old in 1985 and had a new sick leave spell of at least 28 days	Five focus groups	Descriptive and explorative method of analysis
40*	Williams-Whitt *et al.* 2016[62]	Canada	Low back pain	23 supervisors	Supervisors of back injured workers from 11 Canadian organisations	Semi-structured in-depth interviews	Constructivist grounded theory principles
41*	Wynne-Jones *et al.* 2011[63]	Wales	Musculoskeletal pain	18 employees with MSK pain (8 male, 10 female) mean age 49.7	Two large public sector organisations	Semi-structured interviews	Thematic analysis

				20 managers (10 male, 10 female) mean age 44.8			

*Employer studies

Overarching conceptual categories

A total of 342 concepts were clustered into 16 conceptual categories summarised in Table 2. This table also highlights the CERQual profile. The three key conceptual categories identified by the team and are described in this section. The remaining 13 conceptual categories are described in more detail in Supplementary File 2. The concepts within each conceptual category are presented in Supplementary File 3.

Managing pain

Pain was seen as a major obstacle to return to work. [44 52 58] A plethora of strategies to manage it were described [41 45 52 54 57 58] including use of sick leave.[11 42] However, the strain of living with chronic pain meant fatigue also became a problem and low energy levels prevented work return.[58] The impact of pain on performance [63] and ability to attend and travel to work[48] along with the fear of pain exacerbation[31 45] were also problematic.

Managing work relationships

Interpersonal conflict and mutual mistrust can arise between people with pain and their employers and colleagues[37 61] and if relationships with supervisors are perceived as poor then this is demotivating in relation to work return.[38] Employers with few employees expressed reservations about how far to push an employee for fear of upsetting them and causing them to be off sick for longer than necessary.[60] Managers in a public sector study appeared to be walking a fine line between supporting employees, making sure colleagues were not adversely affected, and that services were delivered.[63] Asking for help was perceived as frustrating by people in pain, and incurred feelings of inadequacy and negativity.[25] Some struggled in their interaction with employers and tended to be passive, not believing their views were listened to, or valued, which led to difficulties in sustaining work return.[11] Unsympathetic employer attitude and a lack of understanding of the person's experience of pain were seen as a major obstacles to work return[12 34 45 54 59] but those

employers with personal experience of pain were perceived as more sympathetic and empathic.[30 62]

Team management responsibilities of regulating tension between colleagues was perceived as challenging when work restrictions for those with pain caused unequal work distribution leading to a sense of injustice.[40]

Making workplace adjustments

An economic climate of austerity was perceived as an obstacle to work due to reduced job availability and a competitive job market.[12] Reorganisations and rationalisation in the workplace meant jobs had changed and become more demanding and potentially difficult to adapt for people with a pain condition.[48] In this situation, age was also seen as influential with some feeling they were too old to retrain for a different kind of job.[12 59]

The type of job influenced work return decisions with physical work being perceived as more challenging with pain[40 59] and more highly skilled work providing greater scope for flexibility and adaptation.[28]

People with chronic pain often felt they were not consulted or involved in the decision making about workplace redeployment or adjustment and when desired modifications were not possible they could not return to work. [28 30 34 59] Managers' attitudes and efforts, [62] combined with effective routine methods of regular communication of changes made to colleagues[53] were seen as ways of improving the success of workplace adjustments. Managers did not always have the resources or know what options would be available for making these adjustments and saw the planning of these accommodations as an additional demand on their time.[62] Managers also felt that information about work restrictions from occupational health were not always realistic in the work setting and therefore difficult to implement.[40]

A number of workplace adjustments were felt to be helpful including flexible hours or a reduction in hours but were not always forthcoming.[28 34 48] The possibility of a gradual return

to work[35] working from home or participating in a job sharing programme[34] were also seen as helpful by people in chronic pain. Changes to the job itself including physical adjustments and a reduction in job demands were not always feasible, for example in a nursing[34], nursing assistant role[48] or a preschool teaching role.[47]

224 **Table 2 Conceptual categories, description of category, supporting studies and CERQual assessment**

	Conceptual category - summary of review finding	Quotations from primary studies to illustrate conceptual category	Supporting studies	Adequacy (number of concepts – see list of concepts in supplement-ary file 3)	Coherence (number of supporting studies)	Methodological limitations (see CASP scores in supplemen-tary file 1)	Relevance	Overall CERQual assessment of confidence in the evidence	Explanation of CERQual assessment
1	**Managing pain** - the impact of pain on return to work and how it can be managed	**'**Chronic pain itself was the underlying barrier from which most other barriers to work stem. Overall, very few patients reported any attempts to plan for the future, primarily due to the unpredictable nature of the pain condition and physical mobility problems associated: 'I have no objections at all to go back to work. But, I thought about this. I don't know what I could do. I can't sit for very long. I can't stand for very long. Erm, in discomfort 99% of the time.' [Male, 56]'[12]	11 12 27 28 31 35 38 39 41 42 44 45 48 50 52 54 56-58 63	Richly described (49)	Fit between underlying data and review finding is very clear (20)	All CASP scores over 20	Sweden 9 UK 5 Canada 2 Norway 1 Switzerland 1 USA 1 Australia 1 Three studies partially relevant as only included women not men.	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance. Employee and employer studies support this finding.
2	**Managing work relationships** - impact of chronic pain on relationships with employers, line managers and colleagues	'The existence of interpersonal conflict with colleagues or managers was mentioned as a barrier, as was mutual mistrust. For managers, overwork, role conflict between production	11 12 25 28 30 34-40 43-45 48 49 53-55 59-63	Richly described (51)	Fit between underlying data and review finding is very clear (25)	All CASP scores over 20	Sweden 10 Denmark 1 UK 5 Canada 5 France 2 Norway 1 South Africa 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance. Employee and

	and how this is managed	targets and occupational health and a lack of hierarchic support were possible barriers. With colleagues, overwork and scepticism about medical problems could induce hostility and rejection. For workers with LBP, the feeling of being judged and having to justify absence, pain and limitations was perceived as a barrier.'[37]							employer studies support this finding.
3	**Making workplace adjustments** - the scope and process for making changes to the job, work conditions or environment	'Our data suggest that the ability of participants to remain in employment was in part influenced by the nature of their work (whether or not adaptations could be made to enable employees to continue in post despite their symptoms) and in part due to patients' confidence and ability to negotiate adaptations with their employers (significant others often described themselves as being an important source of support for the patient in this context).'[28] 'Accommodation	11 12 26 28-30 34-37 40 42 47 48 52 53 58-60 62	Richly described (55)	Fit between underlying data and review finding is very clear (20)	All CASP scores over 20	Denmark 2 Sweden 6 UK 3 Canada 4 Norway 2 France 2 South Africa 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance. Employee and employer studies support this finding.

		management is perceived as a considerable addition to supervisors' regular duties, for which they feel ill-prepared, even where guidance is provided by others with the requisite expertise.'[62]							
4	**Autonomy** - the individual's ability to have control or agency in relation to their pain and their work situation	'Several respondents emphasized the importance of their possibilities to control what to do and when to do it and considered flexible working hours as a prerequisite for their return to work'[36]	11 12 26 28-30 35 36 38 39 41 45	Well described (12)	Fit between underlying data and review finding is clear (12)	All CASP scores over 20	Sweden 5 UK 4 Denmark 2 Canada 1	Moderate confidence	Graded as moderate as well described and relevant across four cultures.
5	**Self-belief/ self-efficacy** - the individual's outlook about their ability to handle work and manage their pain	'Self-efficacy statements pertaining to more complex work-related functions were subdivided into one of three categories based on the thematic content analysis: the ability to meet job demands, the ability to obtain help from others, and the ability to cope with pain'[57]	11 26 28 36 38 45 46 49 54 57 61	Richly described (18)	Fit between underlying data and review finding is very clear (11)	All CASP scores over 20	Sweden 5 Denmark 1 Norway 2 UK 2 USA 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance
6	**Being believed** - people struggling with not being believed, trusted or perceived as	'Employees typically discussed issues around being believed and trusted when they were ill. Managers, on the other hand, were more likely to talk about employees	26 29 37 39 50 54 57 59 63	Well described (13)	Fit between underlying data and review finding is clear (8)	All CASP scores over 20	Denmark 2 France 1 Sweden 2 UK 2 South Africa 1	Moderate confidence	Graded as moderate as well described and relevant across five cultures. Employee and employer studies

	legitimate	taking absence that was not legitimate, for example; ''People just don't turn up, you know. They phone in sick or er… The attitude is they, you know, 'why should I bother?' sort of thing. You get a lot of that.'' [Female manager]' [63]							support this finding.
7	**Impact of and on the family** - the effects of chronic pain on family members and vice versa	'Lots of patients with LBP are looked after by their family members who relieve them of physical activities. Many patients receive more attention and are encouraged to take rest. The positive feeling of being supported is counteracted by the negative feeling of uselessness, associated with being off work'[56]	27 28 47 48 50 51 54 56	Well described (13)	Fit between underlying data and review finding is clear (8)	All CASP scores over 20	Australia 1 UK 3 Sweden 2 Switzerland 1 Norway 1	Moderate confidence	Graded as moderate as well described and relevant across five cultures
8	**Not being understood** - this is in the context of relationships with health professionals	'Participants felt that physicians did not understand their clients' work environment, such as what functional demands were necessary for them to complete their tasks as well as the psychosocial stressors that could cause their back pathology to become chronic'. [59]	33 47 52 56 59 60	Adequately described (9)	Some inconsistency in fit (6)	All CASP scores over 20	Canada 2 Norway 2 Switzerland 1 South Africa 1	Low confidence	Graded as low as some concerns about coherence and relevant across four cultures. Employee and employer studies support this finding.
9	**Finance and**	'Some patients who were	12 34 41 43 48 49 56	Well	Fit between	All CASP	Canada 1	Moderate	Graded as

	benefits - financial difficulties and the economic insecurity of moving from welfare benefits back into work	unemployed on grounds of ill health had serious concerns about their financial future. They complained of sleep disorders and mental problems: "Without medication I can't sleep. I don't know what is going to happen"' [56] 'It must be possible to find transition solutions when trying to get back to work, solutions that make us feel economically secure. Otherwise, who would dare to try?'[49]	[57]	described (10)	underlying data and review finding is clear (8)	scores over 20	UK 1 USA 1 Switzerland 1 Sweden 3 Norway 1	confidence	moderate as well described and relevant across six cultures
10	**Health and illness and pain representations impact on return to work** - the way people think about their pain and the mental representations they form in relation to beliefs about its cause and their perception of its impact on their lives	'Beliefs about causality. All claimants reported work as the initial cause of their back pain condition, and most also perceived previous work/certain types of work (manual/heavy/repetitive) as a 'trigger' for subsequent episodes and therefore not conducive to return to work'. [50] 'Both patients and significant others in the non-working sample were resigned to the permanent effects of the patient's	[26-29 31 32 39 44 45 50 54 56 60]	Richly described (22)	Fit between underlying data and review finding is very clear (13)	All CASP scores over 20	Denmark 2 Australia 1 UK 3 Canada 3 Sweden 3 Switzerland 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance. Employee and employer studies support this finding.

		back problem on their employment status and were thus more likely to consider the patient as 'disabled', a role which might become self-fulfilling'. [28]							
11	**Meaning of work** - the meaning of work for an individual linked with motivation	'Work was viewed by most patients as a source of financial security and a means of independence. However, the financial aspect of work did not seem to motivate all patients. A separate subgroup placed greater focus on health status and pain reduction strategies. This was a more prevalent attitude amongst those who had had longer durations of sick leave. For example, a patient that had been unemployed for more than one year stated: 'Money wouldn't be a motivator for me, I'd have to be well enough to return to work – that would be the motivator' [45]. 'Participants who were placed in jobs that had no meaning to them caused them to become	36 38 39 42-46 48 52 55 59-63	Richly described (26)	Fit between underlying data and review finding is very clear (14)	All CASP scores over 20	Sweden 7 UK 2 Norway 2 Canada 2 South Africa 1	High confidence	Graded as high in relation to relevance, coherence, adequacy & methodological limitations. Employee and employer studies support this finding.

		frustrated. When these meaningless tasks were coupled with relapses of back pain, there would be a downward spiral into depression and demotivation amongst the participants'. [59]							
12	**Mismatch between employee and employer expectations of return to work**	Meeting job demands typically referred to producing a certain quantity of work (e.g. 'I need to be at full capacity'), quality of work (e.g. 'I may not do a good job'), speed of work (e.g. 'I won't be able to keep up'), or fulfilling a particular role at work (e.g. 'I need to be able to respond to an emergency'). [57]	12 36 38 45 46 49 53 57 58 62	Well described (11)	Fit between underlying data and review finding is clear (10)	All CASP scores over 20	Sweden 4 UK 2 Norway 2 USA 1 Canada 1	Moderate confidence	Graded as moderate as well described and relevant across five cultures. Employee and employer studies support this finding.
13	**Social isolation as a consequence of chronic pain** - leading to a lack of support to return to work	Paid work – the pain sufferer's struggle for social capital. The informants were concerned about how the unpredictability of the pain broke into their daily lives and social contact with others, and challenged their normal way of dealing with everyday problems.[52]	27 29 48 52 54	Adequately described (6)	Fit between underlying data and review finding is clear (5)	All CASP scores over 20	Australia 1 Denmark 1 Sweden 2 Norway 1	Low confidence	Graded as low as adequately described and relevant across four cultures
14	**Influence of return to work support and**	'Support. The informants felt that the rehabilitation programme was the right	25 26 29 31 33 35 36 39 45 48 54 56 57	Well described (19)	Some inconsistency in fit	All CASP scores over 20	Denmark 3 Canada 3 Sweden 4	Moderate confidence	Graded as moderate as well described and

	rehabilitation	place to come to when living with long-term pain. The team was described as empathetic and knowledgeable: when the informants told about their difficulties they felt understood for the first time. The informants also got support from each other, and a good feeling of fellowship developed; on the other hand, some also described how they were negatively affected by other participants who were depressed'. [54]			(13)		Switzerland 1 USA 1 UK 1		relevant across six cultures.
15	**System factors (healthcare, social security and workplace systems)** - how policies and procedures in these three systems impact on people with chronic pain	'The way "systems" (dys)function delay return to work. When a worker becomes injured, they enter into complex relationships with the compensation system, unions, workplace, and health care system. How these systems interact with one other and with the injured worker can affect the RTW process.' [60] 'Within the healthcare system, participants talked of their frustrations with long waiting times, such as waiting for specialist	12 30 34 35 37 39 49 54 55 59 60 63	Richly described (25)	Fit between underlying data and review finding is very clear (12)	All CASP scores over 20	UK 3 Canada 4 Sweden 2 Norway 1 South Africa 1 France 1	High confidence	Graded as high in relation to relevance, coherence, adequacy & methodological limitations. Employee and employer studies support this finding.

		appointments, diagnostic tests, treatments and entry into programs.' [55] De-motivating economic arrangements for pensioners were also mentioned as a barrier. Some pointed to the fact that income under re-education was so low that the effort was not worthwhile. In addition, several had experienced that taking a small part time job when receiving pension would reduce the benefit so that nothing was gained economically. Finally, trying out for new jobs arranged by the job centre put them in an economically uncertain position and made them afraid of losing their disability benefit all together. More appropriate transitional arrangements were asked for. [49]							
16	**Societal expectations** - expectations of family, friends and wider society that	'Experiences of societal expectations of participation in work. In the societal discourse of work participation, inclusion in society was	[47 36 46 59]	Adequately described (3)	Some inconsistency in fit (4)	All CASP scores over 20	Sweden 1 Norway 2 South Africa 1	Low	Graded as low as adequately described and relevant across three cultures.

	everyone should work resulting in judgement and discrimination against those who don't work	connected to employment.' [47] 'Some of the participants viewed their family and society as being judgemental, unsupportive and discriminatory, whereas others felt that they could not have rehabilitated themselves without the support of society.' [59]								

N.B. No more than half female only studies supported any of the review findings.

Line of argument

A line of argument was constructed by examining how the conceptual categories relate to each other. A flow diagram/ conceptual model was then developed, see figure 2.

(**insert Figure 2 here**)

The conceptual model of return to work (figure 2) is now explained, going anti-clockwise from 1) to 7).

1) The underpinning foundation lies in the cultural expectation within society that people should work and contribute to the economy. Societal expectations are manifested within institutions, families and the media.
2) Societal and family expectations influence the individual's sense of self and what work means to each person. Meaning can relate to financial remuneration, rewards or survival, meeting of social, cognitive and achievement needs or purpose in life. The individual's level of self-belief and autonomy will both play a part in how much agency and control can be exerted over pain and the work situation.
3) The way someone thinks about their pain and the mental representation they create will also influence their behaviour and the possibility of returning to work. People's perceptions of whether pain is a long-term disability could influence whether they feel able to work and thus their return to work decisions, whereas someone who has accepted the pain as part of their life and adapts may be more likely to consider return to work.
4) Some studies in the review evaluated pre-return to work support or rehabilitation programmes and not being understood by health professionals was cited as an obstacle. In the same way, not being believed or being judged by people in the workplace was also perceived to make return to work challenging.
5) The three key tenets of return to work are managing pain, managing work relationships and making workplace adjustments. Tension exists between these

three facets and they can be influenced by a mismatch between the individual and the employer expectations, difficulties asking for help and system factors in the workplace, health and social security systems.

