



UNIVERSITY *of* LIMERICK

OLLSCOIL LUIMNIGH

Meeting the Occupational Needs of People with Chronic Pain

by

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A thesis submitted in fulfilment of the requirements for the
degree of Doctor of Philosophy at the University of Limerick

Supervised by Dr. Norelee Kennedy and
Dr. Dominic Harmon

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Declaration

My submission as a whole is not substantially the same as any that I have previously made or currently am making, whether in published or unpublished form for a degree, diploma, or similar qualification at any university or similar institution. I am the author of this thesis and the principle author of the eight articles which form its core.

Signature: _____

Catherine T. Robinson

Abstract

This thesis comprises eight papers that aim to explore the relationship between occupation and chronic pain, augment the evidence available to occupational therapists working with people with chronic pain, and to develop occupational therapy services for people with chronic pain in Ireland.

The practice of occupational therapists with people with chronic pain appears to reflect the profession wide theory-practice gap. A lack of evidence for occupation-based practice, the use of inappropriate evidence, and the underuse of relevant evidence for occupation-based practice were identified as issues influencing this theory-practice gap. A layered analysis revealed that occupational therapy services for people with chronic pain are influenced by multiple factors, including the biopsychosocial model of health, occupational therapy philosophy and the social construction of people with chronic pain.

A participatory action research (PAR) process undertaken with an all-Island group of occupational therapists found that the practice of Irish occupational therapists reflected the identified theory-practice gap and over-reliance on technique based practice. Addressing client's vocational needs emerged as the greatest challenge faced by participants. The PAR process enabled participants to take multiple actions to address this problem including the development of a handbook to guide vocational rehabilitation. The findings of this study revealed that a participatory process has the potential to translate evidence to practice and enact occupation-based practice.

Flow theory is congruent with an occupational perspective of health and an experience sampling methodology study of the flow experiences of people with chronic pain revealed that mean pain scores were lower, however not significantly, when participants were in flow, and that flow is an optimal psychological state for people with chronic pain. Thus, offering support for occupation-based interventions with this population. The occupations of people with chronic pain are influenced by dominant cultural discourses. A social constructionist study of the experience of people with chronic pain identified three discourses influencing the occupations of people with chronic pain; a moral discourse, a discourse of pain as personal tragedy and a biomedical discourse.

The thesis concludes with a discussion where methodological considerations and the thesis findings are discussed, and, implications for practice and research are drawn.

Key words: Occupation, Chronic Pain, Occupational Therapy, Pain Management, Flow, Discourse Analysis, Happiness, Participatory Action Research

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List of Publications

This thesis is based on the following research papers.

- I** Robinson, K., Kennedy, N. and Harmon, D. (2011). Is Occupational Therapy Adequately Meeting the Needs of People With Chronic Pain? *The American Journal of Occupational Therapy*, 65(1), 106-113.
- II** Robinson, K., Kennedy, N. and Harmon, D. (2011). Review of occupational therapy for people with chronic pain. *Australian Occupational Therapy Journal*, 58(2), 74-81.
- III** Robinson, K., Kennedy, N. and Harmon, D. Developing Occupational Therapy Services for People with Chronic Pain through Participatory Action Research: An all-Ireland Study (*Manuscript*).
- IV** Robinson, K., Kelley, V., Kennedy, N., and Harmon, D. Qualitative description of occupational therapy practice with people with chronic pain in Ireland. (*Manuscript*).
- V** Brennan, B., Corcoran, O., Irudayaraj B., Kearney S.A., Kelley, V., Lyons, E., Magee, L., Robinson, K., & Vine, S. Vocational Rehabilitation for People with Musculoskeletal Disorders: Implications for Practice. Submitted to *the Irish Journal of Occupational Therapy*.
- VI** Robinson, K., Kennedy, N. and Harmon, D. (2012). Happiness: A Review of Evidence of Relevance to Occupational Science. *Journal of Occupational Science*, 19(2), 150-164.
- VII** Robinson, K., Kennedy, N. and Harmon, D. (2012). The flow experiences of people with chronic pain. *OTJR: Occupation, Participation & Health*, 32(1), 1-9.
- VIII** Robinson, K., Kennedy, N. and Harmon, D. Discourses used to construct the experience of chronic pain. (*Manuscript*).

List of Oral/Poster Conference Presentations

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Robinson, K., and Kennedy, N. (2008). Imagining the future of occupational therapy for people with chronic pain, accepted for (oral presentation), the *8th European Congress of Occupational Therapy (Council of Occupational Therapists for the European Countries)* (Hamburg), May.

Robinson, K., Kennedy, N., and Harmon, D. (2008). The Flow Experiences of People with Chronic Pain, accepted for (poster presentation), the *International Association for the Study of Pain (IASP) World Congress*, (Glasgow), August.

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Robinson, K., Kennedy, N., and Harmon, D. (2010). Qualitative exploration of the discourses used by people with chronic pain, accepted for (poster presentation), the *International Association for the Study of Pain World Congress* (Montreal), August-September.

Kelley, V., Vine, S., Brennan, B., Corcoran, O., Irudayaraj, B., Kearney, S.A., Lyons, E., Magee, L., and Robinson, K. (2010). Developing Occupational Therapy Services for People with Chronic Pain in Ireland, accepted for (oral presentation), the *Association of Occupational Therapists of Ireland Annual Conference*, (Dublin), May.

Brennan, B., Corcoran, O., Irudayaraj, B., Kearney, S.A., Kelley, V., Lyons, E., Magee, L., Robinson, K., and Vine, S. (2010). Optimising Occupational Therapy Services for People with Chronic Pain in Ireland through Participatory Action Research, accepted for (poster presentation), the *15th World Congress of the World Federation of Occupational Therapists*, (Santiago, Chile), May.

Brennan, B., Corcoran, O., Irudayaraj, B., Kearney, S.A., Kelley, V., Lyons, E., Magee, L., Robinson, K., and Vine, S. (2010). Occupational therapy practice with people with chronic pain in Ireland: A qualitative exploration, accepted for (poster presentation), *International Association for the Study of Pain, World Congress*, (Montreal), August-September.

Lyons, E., Brennan, B., Corcoran, O., Irudayaraj, B., Kearney, S.A., Kelley, V., Magee, L., Robinson, K., and Vine, S. (2010). Participatory Action Research. An Effective Tool to Enhance Occupational Therapy Services for People with Chronic Pain in Ireland, accepted for (poster presentation), the *Irish Society for Rheumatology and IRHPS Conference*, (Dublin), September.

Magee L, Brennan B, Corcoran O, Irudayaraj B, Kearney S, Kelley V, Lyons E, Robinson K, and Vine S. (2011). All Ireland Participatory Action Research Study to Develop Occupational Therapy Services, accepted for (oral presentation), the *Association of Occupational Therapists of Ireland Annual Conference*, (Dundalk) April.

Lyons, E., Brennan, B., Corcoran, O., Irudayaraj, B., Kearney, S.A., Kelley, V., Magee, L., Robinson, K., and Vine, S. (2011). Development of a Handbook to Guide Occupational Therapists in the Vocational Rehabilitation of Clients with Musculoskeletal Disorders in Ireland, accepted for (poster presentation) *Vocational Rehabilitation Association Conference* (London), June.

List of Abbreviations

AIOTCP	Alliance of Irish Occupational Therapists working in Chronic Pain
ANOVA	Analysis of variance
AOTA	American Occupational Therapy Association
AOTI	Association of Occupational Therapists of Ireland
AR	Action research
AUD	Australian dollars
CBT	Cognitive behavioural therapy
CLA	Causal layered analysis
COPM	Canadian Occupational Performance Measure
DA	Discourse analysis
EBP	Evidence-Based Practice
EHS	Education and health science (faculty at University of Limerick)
ESM	Experience Sampling Methodology
ESP	Experience sampling programme
HSE	Health Service Executive
ICPM	Interdisciplinary chronic pain management
MDT	Multidisciplinary Team
n	quantity
NSW	New South Wales
PAR	Participatory action research
PMP	Pain Management Programme
SD	Standard deviation
SOEP	Socio-economic panel
SPSS	Statistical package for the social sciences
SWB	Subjective well-being
VR	Vocational Rehabilitation
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHO	World Health Organisation

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Introduction

Background and Context

Introduction

The overall aim of this thesis is to explore the relationship between occupation and chronic pain, augment the evidence available to Occupational Therapists working with people with chronic pain and to develop occupational therapy services for people with chronic pain in Ireland in line with the best available research evidence.

Chronic Pain

Pain is defined by the International Association for the Study of Pain (IASP) as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Merskey and Bogduk 1994, p.210). Pain is a multidimensional experience with neurophysiologic, biochemical, psychological, ethnocultural, religious, cognitive, affective, and environmental dimensions (Raj 1996). Traditionally the transition from acute to chronic pain has been described in terms of time. Chronic pain has been defined as pain lasting for more than three months (Bergman et al 2001), or six months (Merskey and Bogduk 1994) or beyond the expected healing time (Turk and Okifuji 2001a).

