



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

**MSc Occupational Therapy
(Professional Qualification)**

OT6054

Project 4

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Year 2 MSc Occupational Therapy

5,000 words

23rd April 2014

Acknowledgements

I wish to express acknowledgement to Dr. Katie Robinson for her valued support and guidance in the construction of and development of this research paper.

I also wish to acknowledge Ms. Jenny Joyce for her constructive suggestions on how to better the research paper and for her advice and assistance during the final months of the project completion.

Finally I wish to thank my supportive family, friends and colleagues for their constant support throughout my years of study.

“The Occupational Consequences of Chronic Pain”

Abstract

Background: Chronic pain is a common disabling condition which affects millions of people every day. It has a negative impact on affected individuals’ quality of life and severely limits occupational engagement and performance. Extensive research has investigated the implications of engaging in occupations while withstanding chronic pain along with occupational therapy interventions for such individuals. Qualitative research has traditionally explored the lived experience and consequences of chronic pain for those who suffer with it. However, thus far, there has been no integration of the findings of such qualitative research.

Objectives: The current research paper aimed to examine the existing body of knowledge on the occupational consequences of chronic pain and provides a synthesis of the published findings of the occupational consequences of chronic pain.

Methods: Published papers on the research topic were identified, appraised using the Critical Appraisal Skills Programme and key themes identified and synthesized. A meta-ethnography method of synthesis was used and the techniques of reciprocal translation analysis and line of argument synthesis were employed.

Results: Twelve occupational consequences or themes were identified across the twenty-two articles and synthesised using line of argument synthesis including Reduction of and Disengagement from Occupations, Social Consequences and Work and Education Consequences.

Conclusion: As there is an increased interest on the application of qualitative synthesis to inform health related policy and practice, the meta-ethnographic synthesis proposed for this research provides synthesized evidence of the occupational consequences of chronic pain the implications of this for clinical practice and suggestions for further research.

Introduction

Chronic pain is defined as pain which lasts beyond three months, the expected point of tissue healing (Strong 2002). It is a subjective phenomenon which serves no biological function, severely effects aspects of daily functioning and has high co-morbidity with depression and mental health difficulties (Strong 2002; Veehof *et al* 2011). Conditions of chronic pain include, but are by no means limited to, chronic headache, low back pain, pelvic pain, cancer pain, arthritis pain, neurogenic pain, endometriosis, fibromyalgia, joint dysfunction and chronic fatigue syndrome (National Institute of Neurological Disorder and Stroke, 2013).

In their survey of chronic pain in Europe, Breivik *et al.* (2006) found that chronic pain of moderate and severe intensity effects 19% of the population's social and working lives. Pain is a very common medical phenomenon that affects millions of people every day and is among the most disabling conditions across America, Europe, Australia and developing countries (Carr 2003). Huge medical, financial and social resources are consumed by people living with pain both directly through loss of work days and indirectly through attempts at treatment (Thorn *et al* 2011; Carr 2003).

Living with chronic pain has an overall negative impact on individuals' quality of life and subjective experience (Skjutar *et al* 2010; Fisher *et al* 2006). There have been many studies into the experiences of chronic pain, and what chronic pain means for individuals. However thus far, there has been no integration of the findings of this qualitative research. The objectives of the current study are to examine the existing body of knowledge on the occupational consequences of chronic pain and to synthesize the results through the use of a meta-ethnography. The research question therefore asks "What are the occupational consequences of chronic pain?"

Literature Review

Occupations are described as purposeful, meaningful activities that are an innate, central aspect to the human experience, and are related to health and survival (Creek and Hughes 2008; Wilcock 1993). A wide range of research exists supporting the efficacy of the unique occupational therapy process to problem-solve individuals' occupational performance deficits (Steultjens *et al* 2005). Although chronic pain has been widely studied from a medical perspective, research into the relationship between occupational engagement and chronic pain is relatively scarce (Persson *et al* 2011).

Occupational disruption

Chronic pain intensely affects multiple aspects of people's lives. Literature cites issues relating to the physical (discomfort, energy levels, fatigue, sexual activity and sleep), and psychological (decrease in positive feelings, cognitive activities, relationships, loss of roles and identity and self-esteem). It affects level of independence (activities of daily living, mobility, ability to work) and increases dependence on medication. It is also noted to impact environmental domains of an individual's life as scored on the World Health Organization quality of life scale (Carr *et al* 2005; Morley 2011; Strong 2002). Fisher *et al* (2006) reported occupational disruptions and deprivation experienced by their research participants such as difficulties in participating in physical activities, leisure activities, work, socializing, walking, driving, shopping and playing with their children. People may also engage in associated grief reactions due to the multitude of losses associated with chronic pain (Strong 2002).

Engaging in Occupations with Chronic Pain

Many individuals with chronic pain avoid engaging in meaningful occupations in order to avoid increasing levels of pain. Compensatory sedentary occupations tend to be the alternative, which often result in further concentration on the pain (Fisher *et al* 2006). Generally, studies have shown that in order to adjust their lives to everyday challenges, people with chronic pain have to divide up activities into smaller, more attainable and realistic steps than people not in

pain, or decide to not participate in previously enjoyed activities or challenges at all (Persson *et al* 2011).

Aegler and Satink (2009) explored the challenges people with chronic pain experience while feeling the need to finish the occupations they engage in. Tied with this concept of continuation of performance, are statements from study participants about being tired of interruptions, the challenge of needing to take breaks and the frustration acquired from this and perceived pressures from the social environment to continue.