6) Individuals must negotiate a wide range of obstacles and navigate change.
7) This could result in a downward spiral (and not working) at one end of a continuum through to an upward spiral of mastering return to work despite pain.

Discussion

In this meta-ethnography we identified obstacles to return to work for people with chronic pain centred around three key conceptual categories; managing pain, managing work relationships in the workplace and making workplace adjustments. The balancing of these three inter-related categories and the way they are influenced by other factors is central to negotiating a successful return to work. The scope for managing pain and making adjustments in the workplace is influenced by the quality of the relationship an individual has with their employer and/ or line manager and what is feasible within a particular work setting.

The concepts of health and pain representations and the role of significant others and their thinking about pain and return to work do not appear to be highlighted by previous reviews. Another neglected area is the influence of pre-return to work support or rehabilitation. The employer perspective is missing in earlier reviews which have focused on the experience of people with chronic pain. Only five of the included studies were conducted with employers so there is still limited research with this group despite people with pain emphasising the importance of employer attitudes and knowledge in the return to work process[53].

Some studies that were included in the review appear to suggest that those people with chronic pain who manage to stay in work have different characteristics to those who are unable to do so. This is seen in part to be connected with their cognitive appraisal of their pain and whether they are able to adapt.[31 45] It has been proposed that in those who do not return to work their pain representation of ‘abnormal pain’ becomes crystallised with their

goal of pain elimination firmly intact whereas those who returned to work began to perceive pain as ' the new normal' and something they learn to live with.[31] Eden *et al.* (2007)[36] described three different adaptation patterns, the go-getter, realist and indifferent. They proposed the pessimistic and passive outlook of the latter type meant work return was less likely. Passivity in the interaction with stakeholders like the employer was found to be linked with reduced drive to return to work.[11] Angel *et al*. (2012) [26] and Dionne *et al*. (2013) [35] also found passivity in relation to pain was not helpful when addressing workplace obstacles.

The provision of professional individualised support and coaching in the workplace was seen to be valuable in the work return process [39] and this concept supports the idea of developing work based interventions to help people with chronic pain return to work.

When comparing findings with previous reviews that have highlighted obstacles to return to work, similarities include fears of not being able to fulfil employer expectations, not being believed by colleagues and financial concerns.[4] Worries for the future including financial and job security were also uncovered by MacNeela *et al*. (2015).[5] Strain on the family relationships including those with partners and children[4] and gender differences regarding role as carer or breadwinner were revealed.[5] Unsatisfying relationships with health professionals where people felt they were not being listened to and frustrations with limitations of medical treatment were another common feature.[5] Social withdrawal as a result of pain was highlighted in both of these reviews.[4 5] A struggle for legitimacy with colleagues and stigma in the workplace was highlighted by Toye[7] and Froud[4]. This review also drew attention to the system not supporting return to work due to a lack of dialogue between employers, occupational health and the health system to facilitate a gradual return with appropriate adjustments.

In relation to methodology, focus on studies that dealt with obstacles to return to work was achieved through carefully reading and re-reading abstracts and then full texts.

The collaborative team approach to conceptual analysis increased the rigour of the review.[13] Independently drawing flow diagrams to illustrate the conceptual model and then coming together to amalgamate these through discussion and debate, combined with checking all concepts had been included, ensured this process was thorough.

The CERQual assessments indicated there was a high level of confidence in the findings for managing pain, managing work relationships, managing the workplace, self-belief, health and illness representations, the meaning of work and system factors. Although we have used CERQual, we found we agreed with many comments on its use by Toye[64], namely that for relevance, studies rated as partially or indirectly relevant could also contain helpful concepts. They suggest 'gravitational pull' of an idea may be important. They argue providing clear information about concepts is critical, and we have provided this in Supplementary Files 2 and 3. They also note for adequacy "The power of concepts to make us think, however, is not based on quantity of data included". We agree when looking at coherence that inconsistent findings do not necessarily call the findings into question. It may be one study has developed an insight not considered in other studies. No tool can guarantee confidence in findings, and authors still need to carefully consider issues rigour.

In addition, our view is that CERQual combines qualitative and quantitative concepts. Some of the quantitative concepts used have very specific meanings within inferential statistics, which could cause confusion and potentially over-reaching conclusions in some reviews.

Implications

This review identifies obstacles faced by people with chronic pain in returning to work after a period of sick leave or unemployment and can be used to inform the development of a return to work intervention. The focus of such intervention should be working collaboratively with the person who has chronic pain and the employer to explore ways of addressing managing pain, managing work relationships and making workplace adjustments.

Limitations

It is apparent that more research is required from the employer perspective. The five studies included in the review were from the perspective of employers working in car making, university hospitals, home care provision for disabled people in France[37], public hospitals in France[40] and NHS Trust and local authority in Wales.[63] The Canadian study that included small and large employers did not specify the nature of the industry in which they were engaged. [60]

Conclusions

The navigation of obstacles to return to work for people with chronic pain and their employers entails balancing the needs of the person with chronic pain, colleagues and the employing organisation. The influence of health and pain representations the person formulates has not been emphasised in previous reviews. Managing pain, managing relationships in the workplace and making adjustments are central to achieving a successful return to work and these can be hard work for the person with chronic pain.

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Author's contributions

KS, RF and MU made a substantial contribution to the design of the study. MG and KS were responsible for acquisition and MG, KS and JOB were responsible for analysis and interpretation of the data. MG drafted the first, subsequent and final versions and KS, JOB, RF and MU revised all versions for important intellectual content and approved the final version. All authors agree to be accountable for the accuracy and integrity of the work.

Competing interests

MU was Chair of the NICE accreditation advisory committee until March 2017 for which he received a fee. He is chief investigator or co-investigator on multiple previous and current research grants from the UK National Institute for Health Research, Arthritis Research UK and is a co-investigator on grants funded by Arthritis Australia and Australian NHMRC. He has received travel expenses for speaking at conferences from the professional organisations hosting the conferences. He has received travel and subsistence to attend meetings by the EU Joint Research Centre. He is an editor of the NIHR journal series for which he receives a fee. He has published multiple papers on chronic pain some of which are referenced in this paper.

RF and MU are directors and shareholders of Clinvivo Ltd that provides electronic data collection for health services research. RF and MU are part of an academic partnership with Serco Ltd related to return to work initiatives.

KS has published multiple papers on pain and meta-ethnography, some of which are referenced in this paper.

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Figure 1 legend:

Title: Figure 1 - Flow chart illustrating search outcome

Figure 1 legend: This flow chart illustrates the search outcome

Figure 2 legend:

Title: Figure 2 – Conceptual model – The work of return to work

Figure 2 legend: This conceptual model of return to work is explained in the text, going anti-clockwise from 1) to 7).

Data Sharing Statement

We have tried to include all relevant data for the qualitative systematic review in supplementary files. Any other reasonable requests will be considered on a case by case basis by Mary Grant (lead author) email: M.Grant.2@warwick.ac.uk=

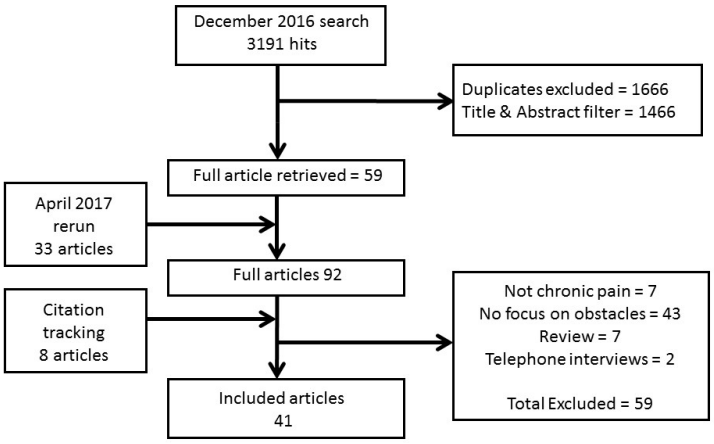

Figure 1 - Flow chart illustrating search outcome

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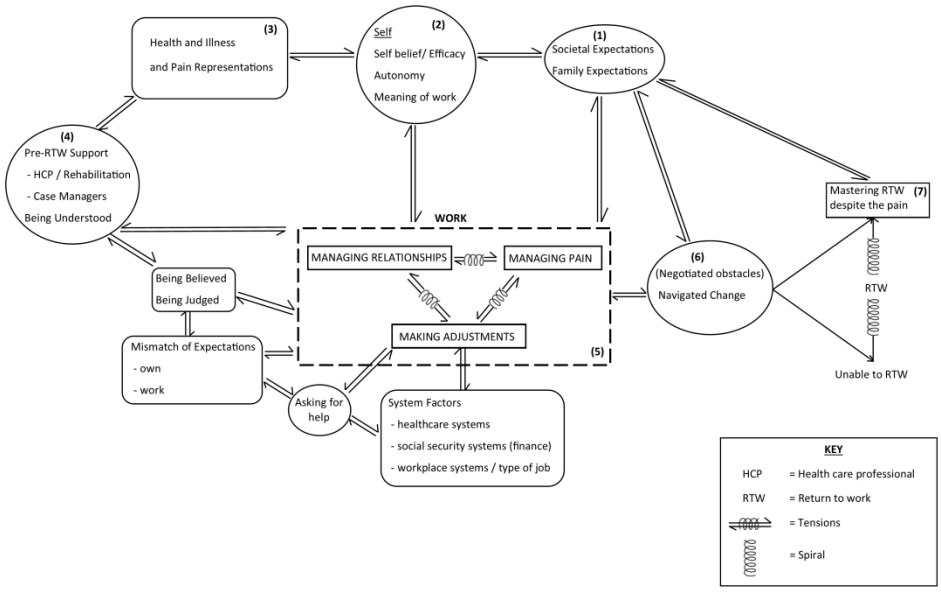

Figure 2 – Conceptual model – The work of return to work
This conceptual model of return to work is explained in the text, going anti-clockwise from 1) to 7).

297x209mm (300 x 300 DPI)

Supplementary File 1 – Critical Appraisal Skills (CASP) scores – yes =3, can't tell = 2, no=1

	CASP questions (question 10 is not scorable)									
Article authors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total score**
Ahlstrom *et al.* 2017	3	3	3	2	3	1	3	3	2	24
Andersen *et al.* 2014	3	3	3	3	3	1	3	3	3	27
Angel *et al.* 2012	3	3	3	2	3	1	3	2	3	23
Ashby *et al.* 2010	3	3	3	2	3	1	3	2	3	23
Brooks *et al.* 2013	3	3	3	3	3	1	3	3	3	25
Buus *et al.* 2015	3	3	3	3	3	3	3	3	2	26
Coole *et al.* 2010	3	3	2	3	3	2	3	2	2	23
Coutu *et al.* 2010	3	3	3	3	3	1	3	3	3	25
Coutu *et al.* 2011	3	3	3	2	3	1	3	3	3	24
Coutu *et al.* 2013	3	3	3	3	3	1	3	3	3	26
Crooks 2007	3	3	3	2	3	1	3	3	3	24
Dionne *et al.* 2013	3	3	3	2	3	1	3	3	3	24
Edén *et al.* 2007	3	3	3	3	3	1	3	3	2	24
Fassier *et al.* 2015	3	3	3	2	3	2	3	2	3	24
Gard & Sandberg 1998	3	3	3	2	3	1	1	2	3	21
Glavare *et al.* 2012	3	3	3	2	3	3	3	3	3	26
Grataloup *et al.* 2016	3	3	3	3	3	1	3	3	3	25
Hansson *et al.* 2001	3	3	3	2	3	1	3	3	3	24
Hansson *et al.* 2006	3	3	3	3	3	1	3	3	3	25
Johansson *et al*. 1997	3	3	3	3	3	3	1	3	3	25
Juuso *et al.* 2016	3	3	3	3	3	2	3	3	3	26
Kalsi *et al.* 2016	3	3	3	2	3	1	3	3	3	24
Kvam *et al.* 2013	3	3	3	3	3	3	3	3	2	26

Kvam & Vik 2015	3	3	3	3	3	1	3	3	3	25
Liedberg & Henriksson 2002	3	3	3	2	3	2	3	3	3	25
Magnussen *et al.* 2007	3	3	3	3	3	2	2	2	3	24
McCluskey *et al.* 2011	3	3	3	3	3	1	3	3	3	25
McCluskey *et al.* 2014	3	3	3	3	3	2	3	3	3	26
Nilsen & Anderssen 2014	3	3	3	3	3	1	3	3	3	25
Nordqvist *et al.* 2003	3	3	3	3	3	1	1	3	3	23
Patel *et al.* 2007	3	3	3	3	3	1	2	3	3	24
Rydstad *et al.* 2010	3	3	3	3	3	3	3	3	3	27
Saunders *et al.* 2015	3	3	3	3	3	2	3	3	3	26
Scheermesser *et al.* 2012	3	3	3	3	3	3	3	3	3	27
Shaw & Huang 2005	3	3	3	2	3	2	3	2	2	23
Sjöström *et al.* 2011	3	3	3	3	3	2	3	2	3	25
Soeker *et al.* 2008.	3	3	3	3	3	2	3	3	3	26
Soklaridis *et al.* 2010	3	3	3	2	3	2	3	3	2	24
Svensson *et al.* 2010	3	3	3	3	3	1	3	2	3	24
Williams-Whitt *et al.* 2016	3	3	3	2	3	1	3	3	3	24
Wynne-Jones *et al.* 2011	3	3	3	3	3	1	3	3	3	25

Supplementary file 2

The remaining 13 conceptual categories that underpin the three key categories described in the main paper and summarised in Table 2 are now explained.

Societal expectations

Many people living with chronic pain felt that society, institutions, family, friends and the media expected them to work and that those who did not do so were portrayed negatively and perceived as a burden.[47] This contributed to them feeling they were outsiders who were judged and discriminated against and for some this motivated them to return to work so they could contribute and belong.[36 59]

Meaning of work

The meaning of work for each individual plays a part in whether they return or not. For some work provides financial security and independence[45] but for others there is a strong moral work ethic influenced by their upbringing or it is a way of strengthening self-esteem[36] and achieving fulfilment in life.[48] A lack of meaning in work when combined with a chronic pain condition can lead to demotivation in relation to work return[59] whereas for some work was central to their identity and purpose and loss of this aspect of their lives was perceived as devastating.[39 42 44 52] Social contact and relationships with others and feeling needed and valued are an important aspect of work for some people.[48 61]

A number of conflicts were highlighted in this conceptual category. One was the differing perceptions of employees with low back pain and those of their employers. Some employers felt that employees perceived sick leave as a right and this formed part of a culture of entitlement they perceived was encouraged by the unions which made employees demotivated about returning to work.[60] However this was a view strongly contested by the employees in the same study who reported they would often accept modified jobs in order to return to work, even if not appropriate to them, due to the tough economic climate and fear of losing their livelihood.[60]

Another conflict was that of balancing the demands of work with those of family life. Competing priorities sometimes meant that some chose to focus on family rather than paid work as they were unable to balance the two.[46]

Autonomy

Concepts in this category focus on the individual's ability to have control or agency in relation to their pain and their work situation. There was a sense that if they had control over their pain then this was the key to having autonomy in other areas including return to work.[45] Being allowed some control and flexibility at work, for example in the hours they worked, was seen as a pre-requisite by some for returning.[36] Psychological distress, including anxiety and depression, was linked with a perceived lack of control over pain and as a result return to work became a secondary issue[12] whereas opportunity for job control was a motivating factor in relation to returning to work.[38]

Self-belief/ self-efficacy

Some studies indicated that people with chronic pain had low self-esteem and a pessimistic outlook about their ability to handle work[49] and this related to concerns about their ability to meet the job demands, obtain help from others and manage their pain.[57]

Health and illness and pain representations impact on return to work

The way people think about their pain and the mental representations they form in relation to beliefs about it's cause and their perception of its impact on their lives [29] are seen as very important in relation to their pain experience and return to work. A clear distinction was made between those who perceived themselves as disabled by the pain and therefore unable to work [28 31 32 44 50] and those who accepted the pain as part of their lives but something they could exert some control over and therefore felt able to work.[31 39 54] There was a perception amongst some employers that attitudes were influenced by family and the community in which people grew up.[60] However, among people with pain, there was a resistance to and even rejection of the idea of psychosocial influences on pain.[31 56] Some studies asserted

that the way people with pain, often incorrectly visualised their injuries and formulated explanatory models led to a fear of movement and this had negative implications for their work life.[27]