One in five adult Europeans lives with chronic pain (Breivik et al 2006). A community prevalence study identified the prevalence of chronic pain in the Republic of Ireland at 35.5% (Rafferty et al 2011). The most common condition associated with chronic pain is chronic back pain. Other conditions included under the umbrella of chronic pain include arthritis, fibromyalgia, chronic pelvic pain, chronic headache and complex regional pain syndrome. The majority of people living in the industrialised world will experience an episode of acute back pain and 10-50% of those will experience back pain for more than three months (Henschke et al 2008). The economic costs associated with chronic pain are staggering and include; healthcare costs, lost working time, legal fees, insurance costs and welfare costs. In 2002 in Ireland approximately €348 million in illness related income support was paid to people with low back pain alone (Fullen et al 2006).

Despite the costs associated with chronic pain many shortfalls in pain assessment and treatment internationally has been identified. A recent report titled ‘*Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research*’ (Committee on Advancing Pain Research, Care, and Education 2011) recommended a cultural transformation in the way pain is viewed

and treated and called for the biomedical research community to “pursue pain research with the same vigor expended on other serious and disabling conditions”

Theoretical Context Shaping Healthcare Services for people with chronic pain

Melzack and Wall introduced the gate control theory of pain in the famous 1965 article "Pain Mechanisms: A New Theory". This paper suggested a spinal cord mechanism which ensured that minor noxious stimuli would be blocked from transmission to the brain by the many sensory stimuli constantly arriving from the periphery. However, noxious stimuli of sufficient intensity and frequency would force open the ‘gate’ and central attention would now be focused on pain (Melzac and Wall 1965). Over the past two decades understanding of pain has dramatically developed, leading to the recognition that pain is a complex perceptual experience, influenced by a range of psychosocial factors, including emotions, social and environmental contexts, culture, the meaning of pain to the person, the persons beliefs, values, attitudes and expectations along with biological factors (Lacerte and Shah 2003).

A number of major explanatory and treatment models of chronic pain have been developed including; behaviourism, deconditioning theory, the fear avoidance model, the biopsychosocial model, cognitive behavioural theory, motivational model, and psychodynamic theory (Jensen et al 2003). These models have shaped services and interventions for people with chronic pain.

Psychological approaches to chronic pain have developed over time from behaviourism, to cognitive behavioural therapy to most recently, contextual cognitive behavioural therapy. In 1976 *Behavioural Methods for Chronic Pain and Illness* by Bill Fordyce, the eminent pain researcher was published. It is widely accepted that this book has been very influential in the field of chronic pain (Patterson 2005). Fordyce (1976) was a proponent of the concept of pain behaviours, the central concept underlying pain behaviours is that the responses of the social environment influences the subsequent exhibition of pain behaviours. Cognitive behavioural therapy (CBT) is a development of behaviourism. A cognitive behavioural perspective of chronic pain views maladaptive beliefs and thinking distortions such as catastrophising as leading to avoidant behaviours thus causing functional limitations. Cognitive behavioural interventions focus on the self-management of pain, through the adoption of an active, problem solving perspective and active skill acquisition (Morley et al 1999; Turk and Rudy 1992). CBT interventions for chronic pain are

widely used in clinical practice across multiple disciplines and are well supported by empirical evidence (Gatchel and Rollings 2008; Gatchel and Okifuji 2006; Hoffman et al 2007; Keefe et al 2005; Morley et al 1999; Turk et al 2008a;).

Despite the proven efficacy of this approach, high drop-out rates and unsuccessful engagement in these treatments have been reported (Spence and Sharp 1993; Turk and Rudy 1992). More recently contextual CBT has been developed with a focus on acceptance of pain and mindfulness interventions have gained widespread acceptance within this contextual CBT framework. A developing body of evidence supports the effects of these approaches in reducing pain for people with chronic pain (Carson et al 2005; Kabat-Zinn 1982; Kabat-Zinn et al 1985; Kaplan et al 1993; Morone and Greco 2007).

A psychodynamic view of pain has also been described whereby pain can serve many functions; conversion, the narcissistic mechanism, and psychovegetative states of tension are identified by Frischenschlager and Pucher (2002). However, little empirical evidence is available to support this approach.

The fear avoidance model describes how fear, avoidance of activity, disuse and disability interact to perpetuate chronic pain. A compelling evidence base supports the fear avoidance model for at least a proportion of people with chronic pain (Asmundson et al 2004; Vlaeyen and Linton 2000). The 'de-conditioning syndrome' has been proposed since the mid 1980's to help explain this complex relationship between chronic pain and physical activity, where the presence of pain causes people to limit activities which lead to physical deconditioning and this deconditioning may result in even more pain and disability, thus perpetuating a cycle of chronic pain. However, there is conflicting evidence that deconditioning exists in people with low back pain (Smeets et al 2006).

A biopsychosocial perspective incorporates both the de-conditioning model and the cognitive behavioural perspective and provides a framework for understanding the role of people's beliefs about pain onset, fear and harm avoidance, and the potential for self-efficacy to mediate perception of and adjustment to pain (Turk and Okifuji 2001b). A biopsychosocial model integrates an understanding of biological and psychosocial factors in chronic pain.

Healthcare for Chronic Pain

Current healthcare interventions for the treatment of chronic pain include; pharmacological preparations, operative procedures, physical modalities, regional anaesthesia, neuroaugmentation modalities, implantable drug delivery systems, multidisciplinary pain management programmes and complementary and alternative medicine modalities (Turk and Swanson 2007).

Multidisciplinary pain management programmes (PMPs) were first developed in the USA in the 1960s, spreading internationally in the 1970s and 1980s (Meldrum 2007). Conflicting evidence for a multidisciplinary approach has been identified. Positive reduction in pain following multidisciplinary PMP's has been identified in systematic reviews and randomised controlled trials (Flor et al 1992; Guzmán et al 2001; Hoffman et al 2007; Morley et al 1999). However, Karjalainen et al (2000) found little evidence for the effectiveness of multidisciplinary rehabilitation for neck / shoulder pain or for fibromyalgia. Turk and Swanson in a review of the efficacy of treatments for chronic pain conclude that despite the positive outcomes of PMP's the majority of patients continue to experience significant pain (2007).

Healthcare in Ireland

Healthcare in the Republic of Ireland is governed by the Health Act (2004) which established the Health Service Executive (HSE); the body responsible for providing health and personal social services to everyone in Ireland. All persons in Ireland are entitled to receive healthcare through the HSE, funded through government taxation. Primary healthcare in Ireland is in development and is being proposed as the future direction of healthcare delivery in Ireland (Ireland, Department of Health and Children 2001). However, at present primary healthcare is mainly delivered by General Practitioners. In the Republic of Ireland the appalling lack of appropriate services for people with chronic pain has been highlighted with calls for a national strategy on chronic pain to address this situation (Fullen et al 2006). Deficiencies in terms of dedicated treatment facilities, waiting times for services and health professional education in relation to chronic pain in Ireland have been identified (Fullen et al 2006).

Occupational Therapy

Occupational therapy is a health care discipline concerned with enabling engagement in occupation to support participation in context (AOTA 2008). The central premise of occupational therapy is the belief that engagement in occupation is essential for health and well-being (Wilcock 2006). Ann Wilcock developed her theory of the human need for occupation based on a history of ideas approach. In short Wilcock's theory proposes that the need to engage in occupation is innate and related to species survival. Functions of occupation that allow the species to survive and flourish include the ability of occupation to; meet immediate bodily needs, develop skills, structures and technology, and the development of skills and personal capacities (Wilcock, 2006). Multiple studies support a relationship between what people do and their health and wellbeing. For example numerous studies illustrate the wellbeing and health benefits of engagement in various occupations for older people on multiple outcome domains including life satisfaction (Coke 1992; Mishra, 1992; Nimrod, 2007; Nimrod & Adoni, 2006), cognitive functioning (Hultsch et al 1999; Kliegel et al 2004; Wang et al 2002), physical health, and survival (Glass et al, 1999; Menec, 2003). Furthermore a number of evidence based reviews also support a relationship between occupation and health including a review of 22 studies by Law et al., (1998) and a review of selected literature by Creek and Hughes (2008) which concluded that there is a wealth of literature across multiple disciplines that explores the relationship between occupation and health, and that engaging in occupation carries both health benefits and risks. Beyond the relationship between occupation and health two other ideas or themes repeated throughout literature on occupational therapy philosophy are; human occupation changes to meet the demands placed on the individual and occupation can be structured, manipulated and used to remediate occupational dysfunction (McColl, 2003). Occupation-based practice refers to occupational therapy where occupation is used to remediate occupational dysfunction and the term is used to differentiate from other techniques or strategies occupational therapists may use, for example the provision of splints. The evidence base to support occupation-based practice is expanding rapidly. The groundbreaking work of researchers at University of Southern California in the Well Elderly studies clearly identified the health and wellbeing benefits of occupation based occupational therapy for elderly people (Clark et al 1997; Clark et al 2011). The evidence base to support occupational therapy practice in general has also developed in recent years. In 2005 a

summary of systematic reviews of the efficacy of occupational therapy identified fourteen systematic reviews for a variety of populations (rheumatoid arthritis, stroke, elderly people, Parkinson's disease, multiple sclerosis, Huntington's disease, cerebral palsy and mental illness) (Steultjens et al 2005). In the intervening seven years the number of randomised controlled trials of occupational therapy and systematic reviews has increased dramatically. OTSeeker, a database of systematic reviews and randomised controlled trials relevant to occupational therapy has included 51 systematic reviews of occupational therapy since 2005.