Qualitative Research and Chronic Pain

People with chronic pain describe the experience of the onset pain as if time stops and the present experience of pain as becoming the primary focus (Keponen and Kielhofner 2006). It interferes with all aspects of daily functioning which in turn impacts on occupational engagement. People with chronic pain may as a result also engage in feelings of helplessness, hopelessness and anger (Strong 2002; Fernandez and Turk 1995). More recent research has described the emotional distress of the participants including fear, loss of pleasure, need for assistance and boredom (Fisher *et al* 2007; Robinson *et al* 2012).

As chronic pain is so prevalent and individuals experiencing chronic pain are a population regularly engaged by occupational therapists, it is imperative that occupational therapists acquire an in-depth knowledge of the experiences and perspectives when working with this population (Persson *et al* 2011). Such in-depth knowledge of experiences and subjective meaning and is gained through qualitative research (Fossey *et al* 2002). Rationale for the contribution of the current research therefore lies with its capacity to inform occupational therapy practice, of the occupational consequences of chronic pain, through the synthesis of qualitative studies. Therefore the current research paper aimed to examine the existing body of knowledge on the occupational consequences of chronic pain and provide a synthesis of the published findings of the occupational consequences of chronic pain.

Methodology

This study employed a qualitative methodology utilizing meta-ethnographic methods to provide a synthesis of findings. There is an increased interest in the application of qualitative synthesis to inform health related policy and practice (Barnett-Page and Thomas 2009). Meta-synthesis is a term used to describe the examination, critical comparison and synthesis of a variety of qualitative studies to generate a body of knowledge about a particular field of study (Paterson *et al.* 2009; Hammell 2007).

In order for qualitative findings to have impact, they must be situated in a larger interpretative context and accessible with regard to furthering knowledge and informing practice (Sandelowski *et al* 1997). Meta-syntheses of qualitative studies are therefore seen as essential to enhancing the generalizability of qualitative research. A range of methods for the synthesis of qualitative research exists, however, due to the need to retain the authenticity of the original research; the meta-ethnography method of synthesis was employed (Barnett-Page and Thomas 2009).

Meta-ethnography

Meta-ethnography was proposed by Noblit and Hare as an alternative to meta-analysis (Barnett-Page and Thomas 2009). In this study, three differing methods of synthesis were considered for use: reciprocal translations analysis, refutational synthesis and line of argument synthesis. Reciprocal translation analysis involved the translation of concepts from individual research papers, leading to the development of overarching concepts or metaphors (Barnett-Page and Thomas 2009). Conversely, if accounts were in conflict, a refutational synthesis involved investigating, justifying and rationalizing contradictions between studies. Lastly, a line of argument synthesis entailed the construction of a complete picture from the individual studies. Noblit and Hare implied that this approach may be viewed as a form of grounded theorizing.

The strengths of conducting a meta-ethnography include that it may generate theories with greater explanatory power than possible in a literature review; it generates further common knowledge gained from qualitative research, it results in a richer account of a phenomenon and it

preserves the integrity of original research. (Campbell *et al* 2003; Britton *et al* 2002; Sandelowski and Barroso 2007; Noyes and Lewin 2011; Vermeire *et al* 2007)

The process of a meta-synthesis is comprised of five stages: identification of the focus of the review, identification of published papers and determination of their relevance to the research question, appraisal of the research papers, identification and summary of key themes across studies and comparison and synthesis of key themes (Hammell 2007). These stages are now detailed below.

Sampling methods

The focus of the present review has been identified; to determine the current published qualitative research on the occupational consequences of chronic pain. Published papers were identified from the following databases: AMED, Biomed Central, CINAHL, Cochrane Library, Dynamed, EMBASE, InformaHealthCare, Medline, The Oxford Pain Database, PsycINFO, PubMed, Sage, and Science Direct.

Databases were searched for English language studies using combinations of the terms included in table 1. From the returned articles, key words identified by the authors were extracted and added to the list to be searched in the above databases.

Table 1: Search terms

Topic	Search terms
Chronic Pain	“chronic pain” , “chronic” , “pain” , “chronic lower back pain” , , “chronic pelvic pain”, “chronic fatigue syndrome” , “repetitive strain injury” , “complex regional pain syndrome” , “headache” , “irritable bowel syndrome” , “neuropathic pain” , “spinal pain” , “carpal tunnel syndrome” , “lateral epicondylitis” , “tennis elbow” , “stump pain” , “jaw pain”.
Occupations	“occupation” , “occupational therap*” , “occupational engagement”

	, “occupational balance” , “occupational performance” , “occupational consequences” , “activities daily living” , “quality of life” , “family life” , “lived experience” , “occupational disruption” , “interests” , “ “roles” , “habit” , “routine” , “relationships”
Activities	“ADL” , “ADLs” , “physical” , “exercise” , “drive” , “driving” , “sleep” , “sleeping” , “domestic” , “work” , “self care” , “productivity” , “leisure” , “activities” , “restoration” , “ relax*” , “intimacy” , “education” , “voluntary” , “shopping” , “walking” , “socializing” , “contribute” , “interests” , “ability” , “transportation” , “self-care”
Cognition	“psychology” , “psych*” , “self esteem” , “cognition” , “sense of self” , “fatigue” “happ*” , “support” “control” “responsibility”
Qualitative research	“qualitative” , “ethnography” , “phenomenology” , “grounded theory” , “content analysis” , “interview” , “focus groups” , “observation” , “survey” , “interpretivism” , “positivism” , “post-positivism” , “thematic analysis” , “case study” , “discourse analysis” , “conversation analysis” , “narrative analysis”

307 returned articles were appraised in the next step of the meta-synthesis process as they were deemed relevant. Research papers returned between the years 1993 and 2013 of studies of adults with chronic pain were included. Arthritis conditions and cancer pain were excluded in order to ensure a realistic amount of research to be appraised.