Influence of pre-return to work support and rehabilitation

A number of studies in the review were evaluating the impact of return to work interventions and rehabilitation programmes.[26 29 33 39 54] Participants were largely positive about the intervention received and the strategies for managing pain and life they had developed but those who did not return to work experienced anxiety, disappointment, loneliness [39] and some felt useless[56] or a sense of powerlessness and guilt.[26]

Not being understood

The concept of not being understood mainly arose when participants were describing difficulties in relationships with health professionals, for example physicians not understanding their work situation[59] or not listening or taking them seriously in relation to their pain.[52] However, the same phenomenon occurred even with people's closest relatives, leaving them with a sense of abandonment.[54]

Being believed

People with chronic pain often struggled with not being believed or trusted and this was evident when employers talked about people taking sick leave that was not perceived as legitimate.[63] This feeling of being judged and doubted and having to justify absence or limitations became an obstacle to returning to work.[37 59] The pursuit of authenticity also became apparent from the perspective of people claiming benefits.[50] These individuals felt the need to stress their desire to work but also to emphasise how the severity of their pain condition was preventing them from doing so.[50]

Impact of and on family

People with chronic pain often rely on family members for practical support[56 59] which leads to a renegotiation of roles and responsibilities[54] and financial difficulties are prevalent.[27]

Significant others are also seen to be highly influential in terms of their beliefs and thinking in relation to pain and return to work. Some studies have highlighted sceptical views of significant others in relation to treatment received and pessimism about return to work and support that would be offered[50 51] and sometimes their well-intentioned support reinforces a position of disability and legitimacy and this reduces the possibility of gaining employment.[28]

The conflicting demands of family and work were also reported as a challenge for people with chronic pain with women sometimes choosing to prioritise family.[48 47]

Mismatch between employee and employer expectations of return to work

Participants expressed a fear of letting employers down and not being able to fulfil work expectations.[12 58] Some were also fearful of re-injury.[57] Finding modified work was difficult and some felt the employer would rather dismiss them than find them a suitable job.[58] High demands for effectiveness and productivity made it difficult to return to work[49] as people with pain were concerned they would not be able to achieve the required quality, quantity or speed of work.[57] Information given to employers about health problems or limitations was perceived as insufficient or incorrect which led to misunderstandings and distorted employer expectations.[53] Difficulties arose in relationships with colleagues especially where expectations of employees with health problems were lower than for other employees doing the same job.[53] Participants felt they would want to do as much as their colleagues and not be a burden on them.[30 38 61]

Social isolation as a consequence of pain

One of the consequences of chronic pain was a withdrawal from social networks and this was partly linked with financial and physical restrictions.[27 48] This led to loneliness and a sense of being abandoned by those around and therefore lacking the support needed to enable return to work.[52 54]

System factors (healthcare, social security and workplace systems)

System factors influencing return to work were within healthcare, social security and workplace systems. Delays in accessing appropriate healthcare, for example waiting lists for specialists, diagnostic testing and rehabilitation programmes, interfered with the return to work process.[12 55 60] Another issue was that employers did not always feel they could accommodate injured workers hospital appointments in work time and so preferred that they remained off sick until they were able to fulfil their work hours.[60]

Social security authorities were sometimes seen as unhelpful and inflexible benefits arrangements caused economic uncertainty for people wanting to make a gradual transition into work.[49] Interactions with social insurance personnel were perceived as difficult with conflict arising when staff put pressure on people with pain to complete training or enter employment that was deemed unsuitable or not in line with their interests.[49 55]

Finally workplace systems delayed work return through inadequate policies[37] and a perceived lack of education on disability management procedures.[59] There also appeared to be a lack of trust in occupational health who were seen to be on the side of the employer and more concerned with absence management than supporting people to return to work.[30]

Finance and benefits

Many people with chronic pain had serious concerns about their finances.[41 43 56] For some this was linked with social security and disability benefits and the economic insecurity of moving back into work.[12 49] Some receiving state support struggled with shame whereas others felt they were entitled to it[43] or saw no alternative.[41] Some argued there should be greater flexibility for people with fluctuating musculoskeletal diseases to allow them to make a gradual return to work without incurring financial hardship.[34]

Supplementary File 3 - Concepts within each conceptual category

Conceptual category	Concepts
Managing pain	1. Adaptions via new knowledge of how to manage daily occupations 2. Being out in nature – pain management facilitator 3. Controlling pain 4. Coping with pain 5. Coping with symptoms 6. Developing individual strategies to deal with pain 7. Fatigue 8. Fluctuating work status 9. Keeping pain at bay 10. Knowledge of limits and listening to body 11. Learning to manage whiplash associated disorder - a rehabilitation process 12. Management of back pain 13. Previous management of back pain 14. Mastering life despite pain 15. New knowledge about how to manage daily life 16. Pain management linked with RTW 17. Pain management strategies 18. Pain representations underpin strategies to manage condition 19. Passive coping strategies 20. Patients' coping strategies 21. Physical activity 22. Strategies for managing long-term pain 23. Pain representations underpin strategies to manage condition 24. Passive coping strategies 25. Patients' coping strategies 26. Physical activity 27. Strategies for managing long-term pain 28. Strategies to prevent pain 29. Treatment for pain 30. Use of sick leave 31. When no treatment helps self-care management strategies develop 32. Working to control the pain 33. Being under control of pain and fear of pain 34. Commuting (as an obstacle to work) 35. Difficulties caused by back pain 36. Fear of reinjury 37. Impact of back pain on ability to work (for those at work and those not at work) 38. Impact of health on work 39. Impact of pain medication on ability to work 40. Impact of pain on doing work in a satisfactory way 41. Living with uncertainty 42. Negative impact of chronic pain on ability to work 43. Negative impact of pain on wellbeing and daily activities 44. Pain and somatic symptoms 45. Painful condition is a barrier to working 46. Persistent pain is an important obstacle to return to work

	47. Return to employment and fear of movement 48. The body as an obstacle to working (pain and fatigue) 49. Unpredictable pain difficult with respect to work
Managing relationships	1. Active engagement of supervisor 2. Asking for help is problematic for people with chronic pain 3. Attitude of employer in the workplace 4. Attitudes towards presenteeism (managers and employees perspectives) 5. Being needed at work 6. Colleague support important 7. Communication and contact (between managers and employees) 8. Co-workers and employers attitudes, disbelief and lack of understanding 9. Earlier negative workplace experiences 10. Employers limited understanding and support 11. Fear of disclosing pain to employer 12. Gap in work history and disclosure 13. Harassment from colleagues due to modified work 14. Impact of employees with job restrictions on supervisors and managers 15. Impact of sickness absence on others 16. Individuals (workers, colleagues, managers) barriers 17. Individuals facilitators (collaboration with colleagues support empathy problem solving mutual trust) 18. Interpersonal conflict with colleagues; being judged, justify the pain 19. Lack of collaboration and understanding from employer is an obstacle to return to work 20. Lack of communication between manager and the team about RTW 21. Lack of support and communication with line manager 22. Lack of support from line manager for injured workers 23. Lack of understanding from employer 24. Line manager role important 25. Maintaining contact with absent employee 26. Managerial attitude and effort 27. Managerial autonomy 28. Mutual distrust between employees and their managers and colleagues 29. Negative response from employer 30. Peer conflict 31. Physical barriers not significant obstacle to maintaining employment 32. Psychosocial environment (at work) 33. Psychosocial factors at work influence RTW management 34. Reassignment of workers to other areas due to physical demands of job causes tension with supervisors due to perceived injustice 35. Relationship between managers and employees 36. Relationship with employer 37. Relationships with supervisors and colleagues important to work satisfaction 38. Reluctance of employer to take on injured worker with gaps in employment history

	39. Responsibility for workmates 40. Social tensions in the workplace 41. Stigmatisation and blame 42. Struggling interactions with stakeholders 43. Support from employer and workmates 44. Supportive work environment 45. Supportive work environment and manager key to RTW success 46. Sympathy from manager if fellow back pain sufferer 47. Treatment from line manager inequitable 48. Understanding from an employer 49. Work relationships influence RTW 50. Working relations 51. Workmates attitudes
Making workplace adjustments	1. Being marked out as different in the workplace Austerity and economic climate 2. Competitive economic climate with restructuring and workforce reduction is a barrier for RTW 3. Economic climate impacts on ability to take sick leave and make work adjustments 4. Fast management turnover, lack of latitude in decision making and fear of increasing costs and claims for better working conditions are barriers to RTW 5. Job availability and competitive job markets 6. Work restructuring (labour market) Flexible working 7. Flexibility from employers re hours facilitates RTW 8. Flexible working a pre-requisite for RTW 9. Impossibility of a gradual return to work is an obstacle to return 10. Modified hours of employment 11. Policy and programme recommendations 12. Flexible work hours 13. Job sharing and work-from-home 14. Work place adjustments Involve managers and colleagues 15. Communication quality 16. Maintaining routines for sharing information about work accommodations with colleagues Manager knowing options 17. Absenteeism destabilises work organisation and makes work accommodations challenging 18. Accommodation demands 19. Job aptitude restriction certificates 20. Lack of pre-planning for RTW makes job accommodations and communication with colleagues challenging 21. Poor matching of the worker and the work 22. Process of accommodation of back injured workers Resources for decision making about accommodations 23. Information - Accommodation options 24. Information - Employee abilities 25. Information - Job demands

	26. Information - Medical restrictions 27. Organisational support 28. Supervisors return to work experience 29. Size of workplace and difficulties of modified duties 30. Support from line managers over-cautious 31. Work modifications - assistance from Occupational Health 32. Work organisation and the challenges of work accommodations Not consulted or involved in decision making. 33. Modified duties 34. Perceived lack of choice and control in relation to modified duties 35. Possibility of work adaptations and confidence and ability to negotiate adaptations with employer 36. Stakeholder perspective 37. Psychosocial stressors 38. Work modifications - patient control Personal factors 39. Age and educational status - perceived as obstacle to finding work by people with back injury 40. Personal obstacles - qualifications and experience 41. Personal obstacles to RTW - older age 42. Resistance to change Reducing demands of job or physical adjustments 43. Adjustment of work demands upon return to work 44. Challenges to work participation (to different type of work and work adjustments) 45. Change to less physically demanding job 46. Impossibility of being assigned lighter duties and working at one's own pace is an obstacle to return to work 47. Improvement of work environment and working conditions 48. Physical accommodations 49. Provision of appropriate modified work can be challenging and complex 50. Work modifications influence RTW possibilities 51. Working conditions - physical work Type of job influences RTW 52. Benefits of self-employment 53. Physical stressors (working at lower surface areas and different weights) cause constant pain 54. Sharing staff over different departments makes work accommodations and assessment of work demands difficult 55. Type of job- profession influences RTW
Autonomy	1. Autonomy 2. In the hands of the professionals - reduced control over life situation 3. Increased job control and contact with supervisors 4. Influencing factors for RTW - internal and external 5. Lack of agency 6. Locus of control influences return to work 7. Making sense of intervention - regaining control of situation 8. Own agency is important

	9. Own power and resources 10. Perceived lack of control influences ability to work 11. Psychological barriers to return to work (lack of control, anxiety, depression, loss of confidence, frustration) 12. Taking control of and responsibility for work and life situation
Self-belief/ self-efficacy	1. Being needed at work 2. Changed self-image 3. Controlling RTW interactions with stakeholders (employer, health care, social insurance system, union, public employment service) 4. Low self- evaluation of work ability and low self esteem 5. Obtaining help at work 6. Patient identity (when working and not working) 7. Positive coping linked with RTW self-efficacy 8. Positive self-identity a beneficial consequence of employment 9. Psychological effects of chronic pain affect RTW confidence 10. Relationship with family influences self-confidence and esteem 11. Satisfaction with self-image; confidence 12. Self-confidence through working 13. Self-efficacy 14. Self esteem 15. Self-image in relation to work 16. Self-identity 17. Unintended consequences - physical bodily changes post-injury like weight gain affect emotional readiness to return to work 18. Work morale
Being believed	1. Being judged by colleagues 2. Disbelief from physicians 3. Distrustful attitude of the medical profession 4. Feeling doubted 5. Having to justify pain condition in the workplace 6. Legitimacy of absence and perceptions of others 7. Legitimising back pain 8. Legitimacy 9. Not being believed 10. Personally and socially legitimate explanations of LBP important 11. Pursuit of authenticity 12. Rights and responsibilities 13. Stigmatisation
Impact on and of family	1. Being a 'good' significant other 2. Cultural differences in family support between women and men 3. Family support 4. Impact of family 5. Loss of social roles 6. Participation in work - a family matter 7. Relationship changes 8. Re-negotiation or loss of work role 9. Return to work is dependent on a cure (significant other viewpoint)

	10. Role of significant others is important in return to work 11. Unpaid work (home, family, carer responsibilities) 12. Waiting for an answer (diagnosis, treatment, cure) (significant other viewpoint) 13. We have come to the end of the road (treatment options exhausted) (significant other viewpoint)
Not being understood	1. Communication in rehab - cultural differences cause problems 2. Language barriers 3. Talking at cross purposes with health professionals 4. Congruence between clinicians understanding of workers representations and actual worker's representations during work rehab 5. Cultural factors influence RTW - family attitudes, language barriers, cultural beliefs 6. Differences between clinical judgement and workers representations during work rehab 7. Difficult to explain the pain 8. Lack of client centredness 9. Medical discourse of work participation - focus on pain rather than RTW
Finance and Benefits	1. Finances 2. Financial concerns 3. Financial - job security 4. Interaction with benefits organisation 5. Permitted work 6. Limited staff skills in benefits organisation 7. Looking for a different way of living - transition to disability pension 8. Need for financial security 9. Part-time work by people receiving disability income assistance 10. State as supporter
Health and illness and pain representations	1. Acceptance challenges - Difficulties in acceptance of pain and limitations impacts on participation in work 2. Acceptance of chronic pain as a long term disability is a barrier to return to work 3. Acceptance of limitations 4. Acceptance of pain as part of life facilitates RTW 5. Accepting the inability to work 6. Barriers to rehabilitation 7. Cultural influence on psychological factors 8. Beliefs about causality of back pain 9. Beliefs about course of illness and the sick role 10. Beliefs about treatment and effective management of LBP 11. Cause and meaning of back pain 12. Crystallising the abnormal pain representation 13. Cultural factors influence RTW - family attitudes, language barriers, cultural beliefs 14. Cultural factors influencing return to work (language and passive coping strategies)

	15. Explanatory models of illness 16. Illness beliefs coherent 17. Impact of pain representations on return to work 18. Integrating explanations into daily life 19. Loss of ability 20. Loss of hope 21. Need to construct their own models of pain 22. Resignation to permanent effect of back problem on employment status in those not working and their significant others
Meaning of work	1. Competing priorities mean work not necessarily prioritised 2. Effort to remain in or return to pre-injury jobs 3. Effort to return to employment following job loss 4. Employee motivation 5. Family orientated considerations take priority over working 6. Fulfilment in a work role 7. Goal orientated participation (work related achievements and values) 8. Importance of work 9. Lack of meaning and satisfaction in work 10. Meaning of work 11. Meaningful job- highly needed by others 12. Mentality (outlook) in relation to determination to RTW 13. Moral aspects of absence and presenteeism 14. Moral stance - importance of work 15. Motivation and entitlement 16. Motive for RTW 17. Organised time structure difficult to maintain without work 18. Participation constantly changing (feminine perspective) 19. Positive perceptions of work 20. Prioritising of work and home is an issue 21. Regaining identity (as a worker) 22. Sense of coherence 23. Sense of coherence and involvement in work, friends and family 24. Social aspects of work 25. Work as a source of security and independence 26. Work on hold
Mismatch of expectations	1. Ability to do as much work as others 2. Fear of letting employers down 3. Fear of re-injury 4. Insufficient or incorrect information about health problems of the returning employee 5. Meeting job demands 6. Not able to fulfil work requirements 7. Own expectations in relation to RTW (optimistic or pessimistic) 8. Participating at before (masculine perspective) 9. Support expectations 10. Workplace productivity demands 11. Workplace support