Despite the centrality of occupation to occupational therapy philosophy a theory-practice gap developed in the profession resulting in diminished use of occupation or activity as therapy from the 1960's onwards (McLaughlin-Grey 1998). The development of the discipline of occupational science reflects the re-emergence of occupation in occupational therapy in the past 20 years. Occupational Science is an interdisciplinary area of study concerned with the form function and meaning of human occupation (Zemke and Clark 1996). The potential of a discipline that is dedicated to the pursuit of a full understanding of occupation for informing the future development of occupational therapy is vast.

Compounding the theory-practice gap in occupational therapy are challenges with the translation of knowledge to practice. Evidence-based practice (EBP) remains a complex problem across health disciplines. The barriers to EBP identified by occupational therapists across international studies include; lack of time, caseload, limited searching skills, limited appraisal skills, difficulty accessing journals and a perceived lack of evidence to support occupational therapy (Bennett et al 2003; Closs and Lewin 1998; Curtin and Jaramazovic 2001; Metcalfe et al 2001; McCluskey 2003; Dubouloz et al 1999). These challenges are, on the whole, not unique to occupational therapy. It appears that occupational therapists appreciate the benefits of EBP with a number of studies identifying positive attitudes towards EBP (Bennett et al 2003; Humphris et al 2000; Murphy and Robinson 2010). However, the evidence undoubtedly shows that occupational therapists report low levels of knowledge and skill in EBP (McCluskey 2003; Murphy and Robinson 2010) and limited use of EBP to inform practice (Bennett et al 2003; Cameron et al 2005; Curtin and Jaramazovic, 2001). It is also clear from systematic reviews that there are no clear or easy answers in terms of how to best address the problem of EBP implementation across health disciplines (Greenhalgh et al 2004; Grol et al 2007; Oxman et al 1995).

Occupation and Chronic Pain

The occupational consequences of chronic pain are vast. Multiple studies have identified changed activity performance, abandonment of activities, and difficulties completing all categories of activities. Work performance, family and social role fulfilment, community participation, leisure, sexual relations, sleep, and self-care performance are frequently disrupted or altered due to chronic pain (Ambler et al 2001; Atkinson et al 1988; Breivik et al 2006; Flor et al 1987; Harris et al 2003; Menefee et al 2000; Smith and Haythornthwaite 2004; Strunin and Boden 2004; van den Berg-Emons et al 2007).

In 2003, Neville-Jan noted that the available occupational therapy literature places little emphasis on how the person with pain performs and participates in occupations and how such participation is experienced (Neville-Jan 2003). Since then a growing body of qualitative research in occupational therapy has explored and described the complex relationship between occupation and chronic pain (Aegler and Satink 2009; Borell et al 2006; Fisher et al 2006; 2007; Keponen and Kielhofner 2006; Stamm et al 2008). Across multiple disciplines in chronic pain research there is increasing attention to the occupations of people with chronic pain. Improving the physical and social activities of people with chronic pain, rather than cure or alleviation of pain, has become the primary aim of cognitive behavioural therapy (CBT) and multidisciplinary approaches (Hanson and Gerber 1990; Keefe et al 2002; McCracken and Samuel 2007; Williams et al 1996). The importance of improvement in activities as an outcome to patients has also been identified in a number of studies (Casarett et al 2001; Turk et al 2008b).

In chronic pain research there is a growing awareness that activity patterns in people with chronic pain are not determined solely by pain. McCracken and Samuel (2007) describe activity patterns as a product of multiple cognitive, emotional and social factors and not pain alone. Avoidance of activity has been well researched (Vlaeyen and Morley, 2004), however, other activity patterns including; unhealthy high activity levels (Hasenbring et al 2006) task persistence (Jensen et al 1995) and pacing (Gill and Brown 2009; Nielson et al 2001) have all been researched to a limited degree.

Occupational therapy practice with people with chronic pain appears to be heavily influenced by techniques or strategies that aim for longer term occupational performance changes, rather than, intervention through occupation. Interventions such

as CBT, education, stress management and body mechanics are frequently cited in descriptions of occupational therapy practice with people with chronic pain (Brown 2002; Chesney and Borsen 2000; Strong 1996; 2002; Watt-Watson et al 2004). Only a small number of research articles describe occupation-based occupational therapy for people with chronic pain (Henare et al 2003; Persson 1996).

In summary, chronic pain is a major international healthcare problem. Despite multiple chronic pain theories and diverse treatment approaches people with chronic pain continue to experience significant pain and occupational change. A body of knowledge on the occupational consequences of chronic pain exists, the significance of activity improvement as an outcome to people with chronic pain has been established and there is increasing attention to researching the activity-pain relationship. Occupational therapy is concerned with enabling occupational performance. Much evidence attests to a link between occupation and health and strong evidence exists for the efficacy of occupational therapy with various populations. Theoretically occupational therapists are best placed to address the occupational consequences of chronic pain. However, a theory-practice gap has been identified as an issue across the profession and multiple issues exist with the translation of evidence to practice in occupational therapy. This thesis considers the occupational needs of people with chronic pain and attempts to describe the current practice of occupational therapists with this group in order to determine if current practice is adequately meeting the occupational needs of people with chronic pain. Factors influencing the future development of occupational therapy services are considered and recommendations for current practice are made. The main body of work in the thesis is concerned with describing a three year participatory action research (PAR) cycle with a group of Irish and Northern Irish occupational therapists. The PAR cycle aimed to develop occupational therapy services for people with chronic pain in line with the best available evidence. Two final studies in the thesis are concerned with developing the evidence base to support occupational therapy practice with people with chronic pain. An experience sampling study explores the relationship between flow experiences and pain intensity and a qualitative study explores how discourses shape the actions of people with chronic pain. In the following section the thesis as a whole is described in brief.

Thesis Outline

This thesis is presented in a research paper based format. Four of the chapters have been peer reviewed and accepted for publication. I have made some formatting changes in order to aid presentation and readability of the thesis. Figures and tables are presented in the chapters and are numbered according to the papers and references are presented in the chapters.

Research Aims

The overall aim of this thesis is to explore the relationship between occupation and chronic pain, augment the evidence available to occupational therapists working with people with chronic pain, and to develop occupational therapy services for people with chronic pain in Ireland in line with the best available research evidence. To address this overall aim the nature of current occupational therapy practice with people with chronic pain is considered, the evidence to support occupational therapy practice with people with chronic pain is explored, and the factors shaping the future of occupational therapy services for people with chronic pain are considered. The relationship between occupation and pain is explored, specifically the relationship between flow experiences and pain, and the way in which dominant cultural discourses shape the occupations of people with chronic pain. Finally, how occupational therapists can change practice in line with evidence and the philosophy of the profession is explored.

The specific aims of each research paper were:

Paper I To comment on the extent to which occupational therapy services, as described in the available literature, are meeting the occupational needs of people with chronic pain.

Paper II To identify factors shaping the future of occupational therapy for people with chronic pain.

- Paper III** To describe a participatory action research (PAR) cycle undertaken by an all-Ireland group of occupational therapists working with people with chronic pain which sought to develop the knowledge, skill, and competence of the participants in vocational rehabilitation.
- Paper IV** To describe the current practice of occupational therapists working with people with chronic pain in Ireland.
- Paper V** To identify key principles for occupational therapists in addressing the vocational needs of people with musculoskeletal disorders (this paper is part of the outcomes of the process described in paper III).
- Paper VI** To synthesise evidence from the field of positive psychology on the relationship between occupation and happiness/subjective well-being.
- Paper VII** To describe the flow experience of a sample of people with chronic pain.
- Paper VIII** To describe the discourses in use by people with chronic pain and how these discourses shape behaviour.

Paper I is a discussion piece that explores if the current published evidence indicates that occupational therapists are meeting the occupational needs of people with chronic pain. This paper concludes with a call to action for occupational therapist's urging them to research the efficacy of occupation-based interventions and to become expert in the judicious use of evidence to inform practice.

Paper II critically analyses occupational therapy services for people with chronic pain using causal layered analysis, a post-structural critical futures methodology. This analysis reveals three significant factors shaping the future development of occupational therapy services for people with chronic pain: the influence of the biopsychosocial model within health-care services for people with chronic pain, occupational therapy philosophy, and the social construction of people with chronic pain.

Papers III, IV and V are based on a participatory action research (PAR) study undertaken by the researcher with a national group of occupational therapists who work with people with chronic pain in Ireland. The researcher facilitated these participants to move through a participatory action research cycle in order to reflect on and develop their practice. This research design involved working with occupational therapists to identify the inadequacies of current practice and developing an action plan to address these limitations of current practice. The action plan was focused on taking action to more fully address the vocational needs of clients. This action plan was then implemented by the participants and evaluated. A six stage approach was taken to delineating the problem, choosing appropriate action for participants to take, deciding how to evaluate the effectiveness of the changes made, taking action and evaluating the outcomes.