In order to appraise the returned papers for rigor and quality, the Critical Appraisal Skills Programme (CASP) (2010) a well-recognized appraisal tool as cited by Hannes (2011) in the Cochrane Collaboration Qualitative Methods Group Handbook was used. The author and research supervisor appraised the studies separately according to the guidelines of the CASP.

A synthesis was then conducted on the selected twenty-two articles using a meta-ethnographic method. Having identified the main concepts evident in each paper as per reciprocal translation analysis, the papers were then compiled into tables and cross checked against each other to establish common themes for synthesis, the aim of which was to translate

findings, concepts and themes from study to study (Campbell *et al* 2003). Should a conflict have occurred, a refutational synthesis would be undertaken in order to justify differences between studies, however this was not required in the current research. Following the reciprocal translation analysis, a line of argument was constructed as per the meta-ethnographic approach (Barnett-Page and Thomas 2009).

Ethics

As this research is a secondary analysis of previously published qualitative research there are no immediate ethical implications. Papers included in this paper were assessed for ethical standards upon appraisal of articles in order to ensure ethical approval for the individual studies was sought and participant consent was obtained. At no point in this research was any participant identifying information from any study reported. Researcher bias of papers was also considered along with credibility, dependability, transferability and confirmability (Morse *et al* 2002) in the appraisal process. In order to eliminate any possible bias towards the outcome of the meta-ethnography, critical appraisal of the returned articles were conducted separately by research author and research supervisor.

Results

Twelve themes were identified across the twenty-two articles as the occupational consequences of chronic pain following a reciprocal translation analysis:

1. *Reduction of and Disengagement from Occupations*: Reduction and disengagement from occupations as a consequence of chronic pain was a prevalent theme across sixteen articles. Chronic pain for many participants limited and reduced engagement in occupations.
2. *Social Consequences*: The occupational consequences of chronic pain with regard to social situations and engagement was detailed in sixteen articles. Social consequences were identified in articles in multiple, diverse forms.
3. *Work and Education Consequences*: Work and educational consequences of chronic pain was a theme across thirteen articles. The way in which chronic pain had an impact on participants' ability to participate in work and education was varied across studies.
4. *Engagement while Enduring Pain*: The theme of occupational engagement while enduring pain was common across eleven articles. Here it was reported as important for participants to participate in occupations despite pain. Participants reported that in this context. Fighting pain occurred in order to participate.
5. *Dependence*: Dependence and reliance on others was an identified theme across eleven articles. Here, participants detailed feelings of being a burden on others as a result of their increased dependence.
6. *Adaptations to Occupations*: This was a prevalent theme across ten articles and related to the alteration of occupations as a consequence of chronic pain experienced by participants. Adapting occupations encapsulates the concept/process of prioritization and altering performance of occupations due to chronic pain.
7. *Family Consequences*: The impact of chronic pain and its consequences for child-parent relationships and family roles was an evident theme in ten articles.
8. *Consequences for Sleep and Energy*: Consequences for sleep and energy was common across eight articles. Chronic pain was reported to not only affected participants' ability to sleep, but also their quality of sleep.

9. *Emotional Consequences*: Emotional consequences of living with chronic pain were common across eight articles. Differing feelings manifested in various articles as a consequence of living with chronic pain.
10. *Consequences for Joint Occupations*: Chronic pain was identified as having a negative impact on individuals' ability to engage in joint occupations or co-occupations in five articles.
11. *Consequences for Travel*: Chronic pain had a consequence for the ability to travel in four articles.
12. *Engagement during Periods of No Pain*: The theme of engaging in occupations only during periods of little or no pain was common across three studies.

The themes identified, and articles wherein themes were present, are listed according to frequency of themes below (Table 2). Articles are alphabetically coded and identifiable in Table 3. Details of each article with regard to participants, participant ages, pain conditions, research method and concepts identified through the current study is presented in Appendix 1.

Table 2: Themes identified following meta-ethnography and articles wherein themes are present.

Themes	Present in Articles:
Reduction of and Disengagement in Occupations	A, B, C, G, I, J, K, L, M, N, P, Q, R, T, U, V.
Social Consequences	B, C, D, E, I, J, K, L, M, N, O, P, Q, R, S, T.
Work and Education Consequences	B, C, H, I, J, L, N, P, R, S, T, U, V.
Engagement while enduring pain	A, C, D, F, H, I, M, O, Q, R, V.
Dependence	B, E, H, I, K, M, P, R, S, U, V.
Adaptations to Occupations	A, C, F, L, M, N, O, P, R, V.
Family Consequences	B, I, L, N, P, R, S, T, U, V.
Consequences for sleep and energy	B, C, G, I, L, N, P, T.
Emotional consequences	A, G, L, M, P, Q, T, U.

Consequences for joint occupations	B, L, T, U, V
Consequences for travel	B, C, I, R.
Engagement during periods of no pain	A, B, L.

Table 3: Article Authors

Code	Author(s)	Code	Author(s)
A.	Aegler and Satink (2009)	L.	Jones <i>et al</i> (2004)
B.	Arnold <i>et al</i> (2008)	M.	Keponen and Kielhofner (2006)
C.	Sofaer-Bennett <i>et al</i> (2007)	N.	Paulson <i>et al</i> (2002)
D.	Borell <i>et al</i> (2006)	O.	Persson <i>et al</i> (2011)
E.	Campbell and Cramb (2008)	P.	Robinson <i>et al</i> (2013)
F.	Damsgard <i>et al</i> (2011)	Q.	Satink <i>et al</i> (2004)
G.	De Souza and Frank (2007)	R.	Silva <i>et al</i> (2011)
H.	DeSouza and Frank (2011)	S.	Smith and Osborn (2007)
I.	Evans and De Souza (2008)	T.	Soklaridis <i>et al</i> (2011)
J.	Gilmour <i>et al</i> (2008)	U.	Strunin and Boden (2004)
K.	Hensing <i>et al</i> (2007)	V.	Vroman <i>et al</i> (2009)

Line of argument synthesis

The construction of an interpretation through line of argument synthesis serves to reveal hidden component parts of studies and discover a whole among a set of parts (Campbell *et al* 2003). Through this process, what emerged from the current study were the amounts of diverse occupational consequences of chronic pain, and the direct and indirect relationships between consequences. Below is a visual representation of the identified themes with arrows representing inter relationships [see Figure 1], which will be discussed further in this article. Each theme, and its implications for individuals with chronic pain and occupational therapy practice, is discussed in the discussion section in order of frequency of the themes across articles.