Social isolation as a consequence of chronic pain	1. Abandoned by those around (family, friends and colleagues) 2. Feeling on their own 3. Impact on social relations - many women with fibromyalgia fail to maintain social network due to demands of work and family 4. Loneliness in pain 5. Paid work - the struggle for social capital 6. Social isolation
Influence of return to work support and rehabilitation	1. "A light at the end of the tunnel"; support, hope, new knowledge 2. A light in the tunnel - experience of work rehab programme 3. Hope of returning to work through rehab 4. Support 5. Believing in the intervention - effectiveness of exercise to manage LBP 6. Close social network – family, rehab team 7. Difficulty accessing worker representations and problem targeting in work rehab 8. Feelings about outcome of rehab 9. Function-centred treatment 10. Patients' expectations of treatment 11. Goals of rehabilitation - patient's perspective 12. Goals of rehabilitation - return to work 13. Joining a physical exercise programme 14. Lack of access to information or support groups is an obstacle to return to work 15. Mismatch of goals - patient and programme 16. Rehabilitation by activity and exercise 17. Specialised vocational rehab support needed 18. Support is important 19. Unsuccessful responses to intervention (rehabilitation)
System factors	*1. Health care system* 2. Healthcare barriers 3. Lack of communication, lack of coordination and fear of communication within compensation and health care systems is a barrier to RTW 4. Lack of knowledge in primary care and no support from social insurance office 5. Slowness of health care system is an obstacle to return to work *6. Social security, insurance, unemployment office system* 7. From Social Insurance Office 8. From unemployment office 9. Inefficiency of the insurance companies 10. Lack of support from social security authorities *11. Workplace system* 12. Inadequate workplace policy 13. Lack of education on disability management procedures by employers and rehabilitation professionals 14. Occupational health is for employers not employees 15. OH employer orientated - unequal relationship 16. Organisational policies - Return to work policies

	17. Poor communication between stakeholders (doctors and employers about back condition and lighter duties duration) 18. Systems factors - workplace and union policies compensation system and healthcare system are barriers to RTW process 19. Wage support programmes awarded to employee 20. Workplace system barriers 21. External context barriers 22. Workplace barriers 23. Workplace system facilitators 24. External context facilitators 25. Workplace facilitators
Societal expectations	1. Experiences of societal expectations of participation in work 2. Feeling of being outsider in society; work part of natural life 3. Unsupportive society

Enhancing transparency in reporting the synthesis of qualitative research: the ENTREQ statement

No	Item	Guide and description	Reported
1	Aim	State the research question the synthesis addresses.	p2 and p4
2	Synthesis methodology	Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology *(e.g. meta-ethnography, thematic synthesis, critical interpretive synthesis, grounded theory synthesis, realist synthesis, meta-aggregation, meta-study, framework synthesis).*	p5
3	Approach to searching	Indicate whether the search was pre-planned (*comprehensive search strategies to seek all available studies)* or iterative (*to seek all available concepts until they theoretical saturation is achieved).*	p5
4	Inclusion criteria	Specify the inclusion/exclusion criteria *(e.g. in terms of population, language, year limits, type of publication, study type).*	p5
5	Data sources	Describe the information sources used (e.g. *electronic databases (MEDLINE, EMBASE, CINAHL, psycINFO, Econlit), grey literature databases (digital thesis, policy reports), relevant organisational websites, experts, information specialists, generic web searches (Google Scholar) hand searching, reference lists)* and when the searches conducted; provide the rationale for using the data sources.	p5
6	Electronic Search strategy	Describe the literature search *(e.g. provide electronic search strategies with population terms, clinical or health topic terms, experiential or social phenomena related terms, filters for qualitative research, and search limits).*	p5
7	Study screening methods	Describe the process of study screening and sifting *(e.g. title, abstract and full text review, number of independent reviewers who screened studies).*	p7
8	Study characteristics	Present the characteristics of the included studies *(e.g. year of publication, country, population, number of participants, data collection, methodology, analysis, research questions).*	p9-p17

No	Item	Guide and description	Reported
9	Study selection results	Identify the number of studies screened and provide reasons for study exclusion *(e,g, for comprehensive searching, provide numbers of studies screened and reasons for exclusion indicated in a figure/flowchart; for iterative searching describe reasons for study exclusion and inclusion based on modifications t the research question and/or contribution to theory development).*	p7
10	Rationale for appraisal	Describe the rationale and approach used to appraise the included studies or selected findings *(e.g. assessment of conduct (validity and robustness), assessment of reporting (transparency), assessment of content and utility of the findings).*	p6
11	Appraisal items	State the tools, frameworks and criteria used to appraise the studies or selected findings *(e.g. Existing tools: CASP, QARI, COREQ, Mays and Pope*[25]*; reviewer developed tools; describe the domains assessed: research team, study design, data analysis and interpretations, reporting).*	p6
12	Appraisal process	Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required.	p6
13	Appraisal results	Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale.	Supp file 1
14	Data extraction	Indicate which sections of the primary studies were analysed and how were the data extracted from the primary studies? *(e.g. all text under the headings "results /conclusions" were extracted electronically and entered into a computer software).*	p6
15	Software	State the computer software used, if any.	p6
16	Number of reviewers	Identify who was involved in coding and analysis.	p6
17	Coding	Describe the process for coding of data *(e.g. line by line coding to search for concepts).*	p6
18	Study comparison	Describe how were comparisons made within and across studies *(e.g. subsequent studies were coded into pre-existing concepts, and new concepts were created when deemed necessary).*	p6-7

No	Item	Guide and description	Reported
19	Derivation of themes	Explain whether the process of deriving the themes or constructs was inductive or deductive.	p7
20	Quotations	Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations of the author's interpretation.	p21-30
21	Synthesis output	Present rich, compelling and useful results that go beyond a summary of the primary studies (e.g. *new interpretation, models of evidence, conceptual models, analytical framework, development of a new theory or construct).*	p31-35

From Equator Network. Tong A, Flemming K McInnes E Oliver S & Craig J (2012) Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. BMC Medical Research methodology **12**:181

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The work of return to work. Challenges of returning to work when you have chronic pain: a meta-ethnography

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The work of return to work. Challenges of returning to work when you have chronic pain: a meta-ethnography

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ABSTRACT

Aim: To understand obstacles to returning to work, as perceived by people with chronic non-malignant pain, and as perceived by employers and to develop a conceptual model.

Design: Synthesis of qualitative research using meta-ethnography.

Data sources: Eleven bibliographic databases from inception to April 2017 supplemented by citation tracking.

Review methods: We used the methods of meta-ethnography. We identified concepts, conceptual categories and developed a conceptual model and line of argument.

Results: We included 41 studies. We identified three core categories in the conceptual model; managing pain, managing work relationships and making workplace adjustments. All were influenced by societal expectations in relation to work, self (self-belief, self-efficacy, legitimacy, autonomy and the meaning of work for the individual), health/ illness/ pain representations, pre-return to work support and rehabilitation, and system factors (healthcare, workplace and social security). A mismatch of expectations between the individual with pain and the workplace contributed to a feeling of being judged, and difficulties asking for help. The ability to navigate obstacles and negotiate change underpinned mastering return to work despite the pain. Where this ability was not apparent, there could be a downward spiral resulting in not working.

Conclusions: For people with chronic pain, and for their employers, navigating obstacles to return to work entails balancing the needs of: (1) the person with chronic pain; (2) work colleagues; and (3) the employing organisation. Managing pain, managing work relationships and making workplace adjustments appear to be central, but not straightforward, and require substantial effort to culminate in successful return to work.

[Word count = 252]

Strengths and Limitations of this study *(five bullet points - one sentence each)*

Strengths

- This is the first study to present employer and employee perspectives together.
- This study draws together what is known from qualitative studies to inform practice.
- This study highlights health and illness and pain representations in relation to return to work.

Limitation

- Only five studies covered employers' perspectives, so there are fewer data on employers' perspectives compared to the perspectives of people with chronic pain.

INTRODUCTION

Chronic pain, defined as pain lasting three months or more[1], is a global public health problem affecting one-in-ten adults.[2] A 2017 mega-ethnography brought together eleven qualitative evidence syntheses to explore the experience of living with chronic non-malignant pain.[3] Previous reviews have identified the importance of the effect of chronic pain on people's work life.[4 5] Chronic pain is strongly associated with claiming disability and unemployment benefit in Australia[1] and with unemployment in the USA.[6] The obstacles to staying in work for people with musculoskeletal pain have previously been explored in a meta-ethnography[7] and factors promoting staying at work are the focus of a previous mixed methods systematic review.[8] A qualitative systematic review of the impact of chronic pain in the workplace[9] takes a broad perspective including impact on employment status, sickness absence and loss of productivity in contrast to a condition and gender-specific literature review focused on work and rehabilitation for women with fibromyalgia.[10] There is qualitative research on the perspective of doctors [11] but this is not considered further in this paper.

The lack of focus on return to work for people with chronic non-malignant pain and the perspective of employers presents a knowledge gap in existing reviews. Return to work can refer to the process of returning after a period of sick leave[12] or returning after a period of unemployment.[13] This review uses qualitative evidence synthesis to increase understanding of the obstacles to return to work for people with chronic pain and their employers, and this can then inform intervention development to support return to work.[4 14]

METHODS

Aims and objectives

This meta-ethnography explores experiences of returning to work, as perceived by people with chronic non-malignant pain and by employers and to develop a conceptual model.

Study design

There are two main approaches to synthesising qualitative research, one that aggregates findings to describe the literature and one that aims to interpret findings and develop a conceptual understanding.[4 14 15] Meta-ethnography is an interpretative form of knowledge synthesis that was chosen for this study in order to both integrate and develop a greater understanding of existing knowledge and identify any other overarching concepts that would explain the data. The seven phases of meta-ethnography are outlined by Noblit & Hare (1988)[15] and elaborated on by Toye *et al.* (2014b).[14] These are 1) getting started by identifying area of interest 2) deciding what is relevant 3) reading and re-reading the studies 4) determining how the studies are related which involves creating a list of key phrases, ideas, metaphors and concepts 5) translating the studies into one another where direct comparisons are made and similar concepts are sorted into categories 6) synthesising the translations where researchers make sense of the conceptual categories to develop new knowledge and understanding and 7) expressing the synthesis. A line of argument was constructed by examining how the conceptual categories relate to each other.

Identifying and appraising the review articles

Search methods

Study selection

Eleven electronic bibliographic databases were searched (AMED; ASSIA; CINAHL; EMBASE; IBSS; MEDLINE; PsycINFO; Social Services Abstracts; Sociological abstracts; Web of Science; Westlaw) from inception up until 25th April 2017 supplemented by backwards and forwards citation tracking using SCOPUS. These databases were considered appropriate because in early scoping work we identified relevant studies in these databases. An academic support librarian undertook the initial search in collaboration with RF in December 2016 and this was updated by MG in April 2017 who continued the screening and selection of papers. The search terms used included “Chronic pain” and “Return to work (MeSH) OR Employment OR Employer OR Supported Employment (MeSH)”. In April 2017 two additional search terms were used, ‘pain’ to broaden search as

'chronic pain' was not identifying all relevant papers and 'qualitative' as suggested by Shaw et al (2004)[16] to focus the search on studies with this type of methodology. Search strategy is detailed in Supplementary File 1. All qualitative studies using face-to-face interviews and focus groups which explored perceptions of obstacles to return to work, in employers and people who were off work, sick-listed and had chronic pain were included. Non-English language texts were excluded.

Quality appraisal

The quality of studies was evaluated using the Critical Appraisal Skills Programme (CASP) qualitative assessment tool.[17] A scoring system was utilised for CASP (yes = 3, can't tell = 2, no = 1). A score of 20 or higher indicates the paper is deemed to be of satisfactory quality. The GRADE-CERQual (Grading of Recommendations Assessment Development and Evaluation - Confidence in the level of Evidence from Reviews of Qualitative research) approach was also completed.[18 19] Confidence in review findings was assessed based on four components: adequacy of data[20], coherence[21], methodological limitations[22] and relevance.[23]

Analysis

Initially, the first ten papers (in alphabetical order of author) were read by MG, KS and JOB in order to identify key 'concepts', the raw data of meta-ethnography.[14] These concepts are ideas drawn from the findings of the original papers. They are also known as second order concepts because they are the authors' interpretations of the participant's narratives (known as first-order concepts).[24] The participants' narratives chosen by the author are examples of second-order concepts.[14] After reading these 10 papers, the concepts identified by each researcher were amalgamated through discussion and grouped into conceptual categories that the team then worked collaboratively to name. This took place over a series of three meetings. These conceptual categories are third-order concepts insofar as they are the researchers' interpretations of second order concepts. All concepts were identified by all

three authors (KS MG JOB) even if exact wording differed, the concept was the same. This is the way that studies were translated and related to each other. The first author then proceeded to read the rest of the papers and continue this process of analysis. Five additional papers were also read by KS and JOB where MG felt a collaborative discussion would be helpful due to the nature and/ or findings of the studies. Thus 25% of papers were checked (n=10) then an additional 10% were checked (i.e. 35% in total) to ensure ratings and concepts were in agreement. All the included papers were uploaded to QSR International's NVivo 11 software[25] and nodes were created for the conceptual categories. The next stage was to make sense of these categories through further discussion, make decisions about which were the core categories and develop a line of argument and conceptual model[14] involving a further four meetings. Recurring and common concepts were compared across studies[15] where directly comparable (reciprocal translation) together they contributed to our line of argument. We did not find studies that stood in opposition (refutational translation). The line of argument makes a whole of something more than a sum of the parts.[15] MG, JOB and KS independently drew their own conceptual model before coming together to agree a model, which was revised through several discussions and the final version is presented in this paper. The culture described by Toye *et al.* (2013b)[26] of a core team that provided a safe environment in which to freely discuss, agree, disagree and change their position in relation to conceptual analysis was seen as a key strength, laying the foundations for a rigorous review. This approach was adopted in this review. We explored alternative interpretations and explanations including locus of control, navigating relationships, normalising participants' pain condition, agency but these were not supported as major concepts. Many of these concepts were subsumed in other categories.

Patient and Public Involvement

A patient and public representative was involved in the development of the research funding submission for the overall study as a co-applicant and endorsed the importance of the focus of this meta-ethnography recognising the central nature of obstacles to return to work.

Results

Search outcome and overview of studies reviewed

We include 41 papers and search outcome is illustrated by a flow chart in **Figure 1 [insert Figure 1 near here]**. The initial 3191 hits were screened by titles and abstracts, duplicates excluded and a further 1466 were excluded at this stage. Following the reading of full texts, papers were excluded as they were neither about chronic pain nor specifically about return to work. All studies that were critically appraised passed the first two screening questions of the CASP tool that related to whether there was a clear statement of the aims of the research and if qualitative methodology was considered appropriate to address the research goal.[17] CASP scores are presented in Supplementary File 2. Of the 41 articles included, 32 reported interview studies and nine focus group studies. Twenty-one studies were from Scandinavia (14 in Sweden, four in Norway, and three in Denmark), seven were from the UK, seven were from Canada, two in France and one each from Australia, South Africa, Switzerland and USA. Only five studies were from employer's perspectives. One study included in the review did not specify the type of chronic pain, but the majority of the studies involved people or employers of people with musculoskeletal pain, mainly affecting the back and neck and some were injury/ work related. Studies of people with musculoskeletal disease including arthritis, fibromyalgia and systemic lupus erythematosus were also included (Table 1).