Paper VI synthesises evidence from the field of happiness studies within the discipline of positive psychology. Studies on the relationship between happiness (subjective well-being) and occupation are reviewed under thematic areas. This narrative style review highlights the centrality of occupation to human well-being. The thematic areas of research reviewed include: work, volunteering, flow and goals. This chapter provides evidence for occupation-based practice, although the findings are not specific to chronic pain.

Paper VII presents the findings of an experience sampling methodology (ESM) study of the flow experiences of a sample of people with chronic pain. This study revealed that flow was an optimal psychological experience for participants and there was a trend towards lower pain intensity while participants were in flow. Thus, this study offers support for occupation-based interventions for people with chronic pain and offers a new insight into the relationship between occupation and chronic pain.

In **paper VIII** a qualitative in-depth interview based discourse analysis study of the discourses influencing the occupations of people with chronic pain is presented. This study identified three discourses within participant's accounts; a moral discourse, a discourse of pain as personal tragedy and a biomedical discourse. These findings challenge the hegemonic view of the behaviour of people with chronic pain that exists

within healthcare services and offer a new perspective on the occupations of people with chronic pain by presenting their occupations as determined by dominant cultural discourses. These findings illuminate the powerful role of cultural influences on occupation.

Table 1 outlines the design of each paper and Table 2 presents an overview of the results of each paper. The common threads throughout these papers are critical analysis of current occupational therapy services for people with chronic pain, generation of evidence to inform occupational therapy practice with people with chronic pain and development of occupational therapy services for people with chronic pain in line with the available evidence and the philosophy of occupational therapy.

	Paper I	Paper II	Paper III	Paper IV	Paper V	Paper VI	Paper VII	Paper VIII
Design	Discussion/ Commentary	Exploratory Review	Participatory action research	Exploratory	Exploratory review/ commentary	Review and synthesis	Experimental	Exploratory
Data Collection	Documentary	Documentary	Interviews, activity log, e- mails and meeting minutes	In-depth interviews	Documentary	Documentary	Experience sampling methodology & electronic survey	In-depth interviews
Number of participants	N/A	N/A	8	8	N/A	N/A	30	5
Time of data collection	2007-8	2007-8	2008-2011	2009	2009-2010	2009	2007	2007
Data analysis	N/A	Causal Layered Analysis	Thematic analysis	Thematic analysis	N/A	Narrative style literature review	Descriptive statistics, ANOVA's and χ^2 analysis	Foucauldian discourse analysis

Table 1. The design of papers I-VIII

	Paper I	Paper II	Paper III	Paper IV	Paper V	Paper VI	Paper VII	Paper VIII
Aim	To comment on the extent to which occupational therapy services, as described in the available literature, are meeting the occupational needs of people with chronic pain.	To identify factors shaping the future of occupational therapy for people with chronic pain	To describe a PAR cycle undertaken by occupational therapists working with people with chronic pain in Ireland.	To describe the current practice of occupational therapists working with people with chronic pain in Ireland.	To identify key principles for occupational therapists in addressing the vocational needs of people with musculoskeletal disorders	To synthesise evidence from the field of positive psychology on the relationship between occupation and happiness/subjective well-being	To describe the flow experiences of a sample of people with chronic pain.	To describe the discourses in use by people with chronic pain and how these discourses shape occupation.
Main results	Three problems with the evidence base to support occupational therapy practice with people with chronic pain were identified: (1) A paucity of evidence for occupation-based practice (2) The use of inappropriate evidence to guide practice (3)The underuse of relevant evidence for occupation-based practice	Three significant factors shaping the future of occupational therapy services for people with chronic pain were identified: (1)The influence of the biopsychosocial model of healthcare. (2) The dualistic nature of occupational therapy philosophy. (3) The social construction of people with	The findings showed that addressing client's vocational needs was the greatest challenge faced by participants. The PAR process enabled participants to take multiple actions to address this problem including the development of a VR handbook. Participants described a positive experience of	Five themes were identified; (1)healthcare context, (2) holistic assessment, (3) enabling participation in activities, (4) strategies for managing pain, (5)eclectic theoretical approaches, (6)professional issues and challenges in practice. The core focus of the intervention described by	This paper recommends that in addressing the vocational needs of clients with musculoskeletal disorders occupational therapists should: be proactive, intervene early, connect intervention to the workplace, communicate with the employer and adopt a holistic approach.	The reviewed literature support: (1)The centrality of occupation to theories of happiness, particularly the eudaimonic perspective. (2)Flow theory is congruent with a eudaimonic perspective of happiness and the experience of flow leads to multiple benefits. (3)Work, volunteering, personal goals, faith in	Participants experienced flow 34.9%, Apathy 44.6%; Relaxation 11.6%; Anxiety 8.9% of the sampled time. Participants mean concentration, self-esteem, motivation, and potency scores were significantly highest in the flow state. Mean pain intensity was lowest in flow and highest in apathy, however	Three discourses were identified; a moral discourse, a discourse of pain as personal tragedy and a biomedical discourse. Practices to address the doubting of others support a moral discourse. The discourse of chronic pain as personal tragedy closes down opportunities for action. Participants rejected a

chronic pain	participation and identified the group format as supportive for learning and change. The process led to radiating changes in practice and participants described feeling more confident and competent and identified behaviour change in vocational rehabilitation and EBP after engaging in the process.	participants was enabling participation in activities. This was achieved through; a sophisticated understanding of how chronic pain affects activity performance, the use of activity as therapy, goal setting and the use of strategies such as pacing.	supernatural order and relationships are related to human happiness	was not significantly different across the four states. Participants were most commonly at home, doing self-care activities, alone or with family. A significant relationship between location and flow state and between activity and flow state was found.	biomedical discourse and resisted the patient subject-position.
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Table 2. Overview of the results of papers I-VIII.

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Paper I

Robinson, K., Kennedy, N. and Harmon, D. (2011). Is Occupational Therapy Adequately Meeting the Needs of People With Chronic Pain? *The American Journal of Occupational Therapy*, 65(1), 106-113.

Paper II

Robinson, K., Kennedy, N. and Harmon, D. (2011).
Review of occupational therapy for people with chronic
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Paper III

Robinson, K., Kennedy, N. and Harmon, D. Developing Occupational Therapy Services for People with Chronic Pain through Participatory Action Research: An all-Ireland Study (*Manuscript*).

Abstract

Introduction

Despite the proven benefits of evidence based practice (EBP), effective translation of knowledge to practice across the health professions remains a challenge with no easy solutions.

Method

A Participatory Action Research cycle was undertaken by a group of nine Irish and Northern Irish occupational therapists to develop occupational therapy services for people with chronic pain. Moving through six stages over a period of 33 months the group took multiple actions to develop the vocational rehabilitation services they were offering clients. Data collected through the process included; two rounds of in-depth qualitative interviews (17 in total), reflective notes, a log of activities, minutes from 19 teleconferences, field-notes from three workshops, and 1316 e-mails sent between participants. All data were entered into NVivo (v9) and analysed thematically to describe the six stage process, the outcomes, and learning generated from the process.

Results

The PAR process enabled participants to take multiple actions including the development of a handbook to guide vocational rehabilitation with people with chronic pain. Participants described a positive experience of participation in the PAR process, the development of a network of personal and professional relationships, and identified the group format as supportive for learning and change. Moving through the PAR process led to radiating changes in practice, changes for colleagues, managers and clients, and generated multiple off-shoots and new questions. Participants described feeling more confident and competent and identified behaviour change in vocational rehabilitation and EBP after engaging in the process.

Conclusions

The findings of this study reveal how a participatory process has the potential to enact occupation-based practice and translate evidence to practice.

Key words: Participatory Action Research, Occupational Therapy, Chronic Pain, Vocational Rehabilitation, Evidence-Based Practice, Knowledge Translation

Introduction

The prevalence of chronic pain in Ireland has been identified as 35.5% (Raftery et al 2011), and a prevalence rate of 45% was found in primary care populations in the United Kingdom (Elliott et al 1999). The UK Chief Medical Officer Liam Donaldson (2009) highlighted that despite the fact that chronic pain is a vast healthcare problem in the United Kingdom local pain services are “very thinly spread around the country and the design and level of integration varies widely” (p.37). In reference to primary care services for people with chronic pain, he noted that anecdotal evidence suggests there is “significant hidden demand within communities”. Similarly, in Ireland, there have been calls for a national strategy to tackle the lack of appropriate services for people with chronic pain (Fullen et al 2006).

Chronic pain has profound effects on occupational performance as evidenced by growing body of qualitative research (Aegler and Satink 2009; Codd et al 2010; Borell et al 2006; Fisher et al 2006; Fisher et al 2007; Keponen and Kielhofner 2006; Klinger et al 1999; Neville-Jan 2003; Silva et al 2011, Stamm et al 2008). Although occupational therapy has a unique role to play in working with people with chronic pain to enable occupational performance, as with other areas of clinical practice a potential theory-practice gap has been identified (Robinson et al 2011).