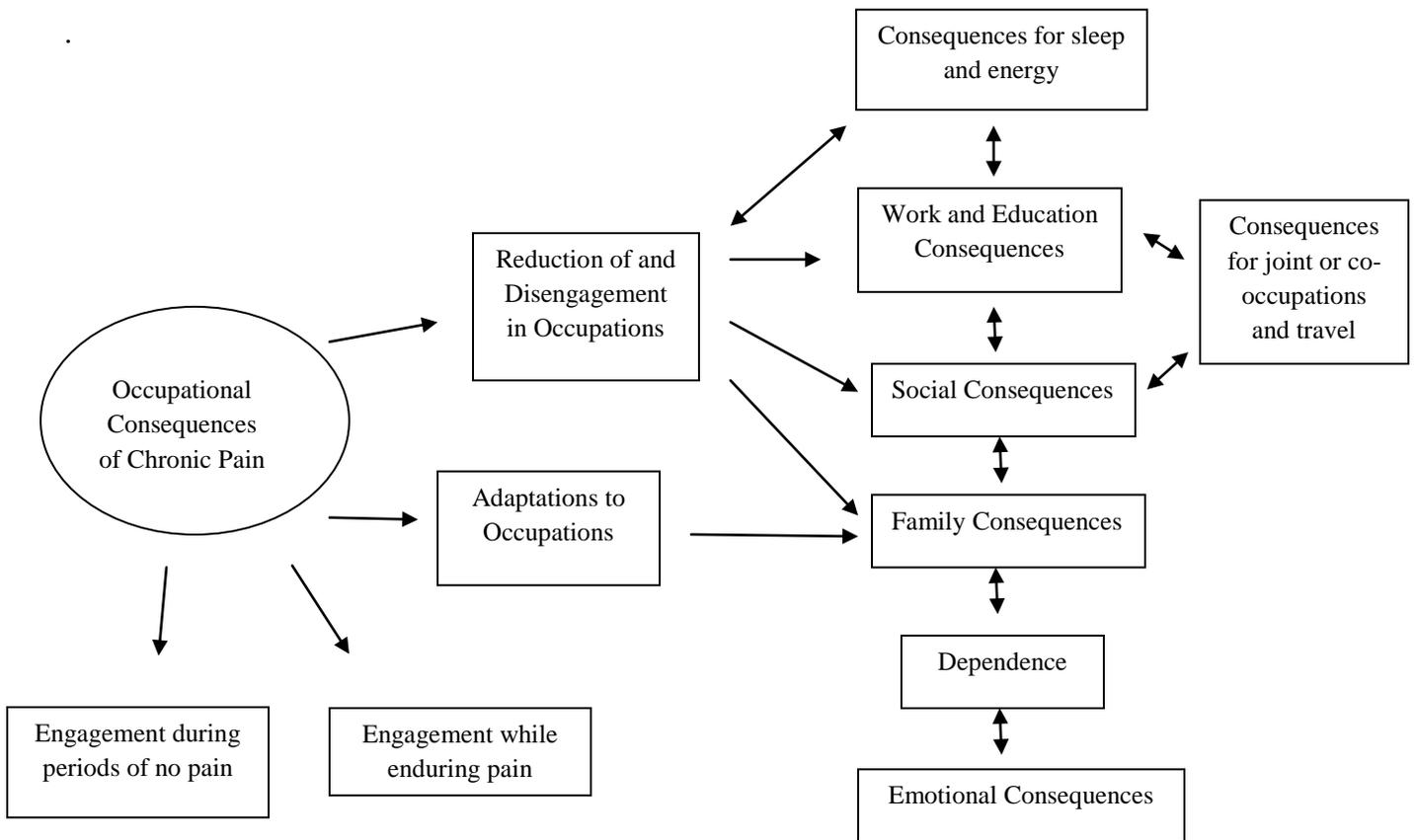


Figure 1: Visual representation of identified themes and their inter relations

Discussion

Each theme will now be discussed in terms of meaning for the participants in the articles synthesised, and implications for occupational therapy practice and discussed with comparison to previous research.

Reduction and Disengagement in occupations

Some studies' participants reported feeling incapable of engaging in activities of daily living, self-care and household chores, physical and leisure occupations (B, C, I, J, K, L, T, U, V). Withdrawal from occupational engagement and avoiding engagement in non-necessary tasks was viewed as a strategy by which to control pain (M, Q).

This theme concurs with previous research by Fisher *et al* (2006) that avoidance of engagement to reduce pain, occupational disruption and deprivation is experienced by individuals with chronic pain in physical, work, social, ADL and leisure domains. When working with individuals with chronic pain, occupational therapists must be mindful, therefore, of the person's occupational disruption and deprivation experienced, and the impact of this on health, well-being and ability to engage in therapy.