178 **Table 1 Description of included studies**

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	Author and year of publication	Country	Type of pain	Number, gender and age of participants	Participants	Method of data collection	Methodological approach – Analysis
1	Ahlstrom *et al*. 2017[12]	Sweden	Neck pain	16 women Mean age of 54	People with history of long-term sick leave in human service organisations	Interviews	Constructivist grounded theory approach
2	Andersen *et al.* 2014[27]	Denmark	Back or upper body	4 men and 3 women aged 33-57	Participants in chronic pain self-management programme or tailored physical activity programme	Semi-structured interviews	Systematic text condensation – thematic cross case analysis
3	Angel *et al*. 2012[28]	Denmark	Low back pain	20 (65% women) Mean age of 46	Participants of counselling intervention addressing work place barriers and physical activity	Semi-structured clinical interviews	Narrative analysis
4	Ashby *et al.* 2010[29]	Australia	Chronic low back pain	11 men aged 23-59	Participants in a work hardening programme	Semi-structured interviews (ethnographic)	Thematic content analysis
6	Brooks *et al*. 2013[30]	England	Persistent non-specific low back pain of at least 12 weeks duration	6 women and 3 men Working participants (5) aged 45-52 (mean 49.2) Unemployed participants (4) aged 51-63 (mean 57) and	Participants from hospital pain management clinic	Semi-structured interviews	Template analysis style of thematic analysis

				their significant others			
7	Buus *et al*. 2015[31]	Denmark	Low back pain	25 (56% women) (mean age 46.8)	People who had received counselling intervention designed to motivate them to change work routines and exercise	Semi-structured interviews	Interpretative thematic analysis
8	Coole *et al.* 2010[32]	UK	Low back pain	13 women and 12 men aged 22-58 years (mean age 44.7)	People offered MDT back pain rehabilitation and concerned about ability to work due to low back pain	Semi-structured interviews	Thematic analysis
9	Coutu *et al.* 2010[33]	Canada	Persistent musculoskeletal pain - back pain (10), upper extremities (4), mixed (2)	10 men and 6 women aged 25-56 (mean age 40)	Workers referred to work rehab programme	Semi-structured interviews	Narrative approach – content analysis
10	Coutu *et al.* 2011[34]	Canada	MSD –related pain for more than 12 weeks accepted and compensated by Quebec Workers Compensation Board Back pain (10), upper	16 workers - 10 men six women Aged 25-56 years (mean age 40)	Referred to evidenced based work rehab programme by a third party payer	Semi-structured interviews	Content analysis

			extremities (4), mixed (2)				
11	Coutu *et al.* 2013[35]	Canada	MSD –related pain for more than 12 weeks accepted and compensated by Quebec Workers Compensation Board Back pain (8), upper extremities (2), both (2)	12 workers (8 men and 4 women) aged 25-56 (mean age 31) and five clinicians	Participants from workers starting a work rehab programme at a hospital research centre	Multiple case study design-semi-structured interviews with workers and rehab clinicians at four points in time	Thematic analysis & constant comparison method (grounded theory)
12	Crooks 2007[36]	Canada	MSD (fibromyalgia, arthritis, RA, OA, Lupus)	18 women aged 26-69 (mean age 44)	Women who developed MSD while involved in the labour market	In-depth interviews	Thematic analysis
13	Dionne *et al.* 2013[37]	Canada	Work-disabling back pain	Workers with work-disabling back pain 9 = returned to work (7 men, 2 women) aged 30-59 10= not returned or recently returned (7 men, 2 women) aged 30-60+	Recruited through newspaper adverts	Focus groups (two)	Content analysis
14	Edén *et al.* 2007[38]	Swedish	MSD (type not specified)	17 individuals (two men, 15 women) aged 41-62 years	People going back to work by means of the	Interviews	Inductive analysis relevant to research question

					Swedish 'resting disability pension'		
15*	Fassier *et al.* 2015[39]	France	Low back pain	Three employers, one manager and one worker	Recruited from work places with high rates of absence for low back pain – car maker, association providing home services for the dependent and two university hospitals	Interviews and focus groups	Qualitative content analysis
15	Gard & Sandberg 1998[40]	Sweden	Musculoskeletal pain (shoulder, neck and low back pain) for at least one year with a period of at least four weeks during that time	10 patients (9 females and one male) aged 30-54 years (mean age 47)	People sick listed with musculoskeletal pain	Interviews with a low degree of structure	Phenomenological structural analysis
16	Glavare *et al.* 2012[41]	Sweden	Long-term musculoskeletal pain (whiplash, fibromyalgia, nerve injury (neck), arthrosis of foot)	11 (8 women and 3 men) aged 22-58 (median age 39)	Participants in a multi-professional pain rehab programme followed by a coached work-training programme	Thematised research interviews	Grounded theory – constant comparative method
17*	Grataloup *et al.* 2016[42]	France	Supervisors of people with musculoskeletal disorders	Employees' supervisors (61 charge nurses, and head nurses supervising one or more workers with restrictions for heavy	Staff from three public hospitals	12 focus groups (charge nurses and head nurses separate)	Thematic qualitative analysis by constant comparison each focus group analysed before the next held

				lifting or repetitive movements)			
18	Hansson *et al.* 2001[43]	Sweden	Spine-related pain	5 people (4 female and 1 male) aged 51-64 (median 55)	People granted disability pension in 1996	Interviews conducted as conversations – approach based on symbolic interactionism	Based on grounded theory
19	Hansson *et al.* 2006[44]	Sweden	Neck or low back pain (spine related pain)	33 (20 women and 13 men) aged 32-61 years (median age 48)	Sick listed participants	Qualitative interviews	Qualitative analysis
20	Johansson *et al.* 1997[45]	Sweden	Undefined musculoskeletal pain disorders	20 female patients aged 21 – 61	Females sick listed due to MSD in urban health centre	Repeated thematic interviews	Grounded theory
21	Juuso *et al.* 2016[46]	Sweden	Fibromyalgia	15 women aged 38-64 (median 54)	From a rehabilitation centre (4), associations for rheumatism and FM (11)	In-depth qualitative interviews	Hermeneutic approach
22	Kalsi *et al.* 2016[47]	UK	Chronic pain (type not specified)	17 patients (8 male, 9 female) aged 18-65+ but majority (14/17) were 18-34	Patients attending a 3 week high intensity pain management programme	Semi-structured focus group discussion	Thematic analysis
23	Kvam *et al.* 2013[48]	Norway	Prolonged musculoskeletal pain (unspecified pain in back, neck and shoulders due to fibromyalgia,	4 men and 6 women aged 26-57	Volunteers from people undergoing vocational rehabilitation	Semi-structured interviews	Constant comparative analysis

			arthritis, and rheumatism)				
24	Kvam & Vik 2015[49]	Norway	Prolonged musculoskeletal pain (unspecified pain in back, neck and shoulders due to fibromyalgia, arthritis, and rheumatism)	6 women, 4 men aged 26-57	People undergoing vocational rehabilitation	In-depth interviews	Discourse analysis
25	Liedberg & Henriksson 2002[50]	Sweden	Fibromyalgia	39 women aged 35-63 (mean 49.5)	Patients from a pain and rehab centre	Interviews	Analysed into categories and subcategories
26	Magnussen *et al.* 2007[51]	Norway	Back pain	12 women, 5 men aged 38-56 years (mean age 49)	Part of a larger study evaluating the effect of a vocational rehabilitation related intervention	Three focus groups	Analysis of themes and subthemes
27	McCluskey *et al.* 2011[52]	UK	Persistent back pain	5 dyads (4 male & 1 female claimants) – aged 29-54 years (mean age 40.2)	Disability claimants and their significant others	Semi-structured interviews	Template analysis
28	McCluskey *et al.* 2014[53]	UK	Persistent low back pain	18 (9 benefits claimants - 5 males and 4 females aged 29-63 - mean age 48.1) and 9 significant others (6 females and 3 males aged 21-68 mean age – 49.7)	Work disability benefits claimants and significant others	Semi-structured interviews	Template analysis

29	Nilsen & Anderssen 2014[54]	Norway	Non-malignant chronic pain (neck and back pain, traffic injuries)	10 men and 10 women aged 26-63 (in the year 2006) - mean age 42.7	From a specialist pain clinic	Open ended interviews	Narrative analysis Phenomenological meaning condensation framework
30	Nordqvist *et al.* 2003[55]	Sweden	Back, neck or shoulder diagnoses	13 women and 5 men	People who in 1985 were 25-34 years old and had a new sick leave spell of at least 28 days.	Five focus groups	Grounded theory coding and categorising
31	Patel *et al.* 2007[13]	UK	Chronic musculoskeletal pain	38 patients (15 male 23 female) aged 29-62 years (mean age 49.4)	Unemployed and in receipt of long-term social welfare benefits	In-depth semi-structured interviews	Framework approach and thematic analysis
32	Rydstad *et al.* 2010[56]	Sweden	Whiplash Associated Disorders	9 people (5 females, 4 males) aged 32-53 years	Participants of a work-oriented MDT rehab programme	Thematised interviews	Constant comparison method – grounded theory
33	Saunders *et al.* 2015[57]	Canada	MSK injury Arm (1), knee (1), back injuries(7)	9 people (5 females, 4 males) aged 34-56 years	People with long-term work disability and job loss due to an MSK injury from work rehab and chronic pain programmes	Interviews (27) with 9 people	Thematic analysis (phenomenological approach guided by life world concept)
34	Scheermesser *et al.* 2012[58]	Switzerland	Low back pain	13 (9 men, 4 women) aged 38-60 years (mean age of men – 52, mean age of women 48)	Patients with a Southeast European cultural background attending a rehab centre in Switzerland	In-depth semi-structured interviews (5) & two focus groups	Qualitative content analysis
35	Shaw & Huang 2005[59]	USA	Occupational low back pain	Focus group - 28 people (15 male, 13	Focus group participants - people recently (<6 months)	Focus group & interviews	Content analysis

				female) aged 31-65 (mean age 46) Interviewees – 23 people (11 male, 12 female) aged 25-64 (mean age 42.6)	returned to work after injury responding to newspaper advert Interview participants - patients referred by physios from collaborating OH network		
36	Sjöström *et al.* 2011[60]	Sweden	MSK disorders - mainly back and neck pain	10 people (7 women, 3 men) aged 29-61 (mean age 48)	Attended a rehab programme and still on full time sick leave 2 years after completion	Semi-structured interviews	Qualitative content analysis
37	Soeker *et al.* 2008 [61]	South Africa	Back injury	26 people (18 males, 8 females) aged 18 – 60	Selected by random sampling from a hospital rehab department	Focus groups	Qualitative analysis
38*	Soklaridis *et al.* 2010[62]	Canada	Low back pain – work-related injury	59 stakeholders including 6 injured workers and 5 small and 9 large employers	Various contacts of the research team	Nine focus groups	Grounded theory approach
39	Svensson *et al.* 2010[63]	Sweden	Back neck or shoulder diagnosis	13 women and 5 men	People aged 25-34 years old in 1985 and had a new sick leave spell of at least 28 days	Five focus groups	Descriptive and explorative method of analysis
40*	Williams-Whitt *et al.* 2016[64]	Canada	Low back pain	23 supervisors	Supervisors of back injured workers from 11 Canadian organisations	Semi-structured in-depth interviews	Constructivist grounded theory principles

41*	Wynne-Jones *et al.* 2011[65]	Wales	Musculoskeletal pain	18 employees with MSK pain (8 male, 10 female) mean age 49.7 20 managers (10 male, 10 female) mean age 44.8	Two large public sector organisations	Semi-structured interviews	Thematic analysis

*Employer studies

Overarching conceptual categories

A total of 342 concepts were clustered into 16 conceptual categories summarised in Table 2. The first column of Table 2 contains third order concepts. We worked with second order concepts and the second column of Table 2 is second order data some of which is illustrated with first order participant quotations. This table also highlights the CERQual profile. The three key conceptual categories identified by the team and are described in this section. The balancing of these three inter-related categories and the way they are influenced by other factors appears to be central to negotiating a successful return to work. The scope for managing pain and making adjustments in the workplace can be influenced by the quality of the relationship an individual has with their employer and/ or line manager and what is feasible within a particular work setting. The remaining 13 conceptual categories are described in more detail in Supplementary File 3. The concepts within each conceptual category are presented in Supplementary File 4.

Managing pain

Pain was seen as a major obstacle to return to work. [46 54 60] A plethora of strategies to manage it were described [43 47 54 56 59 60] including use of sick leave.[12 44]

> "They used the strategies doing a little at a time, taking continuous breaks, working slower and being aware of body posture and workloads. These strategies improved their endurance and prevented further pain."[56]

However, the strain of living with chronic pain meant fatigue also became a problem and low energy levels prevented work return.[60]

> "Pain developed and became continuous, was easily provoked by work tasks and relatively resistant to pain-controlling strategies. Life became strenuous and energy was reduced."[43]

The impact of pain on performance [65] and ability to attend and travel to work[50] along with the fear of pain exacerbation[33 47] were also problematic.

Managing work relationships

Interpersonal conflict and mutual mistrust can arise between people with pain and their employers and colleagues[39 63] and if relationships with supervisors are perceived as poor then this is demotivating in relation to work return.[40] Employers with few employees expressed reservations about how far to push an employee for fear of upsetting them and causing them to be off sick for longer than necessary.[62] Managers in a public sector study appeared to be walking a fine line between supporting employees, making sure colleagues were not adversely affected, and that services were delivered.[65] Asking for help was perceived as frustrating by people in pain, and incurred feelings of inadequacy and negativity.[27] Some struggled in their interaction with employers and tended to be passive, not believing their views were listened to, or valued, which led to difficulties in sustaining work return.[12] Unsympathetic employer attitude and a lack of understanding of the person's experience of pain were seen as a major obstacles to work return[13 36 47 56 61] but those employers with personal experience of pain were perceived as more sympathetic and empathic.[32 64]

> "One of the important employment related obstacles is the perception that employers have limited understanding about pain due to ignorance and a lack of awareness. However, patients do acknowledge that chronic pain is difficult to understand without personal experience."[13]

Team management responsibilities of regulating tension between colleagues was perceived as challenging when work restrictions for those with pain caused unequal work distribution leading to a sense of injustice.[42]

> "However, if duties were reduced indefinitely, with no extra cover, workers might feel that they were burdening their colleagues. There were doubts as to how long their colleagues support might continue" [32]

Making workplace adjustments

An economic climate of austerity was perceived as an obstacle to work due to reduced job availability and a competitive job market.[13] Reorganisations and rationalisation in the workplace meant jobs had changed and become more demanding and potentially difficult to adapt for people with a pain condition.[50] In this situation, age was also seen as influential with some feeling they were too old to retrain for a different kind of job.[13 61]

The type of job influenced work return decisions with physical work being perceived as more challenging with pain[42 61] and more highly skilled work providing greater scope for flexibility and adaptation.[30]

> "Modifying work hours and days is a potential accommodation for women who develop musculoskeletal diseases, but it is only appropriate in certain work environments where such flexibility is allowed." [36]

People with chronic pain often felt they were not consulted or involved in the decision making about workplace redeployment or adjustment and when desired modifications were not possible they could not return to work. [30 32 36 61] Managers' attitudes and efforts, [64] combined with effective routine methods of regular communication of changes made to colleagues[55] were seen as ways of improving the success of workplace adjustments. Managers did not always have the resources or know what options would be available for making these adjustments and saw the planning of these accommodations as an additional demand on their time.[64] Managers also felt that information about work restrictions from occupational health were not always realistic in the work setting and therefore difficult to implement.[42]

> "Many charge and head nurses complained that occupational physicians formulated unrealistic restrictions that were impossible to respect due to work organization." [42]

A number of workplace adjustments were felt to be helpful including flexible hours or a reduction in hours but were not always forthcoming.[30 36 50] The possibility of a gradual return to work[37] working from home or participating in a job sharing programme[36] were also seen as helpful by people in chronic pain. Changes to the job itself including physical adjustments and a reduction in job demands were not always feasible, for example in a nursing[36], nursing assistant role[50] or a preschool teaching role.[49]

263 **Table 2 Conceptual categories, description of category, supporting studies and CERQual assessment**

	Conceptual category - summary of review finding	Quotations from primary studies to illustrate conceptual category	Supporting studies	Adequacy (number of concepts – see list of concepts in Supplement -ary File 3)	Coherence (number of supporting studies)	Methodological limitations (see CASP scores in Supplementary File 1)	Relevance	Overall CERQual assessment of confidence in the evidence	Explanation of CERQual assessment
1	**Managing pain** - the impact of pain on return to work and how it can be managed	Chronic pain itself was the underlying barrier from which most other barriers to work stem. Overall, very few patients reported any attempts to plan for the future, primarily due to the unpredictable nature of the pain condition and physical mobility problems associated: "*I have no objections at all to go back to work. But, I thought about this. I don't know what I could do. I can't sit for very long. I can't stand for very long. Erm, in discomfort 99% of the time.*"[Male, 56] [13]	12 13 29 30 33 37 40 41 43 44 46 47 50 52 54 56 58-60 65	Richly described (49)	Fit between underlying data and review finding is very clear (20)	All CASP scores over 20	Sweden 9 UK 5 Canada 2 Norway 1 Switzerland 1 USA 1 Australia 1 Three studies partially relevant as only included women not men.	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance. Employee and employer studies support this finding.
2	**Managing work relationships** - impact of chronic pain on relationships with employers, line managers and colleagues	The existence of interpersonal conflict with colleagues or managers was mentioned as a barrier, as was mutual mistrust. For managers, overwork, role conflict between production	12 13 27 30 32 36-42 45-47 50 51 55-57 61-65	Richly described (51)	Fit between underlying data and review finding is very clear (25)	All CASP scores over 20	Sweden 10 Denmark 1 UK 5 Canada 5 France 2 Norway 1 South Africa 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance.

	and how this is managed	targets and occupational health and a lack of hierarchic support were possible barriers. With colleagues, overwork and scepticism about medical problems could induce hostility and rejection. For workers with LBP, the feeling of being judged and having to justify absence, pain and limitations was perceived as a barrier. [39]							Employee and employer studies support this finding.
3	**Making workplace adjustments** - the scope and process for making changes to the job, work conditions or environment	Our data suggest that the ability of participants to remain in employment was in part influenced by the nature of their work (whether or not adaptations could be made to enable employees to continue in post despite their symptoms) and in part due to patients' confidence and ability to negotiate adaptations with their employers (significant others often described themselves as being an important source of support for the patient in this context). [30]	12 13 28 30-32 36-39 42 44 49 50 54 55 60-62 64	Richly described (55)	Fit between underlying data and review finding is very clear (20)	All CASP scores over 20	Denmark 2 Sweden 6 UK 3 Canada 4 Norway 2 France 2 South Africa 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance. Employee and employer studies support this finding.