Literature Review

The benefits of evidence-based practice (EBP) for clients, families and healthcare organisations have been expounded for years. Yet, despite the proven benefits, the implementation of EBP and the effective translation of knowledge to practice across the health professions remains a challenge with no easy solutions (Greenhalgh et al 2004; Grol et al 2007; Oxman et al 1995). The concept of knowledge translation and various associated models have been proposed to improve the application of evidence to professional practice (Lencucha et al 2007; Metzler and Metz 2010). Knowledge translation is concerned with the exchange, synthesis and application of evidence to enable the benefits of research for patients (Canadian Institutes of Health Research).

A systematic review of studies evaluating the effects of standalone versus clinically integrated teaching in evidence based medicine found that standalone teaching improved knowledge but not attitudes, skills or behaviour. Whereas,

clinically integrated teaching, improved knowledge, skills, attitudes and behaviour (Coomarasamy and Khan 2004), leading the authors to conclude that EBP education needs to move out of the classroom and into the clinic. The five studies of clinically integrated teaching in this systematic review (Bradley et al 2002; Grad et al 2001; Haines and Nicholas 2003; Khan et al 1999; McGinn et al 2002), evaluated education based on questions generated from participant's clinical practice. Coomarasamy and Khan (2004) stress the benefits of clinically integrated education where; questions arise from the learners identification of a real clinical problem, learners are actively involved in seeking information, knowledge and skills are learnt while solving real problems, acquired knowledge is practically applied and barriers to use are identified and addressed. A lack of behaviour change following education on EBP has also been identified in a before-after study of education on EBP with sample occupational therapists (McCluskey and Lovarini 2005). The intervention included a two day workshop combined with outreach support (e-mail and telephone contact and a workplace visit) for eight months, findings revealed significant changes in knowledge post workshop and at follow up, however behaviour changed little (frequency of searching and appraising activities).

It is clear that traditional approaches to EBP education have not been successful. A systematic review of 102 trials of interventions to improve professional practice (Oxman et al 1995) found that dissemination-only strategies had little effect on behaviour, whereas, more complex interventions such as outreach visits or local opinion leaders were most often moderately effective. Oxman et al (1995) concluded that there are no 'magic bullets' for improving the quality of healthcare.

The late Gary Kielhofner articulated his vision for a 'scholarship of practice' to address the theory-practice gap in occupational therapy (Kielhofner 2005). Kielhofner discusses the influence of technical rationality on this gap with its emphasis on scientific knowledge, distancing of academics and practitioners and assumption that theoretical knowledge contains the necessary information for practice. Kielhofner (2005) proposed that engaged scholarship with a participatory approach to knowledge generation has the potential to address this gap and identified PAR as an appropriate methodology for working with practitioners. A number of other occupational therapists have identified the potential valuable contribution of a participatory approach to occupational therapy knowledge. Letts (2003) identified conceptual links between client-centred practice, occupation-based occupational

therapy and participatory action research. The participatory nature of PAR aims to empower those involved in the process; therefore the appropriateness of this approach for work with marginalised and disempowered groups has been identified by many. The work of Paulo Freire with people living in poverty in Brazil typifies this approach. A number of examples of PAR research involving occupational therapists and service users or clients exist (Taylor et al 2004; Bryant et al 2010; Bryant et al 2011; Paul-Ward et al 2005; Kielhofner et al 2004).

A number of occupational therapists have described the use of an action research or PAR process when working with occupational therapists to achieve change in clinical practice or academic practice (Mattingly and Gillette 1991; Roth and Esdaile 1999). Wilding has reported on the findings of an action research project with a group of occupational therapists working in a large metropolitan hospital in Melbourne where AR enabled participants to use language more effectively to promote the unique contribution that occupational therapy has to make (Wilding and Whiteford 2007; 2008; 2009; Wilding 2011). PAR was used by Mattingly and Fleming (1994) in their seminal study of the clinical reasoning of occupational therapists.

The present study describes a PAR process undertaken by an all-Ireland group of occupational therapists working in chronic pain services. In September 2008 a special interest group with, ultimately, nine occupational therapists was formed. The aim of this paper is to describe the PAR process, the outcomes of the process, and the learning generated through the process.

Method

Background and Context

In the summer of 2008 a special interest group of occupational therapists working with people with chronic pain was formed. The initial impetus for establishing the group came from an occupational therapist working with people with chronic pain in Dublin who contacted the first author who was researching chronic pain for her doctoral studies. From this discussion a shared interest in developing a special interest group was identified. The first author's motivation was driven by a desire to connect her learning with occupational therapy practice. From this initial conversation contact was made with a number of other occupational therapists working with people with chronic pain in Ireland. The first teleconference was held in

September 2008 and further members were recruited through formal and informal means. The group titled themselves the Alliance of Irish Occupational Therapists working in Chronic Pain (AIOTCP). During early meetings the group decided their primary aim; to engage in collaborative research projects to strengthen the evidence base available to occupational therapists working with people with chronic pain and to develop occupational therapy services for people with chronic pain in the Republic and Northern Ireland. This group met via teleconferences over the following three years and continue to meet today. The decision to utilise PAR to guide the research process was made by the group collectively. The PAR cycle undertaken by this group must be understood in terms of the rapidly changing context within which it occurred. Over the course of this process an international and severe recession in the Republic of Ireland led to public sector wage cuts, pension levies, and a recruitment moratorium within the public health care sector. In day-to-day terms for participants this led to changes including; difficulty attending education events, little financial support for education, reduced pay, and severe staff shortages.

Research Design

The research design is Participatory Action research (PAR). The design was decided by the group and responded to their identified aims of both participation and action; to complete research together and to develop occupational therapy practice with people with chronic pain. This approach was inherently suited to addressing the group aims given the focus of PAR on taking action to address practical problems faced by individuals and communities and from this action and subsequent reflection creating relevant knowledge (research). AR is defined as “a participatory process concerned with developing practical knowledge in the pursuit of worthwhile human purposes. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities” (Resaon and Bradbury 2008, p.4). Gergen and Gergen describe the action orientation of PAR when they note that rather than ‘mapping the world’ the action researcher is engaged in ‘world making’ (2008, p.197). As denoted by the use of the term ‘participatory’ in the title PAR is not done to or on someone, it is performed ‘with’ participants in partnership with researchers therefore, an egalitarian approach to power in the research process is required (Lingard et al 2008).

Within the ‘family’ of action research major divisions can be identified and different terms are used, sometimes interchangeably. McNiff and Whitehead (2011) distinguish two groupings; a group concerned with a researcher reporting on what others are doing commonly referred to as interpretative AR and a second grouping where the researcher is concerned with explaining what he/she is doing often described as living theory AR. The design of this study is in keeping with second-person AR or interpretative AR.

The aims of PAR are achieved through a cyclical process of exploration, knowledge construction, and action at different points throughout the process. McIntyre (2008) described PAR as a ‘braided’ approach of exploration, reflection and action. This description emphasises the non-linearity of the process. The six stages of a PAR process as described by Taylor, Braverman and Hammel (2004) were used to structure and describe the overall process; delineating the problem, choosing action, design and assessment, engaging in action, gathering data and reflexive knowledge (see Figure 1).

Data Collection

The PAR process began in September 2008 and is described until June 2011 (33 months). Data included in this paper to describe the process are; a log of activities, minute’s from 19 teleconferences (1-2 hours in length), field-notes from three full-day workshops, 1329 e-mails sent between participants and 17 in-depth interviews. During stage one and stage five in-depth qualitative interviews of 1-1 ½ hours were completed with all participants by an independent researcher. Written reflections from participants for a conference presentation on their experiences of the PAR process and written reflections collected at stage two are also included. All data were entered into NVivo9 and analysed thematically. Detailed in Figure 2 is a timeline of the overall process which indicates the dates of key events and the PAR process stages. Table 1 outlines the dates of teleconferences, workshops and key events and the numbers of participants at each, and, in Table 2 the number of e-mails sent by each participant to the whole group/ the first author is illustrated.

Data Analysis

The in-depth interviews at stage one were member checked and analysed thematically by all participants. The in-depth interviews at stage five were member

checked by all participants, analysed thematically by the first author and the analysis was validated by all participants. The remaining data was analysed thematically by the first author. Thematic analysis situated within an essentialist/realist epistemology was used for all data analysis. Thematic analysis is a theoretically flexible approach which can potentially provide a rich and detailed, yet complex, account of the data (Braun and Clark 2006). An inductive approach to analysis was undertaken with themes identified that linked strongly to the data (Patton 1990). The six stage guide to thematic analysis described by Braun and Clark (2006) was adhered to. The first phase was a process of familiarisation with the data through repeated reading. Initial codes were identified in phase two and sorted into potential themes in the third phase. In the fourth stage all themes were reviewed and discussed by the first and second author (NK) to ensure all themes had internal homogeneity and external heterogeneity as described by Patton (1990). In the fifth phase themes were named and defined.