Social Consequences

A negative impact on social situations as a result of chronic pain was prevalently reported across many articles, which detailed missing the social side of work, feelings of isolation from previous social supports and deterioration of social life and relationships (E, C, I, L, O, R). Furthermore, purposeful avoidance of and isolation from socialising was reported as some participants reported a fear and loss of confidence in the face of pain and its onset, and worry regarding the other people's perceptions (C, I, M). Participants also described how they would withdraw from social events in an attempt to reduce burden on family members and maintain social norms (T, J).

Participants often felt embarrassed, disbelieved and misunderstood regarding their pain (I, J, L, P, S). This resulted in reluctance to commit to social events, due to the unpredictability of pain, and was viewed by others as the person being unreliable (B, D, I, O, T). Previous research concurs with these concepts as social roles; personal identity, inter-personal relationships, social situation and ability to engage in a vocation all have an impact on social life and circumstance (Strong 2002).

Some articles detailed the importance of social interaction, family and friends, and the importance of fulfilling social obligations for participants (D, N, Q). This theme may have implications for practice in that the constant presence of pain impacts self-image, roles and others perceptions of them which may in turn spiral into further isolation. Occupational therapists may therefore employ an educational role to assist realization of the importance of empathetic listening and social inclusion (Fisher *et al* 2007).

Work and Education Consequences

Some participants reported a compromised career (I), a need to frequently change jobs (B), a reduction in hours (B, J), while others described an inability to work or perform at university due to chronic pain (C, H, J, T, V). Inability to perform repetitive tasks and difficulty in concentrating was also reported (B). Financial loss and its implications for healthcare, and loss of social roles and social perception with regard to work and providing for oneself and family, was described (H, P, R, T, U). As with the theme of engagement while enduring pain, some participants reported continuing to engage in work while in pain (H).

Previous literature concurs with the difficulty and loss associated with chronic pain as it interferes with daily activities such as the management of life roles and work (Fisher *et al* 2006; Skjutar *et al* 2010). There is a clear role for occupational therapists with regard to the vocational and educational impact of chronic pain, working with both the individual and their employer to adapt and sustain employment, educate employers and co-workers and may facilitate return to work.

Engagement while Enduring pain

While some participants disengaged from occupations due to pain, other participants endured pain in order to enjoy occupational engagement (C, H). Fighting through pain and gambling the consequences of engagement was also described as determination to engage despite pain (M) to retain a sense of identity (V). Some participants were used to pain endurance and had reached acceptance (I). Previous research also identified a need felt by some individuals to finish a task as a result of determination, social pressure and perseverance (Aegler and Satink 2009). Research has shown that engagement in pleasurable occupations can provide solace and feelings of enjoyment (Aegler and Satink 2009). Whether engaging in pleasurable occupations provides a distraction or if they are only performed when pain is at a low level to facilitate engagement, occupational therapy would advocate for the need for engagement in meaningful occupations to promote health and well-being (Aegler and Satink 2009).

Dependence

Participants detailed feelings of being a burden on others as a result of their increased dependence for personal care and ADLs (E, V). Following on from feelings of being a burden, participants also sometimes felt as if they were intruding on families' independence and had an impact with regard to familial roles (H, I, M, P). Dependence may impact on an individual's psychological state with regard to social roles, identity and relationships (Strong 2002). Previous research has also shown consequences for familial relationships due to strain regarding limitations in fulfilling familial roles (H). An expressed desire for empathy was noted in De Souza and Frank (2011) which implicates the need for familial involvement when engaging in occupational therapy.

Adaptations to Occupations

In order to engage in occupations, participants adapted occupations by breaking down tasks (M), sequencing and reorganization (A). By prioritizing and planning, participants ensured their ability to participate (F, P). Furthermore, participants interpreted bodily signals in order to

inform important break-taking and resting (A). Previous research confirms that, in general, individuals with chronic pain grade activities and divide them into more attainable actions in order to compensate for pain (Persson *et al* 2011). This grading and prioritising of activities in order to engage in occupations is a core feature of occupational therapy and may be integrated in many interventions with people with chronic pain.

Family Consequences

Studies reported participants' inability to engage in child-parent physical activities (S, T). Such inability to engage interfered with the child-parent relationship (U, V). Alternatively, some parents performed parenting duties while experiencing pain (I). This coincides with previous research on occupational disruption and deprivation felt by parents when they experienced difficulty in playing with their children (Fisher *et al* 2006).

Feelings of loss regarding social roles were also felt by some women who felt an inability to perform occupations as a mother and/or wife (V). Some men described concern that they were unable to fulfill a fatherly role and expressed concern over their children's perceptions of them (S). As with the theme of dependence, occupational therapists may ensure the use of a familial approach, to facilitate important family occupations, to provide education regarding the experience of chronic pain and to ensure holistic interventions.

Consequences for sleep and energy

Pain was reported to both wake participants and prevent sleeping (L). Mornings were described as painful, slow and difficult (B, N). Loss of energy following engagement in occupations was also common as some participants describe prioritising a work life, and the energy consumption this requires. Some participants felt unable to engage in anything following putting their energy into working (I). This may have implications for occupational therapy practice with regard to lifestyle balance, facilitating adaptations to occupations for fatigue management and prioritisation and grading of occupations.

Emotional consequences

Feelings of frustration were reported in two studies with regard to levels of occupational performance, and from having to rely on others for personal care (A, G). Furthermore feelings of helplessness, with regard to dependence and a sense of inadequacy, were expressed along with feelings of shame and fear (T, U). Participants also described feelings of loss of control, reduced self-esteem and at risk of mood swings (L, T, P). Emotional consequences such as a decrease in positive feelings and self-esteem have been previously identified in the literature (Carr *et al* 2005). Helplessness and hopelessness have been described (Fernandez and Turk 1995) along with fear and loss of pleasure in life (Robinson *et al* 2013). People may also engage in associated grief reactions due to the multitude of losses associated with chronic pain (Strong 2002).