		Accommodation management is perceived as a considerable addition to supervisors' regular duties, for which they feel ill-prepared, even where guidance is provided by others with the requisite expertise. [64]							
4	**Autonomy** - the individual's ability to have control or agency in relation to their pain and their work situation	Several respondents emphasized the importance of their possibilities to control what to do and when to do it and considered flexible working hours as a prerequisite for their return to work[38]	12 13 28 30-32 37 38 40 41 43 47	Well described (12)	Fit between underlying data and review finding is clear (12)	All CASP scores over 20	Sweden 5 UK 4 Denmark 2 Canada 1	Moderate confidence	Graded as moderate as well described and relevant across four cultures.
5	**Self-belief/ self-efficacy** - the individual's outlook about their ability to handle work and manage their pain	Self-efficacy statements pertaining to more complex work-related functions were subdivided into one of three categories based on the thematic content analysis: the ability to meet job demands, the ability to obtain help from others, and the ability to cope with pain.[59]	12 28 30 38 40 47 48 51 56 59 63	Richly described (18)	Fit between underlying data and review finding is very clear (11)	All CASP scores over 20	Sweden 5 Denmark 1 Norway 2 UK 2 USA 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance
6	**Being believed** - people struggling with not being believed, trusted or	Employees typically discussed issues around being believed and trusted when they were ill. Managers, on the other hand, were more likely to	28 31 39 41 52 56 59 61 65	Well described (13)	Fit between underlying data and review finding is clear (8)	All CASP scores over 20	Denmark 2 France 1 Sweden 2 UK 2 South Africa 1	Moderate confidence	Graded as moderate as well described and relevant across five cultures.

	perceived as legitimate	talk about employees taking absence that was not legitimate, for example; *''People just don't turn up, you know. They phone in sick or er… The attitude is they, you know, 'why should I bother?' sort of thing. You get a lot of that.''* [Female manager] [65]							Employee and employer studies support this finding.
7	**Impact of and on the family** - the effects of chronic pain on family members and vice versa	Lots of patients with LBP are looked after by their family members who relieve them of physical activities. Many patients receive more attention and are encouraged to take rest. The positive feeling of being supported is counteracted by the negative feeling of uselessness, associated with being off work.[58]	29 30 49 50 52 53 56 58	Well described (13)	Fit between underlying data and review finding is clear (8)	All CASP scores over 20	Australia 1 UK 3 Sweden 2 Switzerland 1 Norway 1	Moderate confidence	Graded as moderate as well described and relevant across five cultures
8	**Not being understood** - this is in the context of relationships with health professionals	Participants felt that physicians did not understand their clients' work environment, such as what functional demands were necessary for them to complete their tasks as well as the psychosocial stressors that could cause their back pathology to become chronic.' [61]	35 49 54 58 61 62	Adequately described (9)	Some inconsistency in fit (6)	All CASP scores over 20	Canada 2 Norway 2 Switzerland 1 South Africa 1	Low confidence	Graded as low as some concerns about coherence and relevant across four cultures. Employee and employer studies support this finding.

9	**Finance and benefits** - financial difficulties and the economic insecurity of moving from welfare benefits back into work	Some patients who were unemployed on grounds of ill health had serious concerns about their financial future. They complained of sleep disorders and mental problems: *"Without medication I can't sleep. I don't know what is going to happen"* [58] *"It must be possible to find transition solutions when trying to get back to work, solutions that make us feel economically secure. Otherwise, who would dare to try?"*[51]	13 36 43 45 50 51 58 59	Well described (10)	Fit between underlying data and review finding is clear (8)	All CASP scores over 20	Canada 1 UK 1 USA 1 Switzerland 1 Sweden 3 Norway 1	Moderate confidence	Graded as moderate as well described and relevant across six cultures
10	**Health and illness and pain representations impact on return to work** - the way people think about their pain and the mental representations they form in relation to beliefs about its cause and their perception of its impact on their lives	Beliefs about causality. All claimants reported work as the initial cause of their back pain condition, and most also perceived previous work/certain types of work (manual/heavy/repetitive) as a 'trigger' for subsequent episodes and therefore not conducive to return to work. [52] Both patients and significant others in the non-working sample were resigned to the permanent	28-31 33 34 41 46 47 52 56 58 62	Richly described (22)	Fit between underlying data and review finding is very clear (13)	All CASP scores over 20	Denmark 2 Australia 1 UK 3 Canada 3 Sweden 3 Switzerland 1	High confidence	Graded as high in relation to adequacy, coherence, methodological limitations and relevance. Employee and employer studies support this finding.

		effects of the patient's back problem on their employment status and were thus more likely to consider the patient as 'disabled', a role which might become self-fulfilling.' [30]							
11	**Meaning of work** - the meaning of work for an individual linked with motivation	Work was viewed by most patients as a source of financial security and a means of independence. However, the financial aspect of work did not seem to motivate all patients. A separate subgroup placed greater focus on health status and pain reduction strategies. This was a more prevalent attitude amongst those who had had longer durations of sick leave. For example, a patient that had been unemployed for more than one year stated: "*Money wouldn't be a motivator for me, I'd have to be well enough to return to work – that would be the motivator*"' .[47] Participants who were placed in jobs that had no meaning to them caused	38 40 41 44-48 50 54 57 61-65	Richly described (26)	Fit between underlying data and review finding is very clear (14)	All CASP scores over 20	Sweden 7 UK 2 Norway 2 Canada 2 South Africa 1	High confidence	Graded as high in relation to relevance, coherence, adequacy & methodological limitations. Employee and employer studies support this finding.

		them to become frustrated. When these meaningless tasks were coupled with relapses of back pain, there would be a downward spiral into depression and demotivation amongst the participants.' [61]							
12	**Mismatch between employee and employer expectations of return to work**	'Meeting job demands typically referred to producing a certain quantity of work (e.g. 'I need to be at full capacity'), quality of work (e.g. 'I may not do a good job'), speed of work (e.g. 'I won't be able to keep up'), or fulfilling a particular role at work (e.g. 'I need to be able to respond to an emergency').' [59]	13 38 40 47 48 51 55 59 60 64	Well described (11)	Fit between underlying data and review finding is clear (10)	All CASP scores over 20	Sweden 4 UK 2 Norway 2 USA 1 Canada 1	Moderate confidence	Graded as moderate as well described and relevant across five cultures. Employee and employer studies support this finding.
13	**Social isolation as a consequence of chronic pain** - leading to a lack of support to return to work	'Paid work – the pain sufferer's struggle for social capital. The informants were concerned about how the unpredictability of the pain broke into their daily lives and social contact with others, and challenged their normal way of dealing with everyday problems.'[54]	29 31 50 54 56	Adequately described (6)	Fit between underlying data and review finding is clear (5)	All CASP scores over 20	Australia 1 Denmark 1 Sweden 2 Norway 1	Low confidence	Graded as low as adequately described and relevant across four cultures

14	**Influence of return to work support and rehabilitation**	Support. The informants felt that the rehabilitation programme was the right place to come to when living with long-term pain. The team was described as empathetic and knowledgeable: when the informants told about their difficulties they felt understood for the first time. The informants also got support from each other, and a good feeling of fellowship developed; on the other hand, some also described how they were negatively affected by other participants who were depressed.' [56]	27 28 31 33 35 37 38 41 47 50 56 58 59	Well described (19)	Some inconsistency in fit (13)	All CASP scores over 20	Denmark 3 Canada 3 Sweden 4 Switzerland 1 USA 1 UK 1	Moderate confidence	Graded as moderate as well described and relevant across six cultures.
15	**System factors (healthcare, social security and workplace systems)** - how policies and procedures in these three systems impact on people with chronic pain	The way "systems" (dys)function delay return to work. When a worker becomes injured, they enter into complex relationships with the compensation system, unions, workplace, and health care system. How these systems interact with one other and with the injured worker can affect the RTW process. [62] Within the healthcare system, participants talked	13 32 36 37 39 41 51 56 57 61 62 65	Richly described (25)	Fit between underlying data and review finding is very clear (12)	All CASP scores over 20	UK 3 Canada 4 Sweden 2 Norway 1 South Africa 1 France 1	High confidence	Graded as high in relation to relevance, coherence, adequacy & methodological limitations. Employee and employer studies support this finding.

		of their frustrations with long waiting times, such as waiting for specialist appointments, diagnostic tests, treatments and entry into programs. [57] 'De-motivating economic arrangements for pensioners were also mentioned as a barrier. Some pointed to the fact that income under re-education was so low that the effort was not worthwhile. In addition, several had experienced that taking a small part time job when receiving pension would reduce the benefit so that nothing was gained economically. Finally, trying out for new jobs arranged by the job centre put them in an economically uncertain position and made them afraid of losing their disability benefit all together. More appropriate transitional arrangements were asked for.' [51]							
16	**Societal expectations** - expectations of	Experiences of societal expectations of participation in work. In	49 38 48 61	Adequately described (3)	Some inconsistency in fit	All CASP scores over 20	Sweden 1 Norway 2	Low	Graded as low as adequately described and

	family, friends and wider society that everyone should work resulting in judgement and discrimination against those who don't work	the societal discourse of work participation, inclusion in society was connected to employment. [49] Some of the participants viewed their family and society as being judgemental, unsupportive and discriminatory, whereas others felt that they could not have rehabilitated themselves without the support of society. [61]			(4)		South Africa 1		relevant across three cultures.

N.B. No more than half female only studies supported any of the review findings.

Line of argument

A line of argument was constructed by examining how the conceptual categories relate to each other. A flow diagram/ conceptual model was then developed (Figure 2).

(**insert Figure 2 here**)

This conceptual model of return to work is now explained, going anti-clockwise from 1) to 7).

1) The underpinning foundation lies in the cultural expectation within society that people should work and contribute to the economy. Societal expectations are manifested within institutions, families and the media.
2) Societal and family expectations influence the individual's sense of self and what work means to each person. Meaning can relate to financial remuneration, rewards or survival, meeting of social, cognitive and achievement needs or purpose in life. The individual's level of self-belief and autonomy will both play a part in how much agency and control can be exerted over pain and the work situation.
3) The way someone thinks about their pain and the mental representation they create will also influence their behaviour and the possibility of returning to work. People's perceptions of whether pain is a long-term disability could influence whether they feel able to work and thus their return to work decisions, whereas someone who has accepted the pain as part of their life and adapts may be more likely to consider return to work.
4) Some studies in the review evaluated pre-return to work support or rehabilitation programmes and not being understood by health professionals was cited as an obstacle. In the same way, not being believed or being judged by people in the workplace was also perceived to make return to work challenging.
5) The three key tenets of return to work are managing pain, managing work relationships and making workplace adjustments. Tension exists between these three facets and they can be influenced by a mismatch between the individual

and the employer expectations, difficulties asking for help and system factors in the workplace, health and social security systems.

6) Individuals must negotiate a wide range of obstacles and navigate change.
7) This could result in a downward spiral (and not working) at one end of a continuum through to an upward spiral of mastering return to work despite pain.

Discussion

In this meta-ethnography we identified obstacles to return to work for people with chronic pain centred around three key conceptual categories; managing pain, managing work relationships in the workplace and making workplace adjustments. The dynamic relationship between these three closely linked categories appears to be highly influential in navigating change and overcoming obstacles individuals with chronic pain face. The ability to manage pain and negotiate workplace adjustments can be affected by the strength of relationships with employer and colleagues and what is practicable in the work environment.

The concepts of health and pain representations and the role of significant others and their thinking about pain and return to work do not appear to be highlighted by previous reviews. Another neglected area is the influence of pre-return to work support or rehabilitation. The employer perspective is missing in earlier reviews which have focused on the experience of people with chronic pain. Only five of the included studies were conducted with employers so there is still limited research with this group despite people with pain emphasising the importance of employer attitudes and knowledge in the return to work process[55].

Some studies that were included in the review appear to suggest that those people with chronic pain who manage to stay in work have different characteristics to those who are unable to do so. This is seen in part to be connected with their cognitive appraisal of their pain and whether they are able to adapt.[33 47] It has been proposed that in those who do not return to work their pain representation of ‘abnormal pain’ becomes crystallised with their goal of pain elimination firmly intact whereas those who returned to work began to perceive

pain as ‘ the new normal’ and something they learn to live with.[33] Eden *et al.* (2007)[38] described three different adaptation patterns, the go-getter, realist and indifferent. They proposed the pessimistic and passive outlook of the latter type meant work return was less likely. Passivity in the interaction with stakeholders like the employer was found to be linked with reduced drive to return to work.[12] Angel *et al*. (2012) [28] and Dionne *et al*. (2013) [37] also found passivity in relation to pain was not helpful when addressing workplace obstacles.

The provision of professional individualised support and coaching in the workplace was seen to be valuable in the work return process [41] and this concept supports the idea of developing work based interventions to help people with chronic pain return to work.

When comparing findings with previous reviews that have highlighted obstacles to return to work, similarities include fears of not being able to fulfil employer expectations, not being believed by colleagues and financial concerns.[4] Worries for the future including financial and job security were also uncovered by MacNeela *et al*. (2015).[5] Strain on the family relationships including those with partners and children[4] and gender differences regarding role as carer or breadwinner were revealed.[5] Unsatisfying relationships with health professionals where people felt they were not being listened to and frustrations with limitations of medical treatment were another common feature.[5] Social withdrawal as a result of pain was highlighted in both of these reviews.[4 5] A struggle for legitimacy with colleagues and stigma in the workplace was highlighted by Toye[7] and Froud[4]. This review also drew attention to the system not supporting return to work due to a lack of dialogue between employers, occupational health and the health system to facilitate a gradual return with appropriate adjustments.

The collaborative team approach to conceptual analysis increased the rigour of the review.[14] Independently drawing flow diagrams to illustrate the conceptual model and then coming together to amalgamate these through discussion and debate, combined with checking all concepts had been included, ensured this process was thorough.

The CERQual assessments indicated there was a high level of confidence in the findings for managing pain, managing work relationships, managing the workplace, self-belief, health and illness representations, the meaning of work and system factors. Although we have used CERQual, we found we agreed with many comments on its use by Toye[66], namely that for relevance, studies rated as partially or indirectly relevant could also contain helpful concepts. They suggest 'gravitational pull' of an idea may be important. They argue providing clear information about concepts is critical, and we have provided this in Supplementary Files 3 and 4. They also note for adequacy "The power of concepts to make us think, however, is not based on quantity of data included". We agree when looking at coherence that inconsistent findings do not necessarily call the findings into question. It may be one study has developed an insight not considered in other studies. No tool can guarantee confidence in findings, and authors still need to carefully consider issues rigour.

Implications

This review identifies obstacles faced by people with chronic pain in returning to work after a period of sick leave or unemployment and can be used to inform the development of a return to work intervention. The focus of such intervention should be working collaboratively with the person who has chronic pain and the employer to explore ways of addressing managing pain, managing work relationships and making workplace adjustments. The way in which the different factors work together either to enhance or inhibit return to work is highly individual and clinicians will need to assess what is most important for the person and employer with whom they are working. This intervention could be located in community/ primary healthcare and delivered by case managers, for example, occupational therapists or occupational health nurses working alongside general practitioners. Alternatively it could be delivered by employment specialists working in employment services and trained in pain management strategies. This type of intervention would provide support tailored to the specific needs of people with chronic pain. Discussion may be needed between the employer, the employee and the case manager to enable exploration of the ways in which obstacles to return to work

might be overcome. This collaborative approach has the potential to improve healthcare services and change workplace culture and is the kind of innovation envisioned by the UK government in their 10 year plan for people with long term health conditions to realise their working potential.[67]

Limitations

It is apparent that more research is required from the employer perspective. The five studies included in the review were from the perspective of employers working in car making, university hospitals, home care provision for disabled people in France[39], public hospitals in France[42] and NHS Trust and local authority in Wales.[65] The Canadian study that included small and large employers did not specify the nature of the industry in which they were engaged.[62]

It is likely that the reviewers' backgrounds and experiences had an impact on synthesis findings. The authors came from health care professional and non-health care professional backgrounds, and these backgrounds and experiences of chronic pain provided certain lenses, which we would expect to influence our understanding.

At the time we did this work the eMerge Reporting Guidance for meta-ethnography [68] had not been published. They were published close to the end of the peer review process for this paper.

Conclusions

The navigation of obstacles to return to work for people with chronic pain and their employers entails balancing the needs of the person with chronic pain, colleagues and the employing organisation. The influence of health and pain representations the person formulates has not been emphasised in previous reviews. Managing pain, managing relationships in the workplace and making adjustments are central to achieving a successful return to work and these can be hard work for the person with chronic pain.

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Author's contributions

KS, RF and MU made a substantial contribution to the design of the study. MG and KS were responsible for acquisition and MG, KS and JOB were responsible for analysis and interpretation of the data. MG drafted the first, subsequent and final versions and KS, JOB, RF and MU revised all versions for important intellectual content and approved the final version. All authors agree to be accountable for the accuracy and integrity of the work.

Competing interests

RF is chief investigator on the Arthritis Research UK grant from which this project was funded. He has published multiple papers on chronic pain some of which are referenced in this paper.

RF and MU are part of an academic partnership with Serco Ltd related to return-to-work initiatives. RF and MU are directors and shareholders of Clinvivo Ltd, a university spin-out company that provides data collection services for health services research.