Ethical Issues

Ethical considerations delineated by PAR research described by McIntyre (2008) were attended to. The first author sought to be trustworthy in her efforts to give primacy to participant's goals, to be fair, just, and willing to relinquish her agendas if they conflicted with participants desires. The research group together applied for ethical approval for the qualitative in-depth interviews at stage one and stage five. Ethical approval was granted from the University of Limerick Research Ethics Committee. All participants consented to the data for inclusion in this paper. All participants read and approved all posters, conference presentations, and papers arising from the study.

Rigour

Criteria of quality in qualitative interviewing and thematic analysis were considered in the completion and analysis of the in-depth interviews (King and Horrocks 2009; Braun and Clark 2006). All interviews were member checked by participants. A number of quality criteria described by Viswanathan et al (2004) were adhered to throughout the PAR process and are considered in the discussion of limitations of the project. In presenting the findings of this process examples of the following quality criteria (Viswanathan et al 2004) are included; the duration and nature of community involvement, evidence of shared decision making, evidence that

the study was designed to remove prior barriers to research participation, evidence that the researcher was flexible to community needs and priorities, and evidence that the research effort contributed to individual or community capacity building.

PAR ideologically fits within a relativist ontology, therefore, there is an appreciation that multiple realities are co-constructed and thus truth has to be respected from each individual's own perspective (Savin-Baden and Wimpenny 2007). The account presented here is informed by the perspectives of all participants; however, it is necessarily the first authors' (KR) attempt to accurately portray the process. In order to attend to this issue a reflective diary and discussions with supervisors were used to aid critical reflexivity and critical awareness.

Participants

Throughout this paper the term 'participant' is used to refer to all who took part in the PAR cycle; the eight occupational therapists working in clinical practice and the first author, an academic with previous experience of working with people with chronic pain. Table 3 describes participants and Figure 3 illustrates the locations of participants across Ireland; pseudonyms are used to protect participant anonymity.

Results

In the reporting of quotes IS1 refers to in-depth interviews completed at stage one and IS5 refers to in-depth interviews completed at stage 5 of the process.

Step 1: Delineating the Problem

The group was initiated in 2008 by contact between three participants (Rachel, Simone and Joanne).

"I suppose agenda items would include: Introduction to one another, Possibility of starting up a special interest type group, Aims of such a group...." (Email from Joanne to Simone and Rachel 12.8.2008)

Throughout the process participants cited different motivations and reasons for establishing or joining the group.

"So I got involved in the group I suppose from a learning perspective to try and improve the service that we were offering here to our clients with chronic pain" (Jenny IS1).

Early meetings considered a number of potential group aims and functions including; shared continuing professional development, promotion of the role of occupational therapy in pain management, advocacy, discussion of developments in practice, development of standards of practice, to identify training and education needs and develop strategies to meet those needs and to encourage and support research relevant to pain. At a meeting in October 2009 the group agreed their primary aim would be to do collaborative research to strengthen the available evidence base for occupational therapists working with people with chronic pain and to develop the occupational therapy services for people with chronic pain in the Republic and Northern Ireland.

“we eventually then decided that we’d have a, you know, a research focus but yeah so then that’s how the PAR project evolved was through discussion” (Louise IS5).

The group agreed that the other goals (e.g. developing practice) would be achieved through successfully meeting the primary aim. Thus, the decision to do research together evolved naturally in response to participant’s needs. At various points in the process other group functions were agreed, for example the inclusion of a journal club in some teleconferences. Further group functions emerged naturally for example, the sharing of information.

“Each member will present a number (1-3) of research ideas that the group could potentially work on together at the next teleconference” (Meeting minutes 7.10.2008).

Initial potential research areas and research project ideas were diverse and included; “research on mindfulness based interventions and functional outcomes, evaluation of occupational therapy as part of a pain management programme (PMP), evaluation of client’s experiences of occupational therapy and changes in occupational performance, describing current practice, the use of video in occupational therapy for feedback on function, and case studies describing current practice” (Meeting minutes 25.11.2008).

The group decided to start with rigorously describing their practice with people with chronic pain and the challenges they faced in practice through qualitative in-depth interviews and to base future research on the findings of this study. The first author suggested that PAR might be a useful way of achieving this aim and structuring the process. In March 2009 the group agreed to proceed with PAR as the research design. The group agreed to recruit an independent researcher to complete

the interviews to ensure confidentiality and honesty. An action plan was developed for March 2009 to August 2009 to generate an interview schedule, recruit an interviewer and apply for ethical approval for the study. Within this stage of the PAR cycle multiple mini cycles were completed as the group discussed, questioned and reflected on the research design, developed the interview schedule and planned for data analysis. During this process the participants identified that the findings would record their practice to both communicate it to others and also to identify common issues faced in practice. The interviews were semi-structured, the interview guide focused on describing practice, context of services and challenges faced in practice. Interviews ranged in length from 1 to 2 hours.

“a person who came out and interviewed us like you are for us now ... we spoke freely about our practice and the areas that we felt were good or needing improvement or lacking due to resources or whatever it might have been”
(Niamh, IS5)

All participants member-checked their transcribed interview for correctness of transcription and content. Only minor amendments were reported.

The first author worked with participants in analysing the interviews thematically. None of the group had previous experience of qualitative analysis. A paper detailing the process of thematic analysis was circulated (Braun and Clark, 2006) along with excerpts from an interview with codes attached, see example in Table 4. Each participant analysed two transcripts and met with the first author to discuss and agree the coding. From this initial findings were identified. Analysis revealed that participants practice was shaped by the healthcare context (secondary care) and by the multidisciplinary team. Therapists described a holistic approach to assessments where all aspects of activity performance are considered. The core focus of the intervention described by participants was enabling participation in activities. This was achieved through an appreciation of the complex relationship between chronic pain and activity, the use of activity as therapy, goal setting and the use of strategies such as pacing. A number of theoretical approaches guiding practice were identified by participants including the biopsychosocial model, adult education theory and client-centred practice. The first author compiled a list of all identified problems /challenges reported throughout the interviews alongside all quotes (anonymous) referring to that problem/challenge and circulated it to the group for discussion at a teleconference (9.3.2010). The five most common problems were:

1. Difficulties with the current structure of services were identified. Most services were based in acute hospitals with long waiting lists for services. The need for expanded community based service and better follow –up services was identified.
2. The structured nature of pain management programmes (PMP’s) led to difficulties in being client-centred and offering an individualised service.
3. Difficulties enacting occupation-based practice because of limited resources, time, skills and a perceived lack of evidence to support occupation-based interventions.

“I would like to put more status in the activity side of occupational therapy I mean I am saying it but I am not even doing it the way I would like to be doing it as well” (Niamh IS1)

4. Participants recognised the need to enhance and develop their knowledge and skills in vocational assessment and intervention to address their clients work needs comprehensively.

“one thing I would definitely say is work, OK, you know they are really stuck there ... being an occupational therapist work is one of the important areas where we have to do an assessment and not doing that assessment, what we are doing is getting others to do it, so we are not doing an environment assessment with the patient, we are not doing a work assessment with the patient, which is one of the main important lack I would definitely say” (Sarah IS1).

5. A number of difficulties in terms of evidence based practice were identified including; lack of efficacy studies for occupational therapy and difficulties accessing, reading and using published evidence to inform practice.

“Yeah and I think just to have more of an evidence base because I definitely feel that’s lacking” (Joanne IS1).

The findings of the in-depth interviews were subsequently presented at conference presentations by various participants and one participant worked with the first author over a period of nine months to refine the analysis and prepare a journal article based on the findings of the interviews (presented in this thesis in paper IV).

Step 2. Choosing Action

The second step involved choosing an action oriented solution. All five identified challenges were discussed at a teleconference (9.3.2010) and were reduced to three key problems initially.

“Discussion⁺ held on main problem areas identified and on which problem(s) would best require attention as part of the action research project. Post collaboration group members agreed that the areas of: (1) client’s vocational / work needs, (2) occupation-based practice, (3) development of community-based practice are problem areas which would all fulfil highly relevant areas worth exploring. *Note: It was agreed that the exploration of Evidence-Based Practice would cross all of the problem areas” (Meeting minutes 9.3.2010).

At a subsequent teleconference these were discussed and a process of negotiation was undertaken to agree one problem to address. The group agreed to take action to address client’s vocational needs and it was acknowledged that this action would inevitably lead to changes in occupation-based practice and evidence based practice.

“we had further meetings and clarified that we were going to be as well as other things that we were going to look at vocational rehab and that whole question of how people with chronic pain are dealing with loss of work roles etc., we were going to look at that as an area of our practice to improve upon and that was something that was highlighted from the interviews” (Joanne IS5)

To determine an exact action plan a workshop was planned with presentations from all group members on various topics including; the relationship between work, health and wellbeing, the occupational nature of work, the history of vocational rehabilitation (VR), and models of VR, and an introduction to levels of evidence and EBP. The workshop concluded with a two hour interactive action planning session where the group brainstormed gaps in their knowledge and skills in relation to meeting clients vocational needs and negotiated actions to take in practice. The group agreed to develop a handbook for occupational therapists working with people with chronic pain to guide vocational rehabilitation. Each handbook section would be prepared by a sub-team and the handbook sections would be presented to all at a subsequent workshop (16.9.2010).