Emotional consequences are of paramount importance for occupational therapy practice, as chronic pain has a high co-morbidity with depression and mental health difficulties, which affects occupational performance and well-being (Strong 2002; Veehof *et al* 2011). Occupational therapists working with individuals with chronic pain may therefore also include psychosocial elements into interventions.

Consequences for Joint or Co- occupations

Some participants described an inability to engage in previously meaningful spousal co-occupations such as joint physical activity e.g. bowling, skiing (U, V). This, in some cases, led to shared activity becoming restricted to more sedentary activities such as watching movies (U). Experiencing chronic pain was reported to have a negative effect on participants' ability to engage in intimate and sexual activity. This was attributed to the pain itself, and medication for pain and participants' emotional state (B, L, T, U). Such effects may have a self-perpetuating negative consequence for these relationships. Occupational therapists may therefore incorporate relationships and facilitate engagement in meaningful joint occupations.

Consequences for travel

Driving was reported as difficult for participants in terms of both physical difficulties related to pain and the concentration levels required while driving (B, I, R). Travelling on airplanes was viewed as difficult for participants due to extended periods of sitting and changes in air pressure during flights (B, C).

Engagement during periods of no pain

In order to engage in occupations to a satisfactory level and to facilitate enjoyment in such occupations, some participants only engaged in meaningful occupations during periods of little or no pain (A). Participants planned engagement in occupations during a time in their day when pain was not as intense. (B, L). Occupational therapists may therefore encourage such engagement for the impact of this on the health and well-being of individuals with chronic pain.

The above is a qualitative synthesis of the available literature on the multi-faceted occupational consequences of chronic pain, which may achieve a level of conceptual development beyond that of individual qualitative studies (Campbell *et al* 2003). This study has demonstrated that through embracing individual qualitative research articles, translating results using a meta-ethnographic approach, common concepts may be synthesized to formulate evidence of the multitude and variety of occupational consequences of chronic pain.

In order to facilitate occupational engagement, occupational therapists must therefore incorporate a holistic approach, including familial and social circumstances, and place emphasis on careful listening techniques (Fisher *et al* 2007; De Souza and Frank 2011). Such an approach would also include investigating physical and psychosocial consequences of chronic pain for the individual and facilitating improvement in engagement in meaningful occupations to promote health and well-being.

Limitations

The purpose of this meta-ethnography was not to confirm or disconfirm valuable data, rather to explore and create a deeper and more transferable interpretation of individual studies that contributes to current knowledge. Burns *et al* (2010) advises of Sandelowski's 2006 limitations to the synthesis of qualitative research, in that original data has been removed at least three times prior to being presented in a synthesis. With regard to the articles used in the current meta-ethnography, limitations exist due to the lack of uniformity of the methodology in the articles synthesized. Articles also differed with regard to participants' ages and gender, chronic pain conditions, and duration of chronic pain experienced. One article focused solely on work consequences, while another solely on familial consequences of chronic pain. One article focused exclusively on female experiences while another exclusively on male experiences (see Appendix 1 for article details table). A challenge of the method employed was in formulating the lists of concepts from each article. To combat this, as per Campbell *et al* (2003), concepts were checked and re-checked by the author and research supervisor. This aimed to ensure that concept formation had not become abstracted and that terminology and language were clear and directly related to the primary article.

Conclusion

Chronic pain has a multitude of consequences for a person's ability to engage in occupations and their overall quality of life as a result. The aim of the current research was to identify the occupational consequences of chronic pain through a secondary analysis of published qualitative research. This aim was addressed through the identification of 12 prevalent themes, reciprocal translation analysis, and line of argument synthesis and formation to configure and visually represent common themes and their inter-relationships. The papers included in this meta-ethnography varied with regard to the meaning of chronic pain to the participants, and how their participation and engagement were structured and adapted due to the occupational consequences of chronic pain. This meta-ethnography revealed four different approaches reportedly undertaken by participants relating to engagement in occupations. These were; avoiding and disengagement in occupations, engaging in occupations only when no pain is present, fighting against pain to engage, and adapting occupations in order to engage.

Further investigation of the correlations and interplays of the identified themes may be explored in future research. Further research would also be useful in order to identify the types of occupation that individuals are unable to engage in, and whether their reasoning behind disengagement is physical, psychological or a combination of both. An investigation into the occupations that individuals engage in when they feel as if they are fighting or gambling the consequences of pain in order to engage would also be beneficial. Also participants described the use of breaks in order to engage in occupations. An investigation into how these breaks are utilized, that is if participants are merely sitting and waiting for a period of time would also be valuable. Should this be the case, participants may be advised regarding relaxing non-physical occupations that may be employed when on a break from more vigorous occupations (Aegler and Satink 2009). Questions for further research may include: Is engagement due to the meaningfulness of the occupation and the participants' awareness of the impact of engagement in occupation's impact on health and well-being? Or is it due to pure perseverance to the challenge?

Through this meta-ethnography, the occupational consequences of chronic pain, the manner in which they manifest, their interplay, and how some consequences of chronic pain impact directly, and others indirectly onto various aspects of the pain experience are identified.

From the direct impact of chronic pain on the ability to engage in occupations emerge emotional consequences. The inability to engage in occupations manifests limitations to social roles, identity, may lead to occupational deprivation, emotional pain and ill health (Satink *et al* 2004). The inability to work indicates extensive consequences for how participants viewed themselves, their ability to provide for their family, and the financial and emotional consequences of this.