MU was Chair of the NICE accreditation advisory committee until March 2017 for which he received a fee. He is chief investigator or co-investigator on multiple previous and current research grants from the UK National Institute for Health Research, Arthritis Research UK and is a co-investigator on grants funded by the Australian NHMRC. He is an NIHR Senior Investigator. He has received travel expenses for speaking at conferences from the professional organisations hosting the conferences. He is a co-investigator on a study

receiving support in kind from Orthospace Ltd. He has accepted an honorarium from CARTA. He is an editor of the NIHR journal series, and a member of the NIHR Journal Editors Group, for which he receives a fee.

KS is an investigator in multiple previous and current research grants from UK National Institute for Health Research, Arthritis Research UK. She has received travel and accommodation expenses for speaking at conferences from the professional organisations hosting the conferences. She has published multiple papers on pain some of which are referenced in this paper.

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Figure 1 legend:

Title: Figure 1 - Flow chart illustrating search outcome

Figure 1 legend: This flow chart illustrates the search outcome

Figure 2 legend:

Title: Figure 2 – Conceptual model – The work of return to work

Figure 2 legend: This conceptual model of return to work is explained in the text, going anti-clockwise from 1) to 7).

Data Sharing Statement

We have tried to include all relevant data for the qualitative systematic review in supplementary files. Any other reasonable requests will be considered on a case by case basis by Mary Grant (lead author) email: M.Grant.2@warwick.ac.uk=

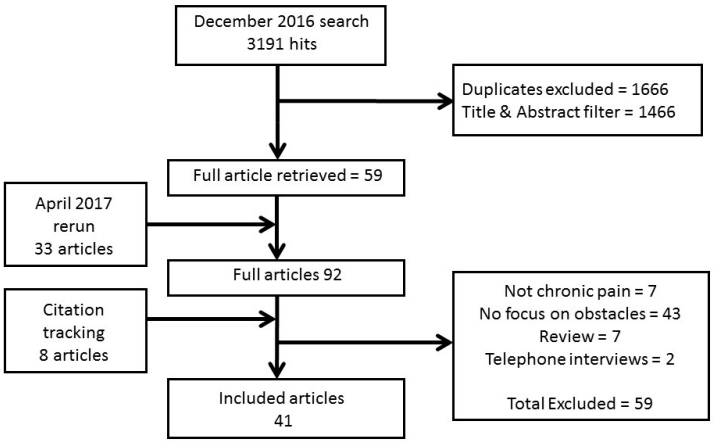

Figure 1 - Flow chart illustrating search outcome

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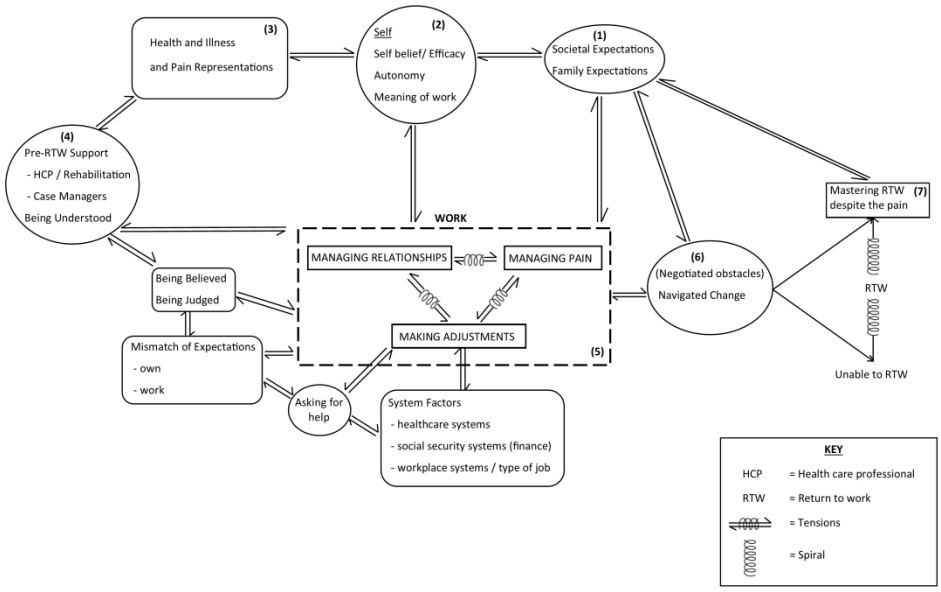

Figure 2 – Conceptual model – The work of return to work
This conceptual model of return to work is explained in the text, going anti-clockwise from 1) to 7).

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Supplementary File 1 - Search strategy

Search terms	("Chronic pain" (MeSH) OR (Chronic adj5 pain) OR "Pain")and ("Return to work (MeSH) OR Employment (MeSH) or Employer OR Supported Employment" OR "Return-to-work" OR "Back to work" OR "Back-to-work" OR "Reemployment" OR "Re-employment" OR "Job" or "Work" OR "Reentry" or "Re-entry" or "Back" or "Return" OR "Employment, Supported" (MeSH) OR "rtw") and "Qualitative"
Databases searched	AMED; ASSIA; CINAHL; EMBASE; IBSS; MEDLINE; PsycINFO; Social Services Abstracts; Sociological Abstracts; Web of Science; Westlaw Forwards and backwards citation tracking using SCOPUS Plus Social Care Online, PEDRO and OT Seeker
Parts of journal searched	Key words in abstract and title
Years of search	Inception to 25th April 2017
Language	English
Types of study to be included	Qualitative peer reviewed studies using face-to-face interviews and focus groups
Inclusion criteria	Studies exploring perception of obstacles to return to work in off work, sick-listed and employer populations of people with chronic pain. Studies of people on disability benefits.
Exclusion criteria	Non-English language texts.

Supplementary File 2 – Critical Appraisal Skills (CASP) scores – yes =3, can't tell = 2, no=1

	CASP questions (question 10 is not scorable)									
Article authors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total score**
Ahlstrom *et al.* 2017	3	3	3	2	3	1	3	3	2	24
Andersen *et al.* 2014	3	3	3	3	3	1	3	3	3	27
Angel *et al.* 2012	3	3	3	2	3	1	3	2	3	23
Ashby *et al.* 2010	3	3	3	2	3	1	3	2	3	23
Brooks *et al.* 2013	3	3	3	3	3	1	3	3	3	25
Buus *et al.* 2015	3	3	3	3	3	3	3	3	2	26
Coole *et al.* 2010	3	3	2	3	3	2	3	2	2	23
Coutu *et al.* 2010	3	3	3	3	3	1	3	3	3	25
Coutu *et al.* 2011	3	3	3	2	3	1	3	3	3	24
Coutu *et al.* 2013	3	3	3	3	3	1	3	3	3	26
Crooks 2007	3	3	3	2	3	1	3	3	3	24
Dionne *et al.* 2013	3	3	3	2	3	1	3	3	3	24
Edén *et al.* 2007	3	3	3	3	3	1	3	3	2	24
Fassier *et al.* 2015	3	3	3	2	3	2	3	2	3	24
Gard & Sandberg 1998	3	3	3	2	3	1	1	2	3	21
Glavare *et al.* 2012	3	3	3	2	3	3	3	3	3	26
Grataloup *et al.* 2016	3	3	3	3	3	1	3	3	3	25
Hansson *et al.* 2001	3	3	3	2	3	1	3	3	3	24
Hansson *et al.* 2006	3	3	3	3	3	1	3	3	3	25
Johansson *et al*. 1997	3	3	3	3	3	3	1	3	3	25
Juuso *et al.* 2016	3	3	3	3	3	2	3	3	3	26
Kalsi *et al.* 2016	3	3	3	2	3	1	3	3	3	24
Kvam *et al.* 2013	3	3	3	3	3	3	3	3	2	26

Kvam & Vik 2015	3	3	3	3	3	1	3	3	3	25
Liedberg & Henriksson 2002	3	3	3	2	3	2	3	3	3	25
Magnussen *et al.* 2007	3	3	3	3	3	2	2	2	3	24
McCluskey *et al.* 2011	3	3	3	3	3	1	3	3	3	25
McCluskey *et al.* 2014	3	3	3	3	3	2	3	3	3	26
Nilsen & Anderssen 2014	3	3	3	3	3	1	3	3	3	25
Nordqvist *et al.* 2003	3	3	3	3	3	1	1	3	3	23
Patel *et al.* 2007	3	3	3	3	3	1	2	3	3	24
Rydstad *et al.* 2010	3	3	3	3	3	3	3	3	3	27
Saunders *et al.* 2015	3	3	3	3	3	2	3	3	3	26
Scheermesser *et al.* 2012	3	3	3	3	3	3	3	3	3	27
Shaw & Huang 2005	3	3	3	2	3	2	3	2	2	23
Sjöström *et al.* 2011	3	3	3	3	3	2	3	2	3	25
Soeker *et al.* 2008.	3	3	3	3	3	2	3	3	3	26
Soklaridis *et al.* 2010	3	3	3	2	3	2	3	3	2	24
Svensson *et al.* 2010	3	3	3	3	3	1	3	2	3	24
Williams-Whitt *et al.* 2016	3	3	3	2	3	1	3	3	3	24
Wynne-Jones *et al.* 2011	3	3	3	3	3	1	3	3	3	25

Supplementary file 3

The remaining 13 conceptual categories that underpin the three key categories described in the main paper and summarised in Table 2 are now explained.

Societal expectations

Many people living with chronic pain felt that society, institutions, family, friends and the media expected them to work and that those who did not do so were portrayed negatively and perceived as a burden.[47] This contributed to them feeling they were outsiders who were judged and discriminated against and for some this motivated them to return to work so they could contribute and belong.[36 59]

Meaning of work

The meaning of work for each individual plays a part in whether they return or not. For some work provides financial security and independence[45] but for others there is a strong moral work ethic influenced by their upbringing or it is a way of strengthening self-esteem[36] and achieving fulfilment in life.[48] A lack of meaning in work when combined with a chronic pain condition can lead to demotivation in relation to work return[59] whereas for some work was central to their identity and purpose and loss of this aspect of their lives was perceived as devastating.[39 42 44 52] Social contact and relationships with others and feeling needed and valued are an important aspect of work for some people.[48 61]

A number of conflicts were highlighted in this conceptual category. One was the differing perceptions of employees with low back pain and those of their employers. Some employers felt that employees perceived sick leave as a right and this formed part of a culture of entitlement they perceived was encouraged by the unions which made employees demotivated about returning to work.[60] However this was a view strongly contested by the employees in the same study who reported they would often accept modified jobs in order to return to work, even if not appropriate to them, due to the tough economic climate and fear of losing their livelihood.[60]

Another conflict was that of balancing the demands of work with those of family life. Competing priorities sometimes meant that some chose to focus on family rather than paid work as they were unable to balance the two.[46]

Autonomy

Concepts in this category focus on the individual's ability to have control or agency in relation to their pain and their work situation. There was a sense that if they had control over their pain then this was the key to having autonomy in other areas including return to work.[45] Being allowed some control and flexibility at work, for example in the hours they worked, was seen as a pre-requisite by some for returning.[36] Psychological distress, including anxiety and depression, was linked with a perceived lack of control over pain and as a result return to work became a secondary issue[12] whereas opportunity for job control was a motivating factor in relation to returning to work.[38]

Self-belief/ self-efficacy

Some studies indicated that people with chronic pain had low self-esteem and a pessimistic outlook about their ability to handle work[49] and this related to concerns about their ability to meet the job demands, obtain help from others and manage their pain.[57]

Health and illness and pain representations impact on return to work

The way people think about their pain and the mental representations they form in relation to beliefs about it's cause and their perception of its impact on their lives [29] are seen as very important in relation to their pain experience and return to work. A clear distinction was made between those who perceived themselves as disabled by the pain and therefore unable to work [28 31 32 44 50] and those who accepted the pain as part of their lives but something they could exert some control over and therefore felt able to work.[31 39 54] There was a perception amongst some employers that attitudes were influenced by family and the community in which people grew up.[60] However, among people with pain, there was a resistance to and even rejection of the idea of psychosocial influences on pain.[31 56] Some studies asserted

that the way people with pain, often incorrectly visualised their injuries and formulated explanatory models led to a fear of movement and this had negative implications for their work life.[27]

Influence of pre-return to work support and rehabilitation

A number of studies in the review were evaluating the impact of return to work interventions and rehabilitation programmes.[26 29 33 39 54] Participants were largely positive about the intervention received and the strategies for managing pain and life they had developed but those who did not return to work experienced anxiety, disappointment, loneliness [39] and some felt useless[56] or a sense of powerlessness and guilt.[26]

Not being understood

The concept of not being understood mainly arose when participants were describing difficulties in relationships with health professionals, for example physicians not understanding their work situation[59] or not listening or taking them seriously in relation to their pain.[52] However, the same phenomenon occurred even with people's closest relatives, leaving them with a sense of abandonment.[54]

Being believed

People with chronic pain often struggled with not being believed or trusted and this was evident when employers talked about people taking sick leave that was not perceived as legitimate.[63] This feeling of being judged and doubted and having to justify absence or limitations became an obstacle to returning to work.[37 59] The pursuit of authenticity also became apparent from the perspective of people claiming benefits.[50] These individuals felt the need to stress their desire to work but also to emphasise how the severity of their pain condition was preventing them from doing so.[50]

Impact of and on family

People with chronic pain often rely on family members for practical support[56 59] which leads to a renegotiation of roles and responsibilities[54] and financial difficulties are prevalent.[27]

Significant others are also seen to be highly influential in terms of their beliefs and thinking in relation to pain and return to work. Some studies have highlighted sceptical views of significant others in relation to treatment received and pessimism about return to work and support that would be offered[50 51] and sometimes their well-intentioned support reinforces a position of disability and legitimacy and this reduces the possibility of gaining employment.[28]

The conflicting demands of family and work were also reported as a challenge for people with chronic pain with women sometimes choosing to prioritise family.[48 47]

Mismatch between employee and employer expectations of return to work

Participants expressed a fear of letting employers down and not being able to fulfil work expectations.[12 58] Some were also fearful of re-injury.[57] Finding modified work was difficult and some felt the employer would rather dismiss them than find them a suitable job.[58] High demands for effectiveness and productivity made it difficult to return to work[49] as people with pain were concerned they would not be able to achieve the required quality, quantity or speed of work.[57] Information given to employers about health problems or limitations was perceived as insufficient or incorrect which led to misunderstandings and distorted employer expectations.[53] Difficulties arose in relationships with colleagues especially where expectations of employees with health problems were lower than for other employees doing the same job.[53] Participants felt they would want to do as much as their colleagues and not be a burden on them.[30 38 61]

Social isolation as a consequence of pain

One of the consequences of chronic pain was a withdrawal from social networks and this was partly linked with financial and physical restrictions.[27 48] This led to loneliness and a sense of being abandoned by those around and therefore lacking the support needed to enable return to work.[52 54]

System factors (healthcare, social security and workplace systems)

System factors influencing return to work were within healthcare, social security and workplace systems. Delays in accessing appropriate healthcare, for example waiting lists for specialists, diagnostic testing and rehabilitation programmes, interfered with the return to work process.[12 55 60] Another issue was that employers did not always feel they could accommodate injured workers hospital appointments in work time and so preferred that they remained off sick until they were able to fulfil their work hours.[60]

Social security authorities were sometimes seen as unhelpful and inflexible benefits arrangements caused economic uncertainty for people wanting to make a gradual transition into work.[49] Interactions with social insurance personnel were perceived as difficult with conflict arising when staff put pressure on people with pain to complete training or enter employment that was deemed unsuitable or not in line with their interests.[49 55]

Finally workplace systems delayed work return through inadequate policies[37] and a perceived lack of education on disability management procedures.[59] There also appeared to be a lack of trust in occupational health who were seen to be on the side of the employer and more concerned with absence management than supporting people to return to work.[30]

Finance and benefits

Many people with chronic pain had serious concerns about their finances.[41 43 56] For some this was linked with social security and disability benefits and the economic insecurity of moving back into work.[12 49] Some receiving state support struggled with shame whereas others felt they were entitled to it[43] or saw no alternative.[41] Some argued there should be greater flexibility for people with fluctuating musculoskeletal diseases to allow them to make a gradual return to work without incurring financial hardship.[34]

Supplementary File 4 - Concepts within each conceptual category

Conceptual category	Concepts
Managing pain	1. Adaptions via new knowledge of how to manage daily occupations 2. Being out in nature – pain management facilitator 3. Controlling pain 4. Coping with pain 5. Coping with symptoms 6. Developing individual strategies to deal with pain 7. Fatigue 8. Fluctuating work status 9. Keeping pain at bay 10. Knowledge of limits and listening to body 11. Learning to manage whiplash associated disorder - a rehabilitation process 12. Management of back pain 13. Previous management of back pain 14. Mastering life despite pain 15. New knowledge about how to manage daily life 16. Pain management linked with RTW 17. Pain management strategies 18. Pain representations underpin strategies to manage condition 19. Passive coping strategies 20. Patients' coping strategies 21. Physical activity 22. Strategies for managing long-term pain 23. Pain representations underpin strategies to manage condition 24. Passive coping strategies 25. Patients' coping strategies 26. Physical activity 27. Strategies for managing long-term pain 28. Strategies to prevent pain 29. Treatment for pain 30. Use of sick leave 31. When no treatment helps self-care management strategies develop 32. Working to control the pain 33. Being under control of pain and fear of pain 34. Commuting (as an obstacle to work) 35. Difficulties caused by back pain 36. Fear of reinjury 37. Impact of back pain on ability to work (for those at work and those not at work) 38. Impact of health on work 39. Impact of pain medication on ability to work 40. Impact of pain on doing work in a satisfactory way 41. Living with uncertainty 42. Negative impact of chronic pain on ability to work 43. Negative impact of pain on wellbeing and daily activities 44. Pain and somatic symptoms 45. Painful condition is a barrier to working 46. Persistent pain is an important obstacle to return to work