“We had a workshop in April 2010 and we presented to each other different aspects about how work is important for health and what are OT’s doing in

terms of vocational rehab and we kind of spent that whole day identifying what are the gaps in our knowledge and skills. And from that we decided that we had knowledge gaps around assessment, intervention, what services are available, what community resources available, what the benefits in legislation structure are so kind of across all spheres people, different people had different gaps in their knowledge” (Rachel IS5).

Step 3. Design and Assessment

The group at this stage choose the research methodology, data collection strategy, measures, and approach to data analysis to measure the efficacy of the action taken. The group considered various means of measuring the efficacy of the chosen action.

“(1) Measurement of patient outcome before and after developments in service provision, for example return to work rates, (2) Describe client’s experiences of occupational therapy following developments in service delivery through qualitative case study research.(3) Describing (qualitatively) changes in therapists practice.” (Minutes of workshop 29.4.2010)

The design was not decided at this stage (29.4.2010) however the group drafted a questionnaire to record “individual reflections on our current knowledge/skills and attitudes around VR. We decided to do this in order to document the changes in practice that will occur as part of this project.” (Workshop minutes 29.4.2010). This questionnaire and the discussions at the workshop in April 2010 highlighted many gaps in participant’s knowledge and skills in VR.

“I feel happy about the advice and support I give to clients to help them stay in work but lacking in skills to help people get back to work particularly when they lack desire/interest/motivation. I don’t know how successful my input to date is as it is not measured. Our current approach is to educate and signpost” (Reflective questionnaire anonymous Stage 2).

Yes, VR comes within the role of OT as it is us who looks at ‘occupation’, ‘productivity’. I feel no other profession are better suited to look at this closely with the client. Do I know enough to assess and offer VR interventions? No not enough. (Reflective questionnaire anonymous Stage 2).

The options for assessing the outcomes of the process were revisited a number of times and at the second workshop (16.9.2010) it was decided to that given the aim

was to enable therapists to address client's vocational needs that evaluation of therapist's experiences was most appropriate. The group planned and applied for ethical approval to complete in-depth interviews with the group members, again with an independent interviewer. The interview schedule was generated and focused on changes in practice and participants experiences of the PAR process.

Step 4. Engaging in Action

At this stage many different actions were undertaken. Much activity focused on sourcing and appraising content for the handbook. Various parts of the handbook were presented to the whole group at teleconferences before the whole document was presented at the second workshop (16.9.2010) which led to further editing of the handbook in response to feedback.

“Rachel, Sarah and Simone have commenced work on the assessment section. It will include:

- Introduction
- Assessment of the Person
- Assessment of Occupation/Activity
- Assessment of the Environment

Suggestions from the group: Work environment Ax [assessment] should include ergonomic Ax of work station. Sarah reports the Work Environment Impact Scale may be useful. Joanne mentioned a work site Ax form she uses and also the Roy Matheson company website and recent “White paper” on ergonomic Ax (Joanne to circulate to all). Niamh and Joanne may have useful case studies to illustrate the assessment of person, occupation and environment.” (Meeting minutes 22.6.2010).

The final draft of the handbook was circulated and agreed by all at a teleconference (21.4.11). The handbook table of contents are outlined in Table 5. This handbook reviews the evidence on work and well-being related to chronic pain and the evidence for vocational rehabilitation interventions. In the handbook it is stressed that throughout the VR process occupational therapists utilise their specialised knowledge of the complex relationship between occupation, health and wellbeing and their knowledge of the therapeutic power of occupation (Pierce 2001). The Person Occupation Environment model (Law et al 1996) is used in the handbook as a

framework for assessment. The handbook identifies a number of key principles for occupational therapy intervention with people at risk of or experiencing work related disability. For example the handbook identifies the need to adopt a holistic approach in working with clients with musculoskeletal disorders given the high rates of mental illness among this group (McGee and Ashby 2010; Moussavi et al 2007; Katon et al 2007; Stang et al 2006; Munce et al 2007; Schmitz et al 2007; Dewa et al 2007) and the complex interplay between physical and psychosocial factors in work related disability (Gallagher et al 1995; Turk and Okifuji 1996; Waddell et al 1984; DeCroon et al 2004). In this thesis paper V describes the handbook content relating to principles to guide VR intervention.

Subsequent action included a third workshop where the final version of the handbook content was presented. This workshop was advertised nationally and was attended by 40 occupational therapists. Action is ongoing at present to print and disseminate the handbook. This process has included negotiations with the Association of Occupational Therapists of Ireland to endorse and distribute the handbook. Alongside the action taken to develop the VR handbook multiple other actions occurred. Action was taken by participants to make changes in their practice in response to what they were reading and learning about VR and EBP. Also, as the group moved through the PAR cycle multiple actions were taken to disseminate the group activities, mainly, through presentations at conferences. Many other spin off activities were undertaken as mini question, plan, reflect, and act cycles were completed for example co-teaching on a Pain MSc. program, e-mailing article authors for clarification on issues arising from their publications and participation as advisors on a national health care initiative on musculoskeletal disorders. These actions and their outcomes are described in the thematic analysis of the interviews completed at stage six.

Step 5. Data Collection

At this stage data are collected and analysed as per the design agreed at step three. In March 2011 in-depth interviews were completed with all participants at their worksites with an independent researcher. One interview was completed by telephone and one was completed by Skype due to distance. The group again applied for ethical approval to complete the interviews together and developed the interview schedule through negotiation. The interview schedule focused on the outcomes and changes as

a result of the PAR process for participants, clients and services and the participant's experience of participating in the process. All interviews lasted between 40 and 90 minutes in length and were transcribed in full. Data was entered into NVivo 9 and analysed thematically following a similar process to the analysis of interviews at stage 2 of the process. The analysis was completed by the first author and at a teleconference (14.7.2011) a summary of findings was presented to the group for their validation. The main findings were agreed by participants and are described in stage 6. The six stage PAR process has ended as of mid 2011 but it is no longer needed as a framework for the actions of this group. The action and change within the group has become self-sustaining and the PAR process is no longer required to shape this process. Multiple plans, ideas and aspirations have been developed that will drive future action and learning.

Step 6. Reflexive Knowledge

The final step involves reflecting on the action process and results achieved. The interviews completed at stage 5, reflective comments circulated between group members for conference presentations and the reflective sheets completed after the first workshop were analysed thematically by the first author to represent the learning generated by this process. The five identified themes were; participation, group experience, changes in occupational therapy practice, evidence-based practice and research changes, and, radiating effects of taking action.

Participation.

A positive experience of participation in the PAR process to address clients VR needs, participation in disseminating the PAR process and participating in an academic-practice partnership was described.

“so reflecting on it I really enjoyed it, I thought it was a great way to change practice doing it in a very collaborative way, you're participating as well so you're like co-researchers which is really good.” (Simone IS5).

Hundreds of examples of participation were identified in the data including; taking part in teleconferences, interviews, one to one meetings, preparing ethics applications and interview schedules, coding interviews, and synthesising qualitative findings, preparing posters/conference presentations/ manuscripts, researching evidence on VR,

appraising studies and assessments related to VR, writing subsections of the VR handbook, and giving feedback on other's work.

“then once we had the transcripts of the interviews we helped code the transcripts” (Joanne IS5).

Participation varied across the 33 month process for various personal and work-related reasons. Both the first author and a number of participants identified her as leading the process or driving the process at times. However, multiple instances of decisions being made by group members other than the first author were identified. For example Joanne suggested including a journal club in teleconferences in May 2009 and that became part of the agenda for a number of teleconferences subsequently.

“I felt maybe sometimes people were deferring too much to me to make decisions you know and were sort of being too respectful of me rather than sort of respecting the expertise that they had ... and at different times people in the group definitely made decisions that wouldn't have been exactly what I would have gone for but it was like a group decision, that was what the consensus was around and so as much as possible I tried to let go of the power and not sort of take control of the group and encourage everybody to be involved and to participate and yet respect when people didn't want to be too involved or didn't have the time to be too involved” (Rachel IS5).

One group member developed a role grid to aid teleconferencing and participation by all. In this grid the roles of chairperson, secretary, and timekeeper for each teleconference were mapped out. This was identified by a number of participants as useful to aid participation. Participation in an academic-practice partnership was described as useful for both parties. The first author identified struggling to minimise her leadership, however, others commented positively on her role as a leader at certain stages of the process.

Group experience.

Participants described the development of a network of personal and professional relationships through participation in the group. Participants described experiencing the group as friendly and open, and described other group members as helpful, eager to share resources and information, supportive, motivating and encouraging.

“No the experience was very positive, very collaborative, very informative, the sharing of ideas was huge for me in terms of you know not feeling isolated in clinical practice” (Louise IS5).

Participants described a positive experience of feeling validated by the similar difficulties faced in practice in others, similar gaps in knowledge and skills and reassurance that their experiences were not unique.

“I think it was overall I think very, very positive in terms of validating what I was doing and validating a lot of what I’d been thinking in relation to my practice because it’s quite a specialised area, I mean initially there were only two public pain management programmes in the country and then it expanded slightly but really everyone who’s in our group is the sum total of OTs who are working kind of purely in the area of chronic pain in Ireland so I suppose before the group came together it was difficult to link in with people who were working in the same area as yourself so my experience with the group has helped reinforce what I was doing” (Joanne IS5).