Social consequences and the anticipated perceptions of others sometimes further enforced social withdrawal and isolation. Feelings of being a burden and dependence on family members to aid with occupational engagement and take on more responsibilities had direct consequence for the family roles and participants emotional health. Occupational therapists may therefore seek to employ creative methods to enable occupational engagement and minimise strain on familial and social relationships. Occupational therapists working with individuals with chronic pain are therefore challenged to question the meaning of occupation in the lives of such individuals, and how this meaning can be enabled to promote health and well being (Keponen and Keilhofner 2006).

This research also identified findings with previous literature in establishing the cyclical relationship between occupational deprivation and the impact of this on mental health (De Souza and Frank 2011). Previous research has highlighted the need for individuals with chronic pain to have their experiences understood and appreciated by family and colleagues (De Souza and Frank 2011). The current research also provides awareness and validity to the occupational consequences of chronic pain for individuals. As the consequences of chronic pain extend beyond the individuals to have wider implications for their environmental and social systems, a holistic approach may therefore be undertaken by occupational therapists when working with and advocating for individuals with chronic pain. This may help to target breaking the cycle of disengagement in occupations and social isolations with an aim to minimize implications for the individual and their social circle through a multifaceted meaningful intervention approach.

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Appendix 1: Article Details Table

Authors	Year	Participant ages	Pain conditions	Method	Concepts
Aegler and Satink	2009	8 participants Mean age = 46 years	All had chronic musculoskeletal non-malignant pain for at least 3 years	Interviews Constant comparison method	Engaging in occupations Only engaging in occupations when little or no pain is felt Performance disruption Gambling consequences of engaging in occupations Constant awareness of body regarding timing of breaks Trying to disengage emotions and cognition when taking a break from occupations The importance of breaks Frustration regarding occupational performance
Arnold <i>et al</i>	2008	48 women aged between 31-72	Fibromyalgia	6 focus groups. Principles of grounded theory used	Consequences of occupational engagement with pain Performing activities around pain Inability to move due to pain symptoms Pain interferes with sleep Difficult mornings Decreased motivation to begin tasks Consequences for driving Frustration Guilt or shame regarding participation in personal occupations Unpredictability of pain Perceptions of participants by others Family consequences Feeling as a burden on spouses and partners Impact on working life Inability to perform occupations due to pain Inability to perform leisure occupations Inability to travel due to pain
Sofaer-Bennett <i>et al</i>	2007	16 participants Over the age of 60	Neuropathic pain	Interviews Interpretative Phenomenological Approach	Physical limitations caused by pain Restrictions to enjoyed physical activity Decreased outings from the home Loss of the ability to drive due to pain Pain impacts on socializing with family Loss of employment

					<p>Unable to go on holidays due to uncertainty of pain</p> <p>Loss of social life due to pain</p> <p>Disturbed sleep</p>
Borell <i>et al</i>	2006	6 participants aged 41-56	Chronic pain of varied aetiology	Open ended interviews. Constant comparison method	<p>Taking initiative and making choices to participate in occupations</p> <p>Participation with regard to doing something physical</p> <p>Participation with regard to doing something social</p> <p>Social perceptions influencing relations</p> <p>Doing something for others</p>
Campbell and Cramb	2008	12 participants aged 36-66	Predominantly low back pain	Semi structured interviews	<p>Reliance on others</p> <p>Social isolation</p> <p>Not verbalizing to maintain relationships</p> <p>Avoidance of social situations</p>
Damsgard <i>et al</i>	2011	10 participants aged 31-50	Chronic pelvic, low back, leg, pelvic, neck, arm, head, shoulder, breast pain	Interviews	<p>Interrupting bodily signals</p> <p>Ignoring bodily signals may have serious pain consequences</p> <p>Moving or slowing down due to pain signals</p> <p>Pain as a signal to rest</p> <p>Staying active despite medical advise</p> <p>Planning and calculating to ensure participation in occupations</p> <p>Contextual aspect of pain</p>
De Souza and Frank	2007	11 subjects aged 27-79	Chronic back pain	Interviews Thematic content analysis	<p>Lack of and disturbed sleep due to pain</p> <p>Fear of engaging in occupations that may cause pain</p> <p>Pain limiting ability to engage in occupations</p> <p>Retaining independence as much as possible</p> <p>Reducing or giving up leisure activity due to pain</p> <p>Frustration regarding independence levels</p>
De Souza and Frank	2011	11 participants aged 27-79	Chronic spinal pain	Unstructured interviews using the Framework approach	<p>Relationships with spouses and partners</p> <p>Familial consequences</p> <p>Financial loss relating to inability to work</p> <p>Inability to work</p> <p>Continuing work despite pain</p>

					Impact of pain on working relationships
Evans and De Souza	2008	16 mothers (27-45 years, mean = 35), 21 children aged 6-12	Various chronic pain conditions affecting mothers Conditions included lupus ($n=1$, 6%), arthritis ($n=1$, 6%), polycystic ovary syndrome ($n=1$, 6%), migraine, ($n=2$, 13%), repetitive strain injury ($n=2$, 13%), and spinal pain ($n=9$, 56%).	Semi structured, open ended interviews	Change of family roles Carrying on with daily tasks despite pain Pain as a catalyst for positive development Pain as a limitation to social relationships Family and friends perceptions of pain Driving and transport limitations Physical limitations of pain Loss of work Loss of energy following work Planning ahead due to uncertainty of pain Difficulty of raising children with pain
Gilmour <i>et al</i>	2008	18 women	Endometriosis	Interviews Thematic approach	Impact of pain on social and working life Impact on working life and relationships Others' perceptions of disorder Difficulty in maintaining activity levels due to pain Impact on university courses and grades Inability to work full time Withdrawal from social events Inability to play sports
Hensing <i>et al</i>	2007	39 participants	Neuropathic pain	Interviews Phenomenological	Impact of chronic pain on ability to participate in physical activity Impact of chronic pain on the performance of personal ADLs Hypersensitivity to external stimuli and the impact of this on occupational performance Impact of chronic pain on the ability to complete housework Restrictions caused by pain on social participation Impact on family
Jones <i>et al</i>	2004	24 women	Endometriosis	Interviews Grounded theory	Impact on mobility and exercise Impact on sleep Impact on appetite Impact on activities of daily living Unable to play with children due to pain