	47. Return to employment and fear of movement 48. The body as an obstacle to working (pain and fatigue) 49. Unpredictable pain difficult with respect to work
Managing relationships	1. Active engagement of supervisor 2. Asking for help is problematic for people with chronic pain 3. Attitude of employer in the workplace 4. Attitudes towards presenteeism (managers and employees perspectives) 5. Being needed at work 6. Colleague support important 7. Communication and contact (between managers and employees) 8. Co-workers and employers attitudes, disbelief and lack of understanding 9. Earlier negative workplace experiences 10. Employers limited understanding and support 11. Fear of disclosing pain to employer 12. Gap in work history and disclosure 13. Harassment from colleagues due to modified work 14. Impact of employees with job restrictions on supervisors and managers 15. Impact of sickness absence on others 16. Individuals (workers, colleagues, managers) barriers 17. Individuals facilitators (collaboration with colleagues support empathy problem solving mutual trust) 18. Interpersonal conflict with colleagues; being judged, justify the pain 19. Lack of collaboration and understanding from employer is an obstacle to return to work 20. Lack of communication between manager and the team about RTW 21. Lack of support and communication with line manager 22. Lack of support from line manager for injured workers 23. Lack of understanding from employer 24. Line manager role important 25. Maintaining contact with absent employee 26. Managerial attitude and effort 27. Managerial autonomy 28. Mutual distrust between employees and their managers and colleagues 29. Negative response from employer 30. Peer conflict 31. Physical barriers not significant obstacle to maintaining employment 32. Psychosocial environment (at work) 33. Psychosocial factors at work influence RTW management 34. Reassignment of workers to other areas due to physical demands of job causes tension with supervisors due to perceived injustice 35. Relationship between managers and employees 36. Relationship with employer 37. Relationships with supervisors and colleagues important to work satisfaction 38. Reluctance of employer to take on injured worker with gaps in employment history

	39. Responsibility for workmates 40. Social tensions in the workplace 41. Stigmatisation and blame 42. Struggling interactions with stakeholders 43. Support from employer and workmates 44. Supportive work environment 45. Supportive work environment and manager key to RTW success 46. Sympathy from manager if fellow back pain sufferer 47. Treatment from line manager inequitable 48. Understanding from an employer 49. Work relationships influence RTW 50. Working relations 51. Workmates attitudes
Making workplace adjustments	1. Being marked out as different in the workplace Austerity and economic climate 2. Competitive economic climate with restructuring and workforce reduction is a barrier for RTW 3. Economic climate impacts on ability to take sick leave and make work adjustments 4. Fast management turnover, lack of latitude in decision making and fear of increasing costs and claims for better working conditions are barriers to RTW 5. Job availability and competitive job markets 6. Work restructuring (labour market) Flexible working 7. Flexibility from employers re hours facilitates RTW 8. Flexible working a pre-requisite for RTW 9. Impossibility of a gradual return to work is an obstacle to return 10. Modified hours of employment 11. Policy and programme recommendations 12. Flexible work hours 13. Job sharing and work-from-home 14. Work place adjustments Involve managers and colleagues 15. Communication quality 16. Maintaining routines for sharing information about work accommodations with colleagues Manager knowing options 17. Absenteeism destabilises work organisation and makes work accommodations challenging 18. Accommodation demands 19. Job aptitude restriction certificates 20. Lack of pre-planning for RTW makes job accommodations and communication with colleagues challenging 21. Poor matching of the worker and the work 22. Process of accommodation of back injured workers Resources for decision making about accommodations 23. Information - Accommodation options 24. Information - Employee abilities 25. Information - Job demands

	26. Information - Medical restrictions 27. Organisational support 28. Supervisors return to work experience 29. Size of workplace and difficulties of modified duties 30. Support from line managers over-cautious 31. Work modifications - assistance from Occupational Health 32. Work organisation and the challenges of work accommodations Not consulted or involved in decision making. 33. Modified duties 34. Perceived lack of choice and control in relation to modified duties 35. Possibility of work adaptations and confidence and ability to negotiate adaptations with employer 36. Stakeholder perspective 37. Psychosocial stressors 38. Work modifications - patient control Personal factors 39. Age and educational status - perceived as obstacle to finding work by people with back injury 40. Personal obstacles - qualifications and experience 41. Personal obstacles to RTW - older age 42. Resistance to change Reducing demands of job or physical adjustments 43. Adjustment of work demands upon return to work 44. Challenges to work participation (to different type of work and work adjustments) 45. Change to less physically demanding job 46. Impossibility of being assigned lighter duties and working at one's own pace is an obstacle to return to work 47. Improvement of work environment and working conditions 48. Physical accommodations 49. Provision of appropriate modified work can be challenging and complex 50. Work modifications influence RTW possibilities 51. Working conditions - physical work Type of job influences RTW 52. Benefits of self-employment 53. Physical stressors (working at lower surface areas and different weights) cause constant pain 54. Sharing staff over different departments makes work accommodations and assessment of work demands difficult 55. Type of job- profession influences RTW
Autonomy	1. Autonomy 2. In the hands of the professionals - reduced control over life situation 3. Increased job control and contact with supervisors 4. Influencing factors for RTW - internal and external 5. Lack of agency 6. Locus of control influences return to work 7. Making sense of intervention - regaining control of situation 8. Own agency is important

	9. Own power and resources 10. Perceived lack of control influences ability to work 11. Psychological barriers to return to work (lack of control, anxiety, depression, loss of confidence, frustration) 12. Taking control of and responsibility for work and life situation
Self-belief/ self-efficacy	1. Being needed at work 2. Changed self-image 3. Controlling RTW interactions with stakeholders (employer, health care, social insurance system, union, public employment service) 4. Low self- evaluation of work ability and low self esteem 5. Obtaining help at work 6. Patient identity (when working and not working) 7. Positive coping linked with RTW self-efficacy 8. Positive self-identity a beneficial consequence of employment 9. Psychological effects of chronic pain affect RTW confidence 10. Relationship with family influences self-confidence and esteem 11. Satisfaction with self-image; confidence 12. Self-confidence through working 13. Self-efficacy 14. Self esteem 15. Self-image in relation to work 16. Self-identity 17. Unintended consequences - physical bodily changes post-injury like weight gain affect emotional readiness to return to work 18. Work morale
Being believed	1. Being judged by colleagues 2. Disbelief from physicians 3. Distrustful attitude of the medical profession 4. Feeling doubted 5. Having to justify pain condition in the workplace 6. Legitimacy of absence and perceptions of others 7. Legitimising back pain 8. Legitimacy 9. Not being believed 10. Personally and socially legitimate explanations of LBP important 11. Pursuit of authenticity 12. Rights and responsibilities 13. Stigmatisation
Impact on and of family	1. Being a 'good' significant other 2. Cultural differences in family support between women and men 3. Family support 4. Impact of family 5. Loss of social roles 6. Participation in work - a family matter 7. Relationship changes 8. Re-negotiation or loss of work role 9. Return to work is dependent on a cure (significant other viewpoint)

	10. Role of significant others is important in return to work 11. Unpaid work (home, family, carer responsibilities) 12. Waiting for an answer (diagnosis, treatment, cure) (significant other viewpoint) 13. We have come to the end of the road (treatment options exhausted) (significant other viewpoint)
Not being understood	1. Communication in rehab - cultural differences cause problems 2. Language barriers 3. Talking at cross purposes with health professionals 4. Congruence between clinicians understanding of workers representations and actual worker's representations during work rehab 5. Cultural factors influence RTW - family attitudes, language barriers, cultural beliefs 6. Differences between clinical judgement and workers representations during work rehab 7. Difficult to explain the pain 8. Lack of client centredness 9. Medical discourse of work participation - focus on pain rather than RTW
Finance and Benefits	1. Finances 2. Financial concerns 3. Financial - job security 4. Interaction with benefits organisation 5. Permitted work 6. Limited staff skills in benefits organisation 7. Looking for a different way of living - transition to disability pension 8. Need for financial security 9. Part-time work by people receiving disability income assistance 10. State as supporter
Health and illness and pain representations	1. Acceptance challenges - Difficulties in acceptance of pain and limitations impacts on participation in work 2. Acceptance of chronic pain as a long term disability is a barrier to return to work 3. Acceptance of limitations 4. Acceptance of pain as part of life facilitates RTW 5. Accepting the inability to work 6. Barriers to rehabilitation 7. Cultural influence on psychological factors 8. Beliefs about causality of back pain 9. Beliefs about course of illness and the sick role 10. Beliefs about treatment and effective management of LBP 11. Cause and meaning of back pain 12. Crystallising the abnormal pain representation 13. Cultural factors influence RTW - family attitudes, language barriers, cultural beliefs 14. Cultural factors influencing return to work (language and passive coping strategies)

	15. Explanatory models of illness 16. Illness beliefs coherent 17. Impact of pain representations on return to work 18. Integrating explanations into daily life 19. Loss of ability 20. Loss of hope 21. Need to construct their own models of pain 22. Resignation to permanent effect of back problem on employment status in those not working and their significant others
Meaning of work	1. Competing priorities mean work not necessarily prioritised 2. Effort to remain in or return to pre-injury jobs 3. Effort to return to employment following job loss 4. Employee motivation 5. Family orientated considerations take priority over working 6. Fulfilment in a work role 7. Goal orientated participation (work related achievements and values) 8. Importance of work 9. Lack of meaning and satisfaction in work 10. Meaning of work 11. Meaningful job- highly needed by others 12. Mentality (outlook) in relation to determination to RTW 13. Moral aspects of absence and presenteeism 14. Moral stance - importance of work 15. Motivation and entitlement 16. Motive for RTW 17. Organised time structure difficult to maintain without work 18. Participation constantly changing (feminine perspective) 19. Positive perceptions of work 20. Prioritising of work and home is an issue 21. Regaining identity (as a worker) 22. Sense of coherence 23. Sense of coherence and involvement in work, friends and family 24. Social aspects of work 25. Work as a source of security and independence 26. Work on hold
Mismatch of expectations	1. Ability to do as much work as others 2. Fear of letting employers down 3. Fear of re-injury 4. Insufficient or incorrect information about health problems of the returning employee 5. Meeting job demands 6. Not able to fulfil work requirements 7. Own expectations in relation to RTW (optimistic or pessimistic) 8. Participating at before (masculine perspective) 9. Support expectations 10. Workplace productivity demands 11. Workplace support

Social isolation as a consequence of chronic pain	1. Abandoned by those around (family, friends and colleagues) 2. Feeling on their own 3. Impact on social relations - many women with fibromyalgia fail to maintain social network due to demands of work and family 4. Loneliness in pain 5. Paid work - the struggle for social capital 6. Social isolation
Influence of return to work support and rehabilitation	1. "A light at the end of the tunnel"; support, hope, new knowledge 2. A light in the tunnel - experience of work rehab programme 3. Hope of returning to work through rehab 4. Support 5. Believing in the intervention - effectiveness of exercise to manage LBP 6. Close social network – family, rehab team 7. Difficulty accessing worker representations and problem targeting in work rehab 8. Feelings about outcome of rehab 9. Function-centred treatment 10. Patients' expectations of treatment 11. Goals of rehabilitation - patient's perspective 12. Goals of rehabilitation - return to work 13. Joining a physical exercise programme 14. Lack of access to information or support groups is an obstacle to return to work 15. Mismatch of goals - patient and programme 16. Rehabilitation by activity and exercise 17. Specialised vocational rehab support needed 18. Support is important 19. Unsuccessful responses to intervention (rehabilitation)
System factors	*1. Health care system* 2. Healthcare barriers 3. Lack of communication, lack of coordination and fear of communication within compensation and health care systems is a barrier to RTW 4. Lack of knowledge in primary care and no support from social insurance office 5. Slowness of health care system is an obstacle to return to work *6. Social security, insurance, unemployment office system* 7. From Social Insurance Office 8. From unemployment office 9. Inefficiency of the insurance companies 10. Lack of support from social security authorities *11. Workplace system* 12. Inadequate workplace policy 13. Lack of education on disability management procedures by employers and rehabilitation professionals 14. Occupational health is for employers not employees 15. OH employer orientated - unequal relationship 16. Organisational policies - Return to work policies

	17. Poor communication between stakeholders (doctors and employers about back condition and lighter duties duration) 18. Systems factors - workplace and union policies compensation system and healthcare system are barriers to RTW process 19. Wage support programmes awarded to employee 20. Workplace system barriers 21. External context barriers 22. Workplace barriers 23. Workplace system facilitators 24. External context facilitators 25. Workplace facilitators
Societal expectations	1. Experiences of societal expectations of participation in work 2. Feeling of being outsider in society; work part of natural life 3. Unsupportive society

Enhancing transparency in reporting the synthesis of qualitative research: the ENTREQ statement

No	Item	Guide and description	Reported
1	Aim	State the research question the synthesis addresses.	p2 and p4
2	Synthesis methodology	Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology *(e.g. meta-ethnography, thematic synthesis, critical interpretive synthesis, grounded theory synthesis, realist synthesis, meta-aggregation, meta-study, framework synthesis).*	p5
3	Approach to searching	Indicate whether the search was pre-planned (*comprehensive search strategies to seek all available studies)* or iterative (*to seek all available concepts until they theoretical saturation is achieved).*	p5
4	Inclusion criteria	Specify the inclusion/exclusion criteria *(e.g. in terms of population, language, year limits, type of publication, study type).*	p5
5	Data sources	Describe the information sources used (e.g. *electronic databases (MEDLINE, EMBASE, CINAHL, psycINFO, Econlit), grey literature databases (digital thesis, policy reports), relevant organisational websites, experts, information specialists, generic web searches (Google Scholar) hand searching, reference lists)* and when the searches conducted; provide the rationale for using the data sources.	p5
6	Electronic Search strategy	Describe the literature search *(e.g. provide electronic search strategies with population terms, clinical or health topic terms, experiential or social phenomena related terms, filters for qualitative research, and search limits).*	p5
7	Study screening methods	Describe the process of study screening and sifting *(e.g. title, abstract and full text review, number of independent reviewers who screened studies).*	p7
8	Study characteristics	Present the characteristics of the included studies *(e.g. year of publication, country, population, number of participants, data collection, methodology, analysis, research questions).*	p9-p17

No	Item	Guide and description	Reported
9	Study selection results	Identify the number of studies screened and provide reasons for study exclusion *(e,g, for comprehensive searching, provide numbers of studies screened and reasons for exclusion indicated in a figure/flowchart; for iterative searching describe reasons for study exclusion and inclusion based on modifications t the research question and/or contribution to theory development).*	p7
10	Rationale for appraisal	Describe the rationale and approach used to appraise the included studies or selected findings *(e.g. assessment of conduct (validity and robustness), assessment of reporting (transparency), assessment of content and utility of the findings).*	p6
11	Appraisal items	State the tools, frameworks and criteria used to appraise the studies or selected findings *(e.g. Existing tools: CASP, QARI, COREQ, Mays and Pope*[25]*; reviewer developed tools; describe the domains assessed: research team, study design, data analysis and interpretations, reporting).*	p6
12	Appraisal process	Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required.	p6
13	Appraisal results	Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale.	Supp file 1
14	Data extraction	Indicate which sections of the primary studies were analysed and how were the data extracted from the primary studies? *(e.g. all text under the headings "results /conclusions" were extracted electronically and entered into a computer software).*	p6
15	Software	State the computer software used, if any.	p6
16	Number of reviewers	Identify who was involved in coding and analysis.	p6
17	Coding	Describe the process for coding of data *(e.g. line by line coding to search for concepts).*	p6
18	Study comparison	Describe how were comparisons made within and across studies *(e.g. subsequent studies were coded into pre-existing concepts, and new concepts were created when deemed necessary).*	p6-7

No	Item	Guide and description	Reported
19	Derivation of themes	Explain whether the process of deriving the themes or constructs was inductive or deductive.	p7
20	Quotations	Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations of the author's interpretation.	p21-30
21	Synthesis output	Present rich, compelling and useful results that go beyond a summary of the primary studies (e.g. *new interpretation, models of evidence, conceptual models, analytical framework, development of a new theory or construct).*	p31-35

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