					<p>Social life</p> <p>Frustration due to pain</p> <p>Compensating for pain in order to engage in activities</p> <p>Unpredictability of pain</p> <p>Impact on sexual relations</p> <p>Inability to work</p> <p>Inability to carry out work related duties</p> <p>Others' perception of pain</p>
Keponen and Kielhofner	2006	17 women aged 33-55	Various chronic pain conditions	Interviews	<p>Engaging in occupations is a challenge</p> <p>Adapting engagement in occupations in order to engage</p> <p>Perseverance to engage in occupations</p> <p>Listening to body in order to engage/continue</p> <p>Engaging in occupations despite pain</p> <p>Pacing occupations</p> <p>Adapting occupational goals</p> <p>Taking breaks</p> <p>Slowing down occupations</p> <p>Frustration regarding occupational performance</p> <p>Worry regarding the perception others have</p> <p>Breaking down tasks</p> <p>Doing less</p> <p>New occupations</p> <p>Feeling a burden on others</p> <p>Isolation due to the perceptions of others</p> <p>Uncertainty for future occupations</p> <p>Fighting pain to engage</p> <p>Lack of meaningful leisure occupations</p> <p>Disengagement in occupations</p> <p>Reliance on others</p> <p>Decreased satisfaction in occupations</p>
Paulson <i>et al</i>	2002	14 men aged 41-56	Fibromyalgia	Interviews and phenomenological hermeneutic method	<p>Impact on movement</p> <p>Impact on everyday occupations</p> <p>Painful, slow mornings</p> <p>Inability to participate in occupations</p> <p>Inability to work</p> <p>Inability to plan</p> <p>Pacing occupations</p> <p>Avoiding social situations due to pain</p> <p>Difficulties concentrating due to pain</p> <p>Impact on relationships with children</p>

					Importance of keeping social contact
Persson <i>et al</i>	2011	12 participants aged 25-74	Located (n=9) or widespread (n=3) chronic pain	In depth interviews Content analysis	Slowing down Improvisation when pain is experienced Participation in meaningful occupations beyond pain Missed occupations
Robinson <i>et al</i>	2013	5 adults, 4 women, 1 man	Various chronic pain conditions	In-depth lightly structured Interviews. Foucauldian discourse analysis	Impact on energy levels Responses of others towards their pain Perception of their pain by others Difficulty in making plans due to pain unpredictability Resting and taking breaks Prioritizing Doing things differently Slowed down activity performance Activity changes due to pain Impact on social roles Feelings of being a burden on others Financial implications Emotional consequences
Satink <i>et al</i>	2004	7 participants aged 42-70	Lower back pain for more than 3 years	Narrative interview Explorative study	Withdrawal from occupations due to pain Choosing not to engage to decrease pain Reduced engagement in occupations Fighting against pain in order to be active, Choosing to engage despite pain Participation in society, importance of social interaction Emotional pain due to occupational adaption
Silva <i>et al</i>	2011	Ten workers (4 male, 6 female) aged 30-53	Various chronic pain – duration between 2 and 10 years. Carpal tunnel syndrome (n=5), epicondylitis (n=3) and tenosynovitis (n=2).	Interviews Thematic analysis - The theoretical framework of biographical disruption and reconstruction of life history was used for analysis and discussion	Impact on ability to work and education Loss of social roles Social isolation Engaging in occupations despite pain Adaption of ADLs Stopping engagement due to pain The challenge of routine activities Decreased engagement in leisure occupations Reliance on others Impact on driving
Smith and Osburn	2007	6 participants,	Various chronic pain conditions,	Semi structured interviews	Forcing oneself to be socially active Isolating oneself due to embarrassment

		ages 36-52, purposive sampling	varying in duration from 5-15 years	interpretative phenomenological analysis.	of pain Impact on familial responsibilities Impact on parental roles Feeling a burden on others Unable to engage in occupations with children
Soklaridis <i>et al</i>	2011	24 injured workers, 8 female, 16 male aged between 25 and 55.	Work related chronic pain They were all between 9 months and 2 years post-injury	Semi structured focus groups Grounded theory	Loss of work Limitations to physical activity Inhibited social interactions Impact on relationships with children Lack of intimacy and sexual relations Social withdrawal in order to maintain family norms Inability to plan due to pain unpredictability Inability to be active in occupations Frustration Affected sleep Emotional consequences Inability to perform household chores Social roles affected
Strunin and Boden	2004	198 workers from Wisconsin, 216 workers from Florida	Chronic back pain	Ethnographic interviews (telephone)	Importance and existence of limitations to ADLs Importance and existence of limitations with regard to spousal sexual relationships Limitations to participation in leisure activities Loss of gendered social role with regard to work Helplessness and inadequacy with regard to performing occupations Impact on spousal relationship with regard to role change Joint leisure limitations Impact on child-parent activities
Vroman <i>et al</i>	2009	133 participants aged 19-83	Low back pain	Thematic content analysis	The need for pacing occupations due to pain The use of breaks in order to be able to participate in occupations Pain compensation Impact on joint occupations Inability to work Inability to engage in ADLs Reliance on spouse Fighting against pain Loss of occupations

					Emotional pain due to loss of occupations with children Loss of social roles
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