The benefits of participation in the group included; information sharing, learning from experience of others, and support for taking action and making change.

“it was a great opportunity to do it with the support of everyone else” (Simone IS5).

All participants identified information sharing relating to clinical practice, courses, training opportunities, new developments, clinical resources, research and healthcare policy as beneficial and positive.

“I am delighted to have had the opportunity to be involved for the following reasons; It have given me an avenue of communication with other O.T’s working in Chronic pain which has served as beneficial in information sharing and peer support.” (email from Patricia to Louise and Joanne for their AOTI conference presentation 24.5.2010).

Throughout the process participants included agenda items at teleconferences on upcoming or recently attended courses/conferences and clinical questions. A number of resources were circulated within the group including handouts from courses, journal articles, session plans, handouts for use with clients and media reports on chronic pain.

“Subject: Return to work resources

Hi all, In recent review of info from the BPS PMP SIG conference I found the following website which looks very useful and it may be of interest to you all: www.rtwknowledge.org” (email from Joanne to group 25.2.2010).

Two group members were doing MSc’s during the process and they shared relevant assignments, projects and references with others. This was identified as an efficient route to EBP.

“Hi all, I am attaching an article that may be of interest see e-mail below from centre of pain research, best wishes, Louise

Article title: Chronic pain in the Republic of Ireland - community prevalence, psychosocial profile and predictors of pain-related disability: Results from the Prevalence, Impact and Cost of Chronic Pain (PRIME) study, Part 1.” (Email from Louise to whole group 28.4.2011).

Participants described the opportunities to learn from the experience of others as extremely valuable. This was particularly relevant for those in stand alone posts or where participants were the only therapist working in this clinical speciality. Participants identified group teleconferences as allowing immediate access to clinical experiences and evidence.

“Huge, huge support I would say especially ... I was kind of on my own as regards the learning and I struggled a bit...I found that being able to liaise with people that are more experienced in this area that I was able to improve my practice hugely.” (Sarah IS5).

The group participants included eight therapists working in the Republic and one in the North of Ireland. The locations of all were spread across the island of Ireland. All participants were working in publicly funded health care. Given the economic climate at the time of the study all participants in the Republic were working in acute hospitals with staff shortages and lack of funding for training or education and at times a ban on therapists attending courses/training within work hours and a ban on all travel within work hours. Teleconferencing was described as a practical way of communicating given the economic climate and geographical dispersion of the group, however, the value of meeting in person at three workshops over the 33 month process was stressed. Teleconferencing was identified as difficult initially by three participants due to not knowing the other group members. Turn taking and decision making without visual communication were identified as challenging by a number of participants.

“What could have been done differently? I think for me, for me one of the breaking points for me was getting to meet others in the group face to face, I found those early conferences really, really difficult, I just felt like I was listening into them and I wasn’t contributing very much and once I met them it all, it made the whole thing much easier” (Patricia IS5).

Attendance at teleconferences was difficult for some group members whose clinical demands meant they had difficulty scheduling commitments as their work was unpredictable.

“Hi all, Unfortunately I am going to have to send my apologies for today’s meeting I am working on the Aran islands today and had hoped I might be able to work around it so I could call in to the conference call but I fly at 11.30,” (email from Louise to whole group 2.6.2011).

A web portal was established in 2008 and used initially to store meeting minutes, agendas and shared resources, however use of the portal dwindled and all document sharing was done by email in time.

“I have put the info you all sent about your Pain Management Programme sessions into a folder on Sulis called 'PMP Session Plans' it is in the RESOURCES section along with all the meeting minutes.” (email from Rachel to whole group 23.6.2009).

Changes in occupational therapy practice.

Multiple actions were taken by participants to change their own clinical practice as part of the PAR process. Participants described changes in communicating with employers, worksite evaluations, liaising with new organisations, negotiating and preparing return to work plans, client and employer education, and accessing information on re-employment, training and education schemes and entitlements.

“So the degree to which I tackled this topic [VR] and the depth to which I explored it with my clients has hugely improved because of my learning and experience with the group. So my direct client work I think has changed a lot as regards my interventions, my assessment, my work site liaisons that I would undertake with a client with work issues because of my involvement in the group so that would be the client aspect” (Jenny IS5).

Participants described developing new skills, learning new knowledge and making multiple changes in their day to day practice with clients. Many of these actions were

undertaken for the first time in response to the PAR cycle.

“I would say there have been a number of aspects that have changed in my work secondary to my involvement in the group. Number one would be my tendency, my motivation and my tendency and my confidence as regards dealing with vocational rehab issues for clients with chronic pain because that is the area that we have focused on in the PAR cycle as our topic of learning.” (Sarah, IS5).

“I think I used to avoid asking questions about what do you work you know from patient perspective as such actually... So from that point of view I would say not just chronic pain, every patient who I see I do ask them ...I do ask them questions you know are they working?” (Sarah IS5).

A number of plans for new services were identified for example work instability programs. Participants also described a changed understanding of the benefits of work and a new appreciation of the potential opportunities afforded by work, unpaid productive activities, and volunteer work. Participants described feeling more confident and competent about practice and feeling that they are offering a better quality, more holistic, service.

“And it gave us a lot more confidence actually to with the people particularly in the area that I’m working with I have since often approached work” (Niamh, IS5).

“I suppose now as a therapist I feel much more competent and confident in asking the work question with clients, much clearer about what we’re doing and how I do it, doing it more now with the clients on an individual basis as well as in a group format” (Simone IS5).

Radiating effects of taking action.

Moving through the PAR process led to radiating changes in practice, changes for colleagues, managers and clients and generated multiple off shoots and new questions. The effects of the PAR process for clients are described in the theme ‘changes in occupational therapy practice’. Participants described how their learning about VR and EBP had filtered out throughout the occupational therapy departments they were part of though informal peer learning and in some cases, through in-service education to colleagues.

“With the vocational rehab I’ve been able to share that information with a colleague that I work quite closely with he’s in the chronic fatigue programme and was also interested in the vocational rehab and we have, did a lot of the work on that together and our both trying to bring that forward into our practice as well you know.” (Patricia IS5).

Support from managers was identified as supportive of participation particularly given the restricted fiscal environment. Many managers integrated the group activities into supervision and CPD plans and targets with participants. One participant struggled to negotiate with her manger time to attend work-shops and teleconferences however; all other participants described being supported by their managers to participate. The benefits of teleconferencing were stressed in minimising time away from clinical work from a management perspective.

Participants described greater frequency of discussing work with their MDT colleagues. Participants described having a stronger more evidence based and confident voice within the multidisciplinary team (MDT) about VR and therefore being a stronger advocate for their clients needs.

“it gives me a stronger voice when I’m talking to the consultant about well we should do this because I know that there is evidence that they risk falling out of work if they don’t get intervention at an early stage” (Sarah IS5)

Three participants described getting more referrals from other MDT members specifically for VR as a consequence of changes in their practice.

“Now from a multidisciplinary team point of view the team are much more aware because it keeps coming now with patients with the group ...So yes the referrals are coming in more for around people that would be work unsteady and have issues or are struggling in work” (Simone IS5).

Participants identified that these changes had led to a strengthened position in the team and also identified MDT respect for dissemination of the group activities.

EBP and research changes.

Throughout the process the group members successfully submitted a number of abstracts to national and international conferences and prepared two manuscripts for paper publication.

“it’s been a fairly active group in terms of the submissions to you know international conferences or you know more locally through the AOTI

conference, publications and the future handbook, practically, people have seen an outcome of being involved in the group rather than it being a kind of a nice chat you know once a month or every two months or whenever the groups happened so no it's been very positive yeah" (Louise IS5).

Table 6 includes a list of accepted poster and oral conference presentations. Most abstracts, posters and oral presentations were written by two or more group members and all were circulated to the whole group for comment and consent to use quotes.

"Hi Guys, Just a quick note to give some good news. The poster attached won a prize for best poster at the IRHPS last Friday!! It came with a great prize of Roche financial support to attend EULAR (European League Against Rheumatism) conference 2011, which is just fantastic. This is a great conference in the field of Rheumatology and getting the support to attend is really great!" (Email from Jenny to whole group 26.9.2010)

Participants described feeling more confident and competent and identified behaviour change in EBP after engaging in the PAR process and participating in disseminating the PAR process.

"through my reading and through my analysis I suppose my awareness of what interventions work best for who has hugely increased. So before I would have thought maybe that certain interventions were very effective for people just through anecdotal experience through maybe four or five cases but when you look at the broader scope of evidence you realise that perhaps there are actually other interventions or other styles that are far more effective than perhaps the way you were doing it." (Jenny IS5).

A number of participants described having been scared or intimidated initially by research and EBP.

"And then when the research bit came along I have to admit I was a wee bit daunted because I don't have a lot of experience of research but it was made easy by the fact that there was a group working on it together" (Patricia IS5).

Two participants described participating in the PAR process as having demystified the research process for them.

"I think it was enlightening to me what, what someone can pull from our experience and what I mean by that is like I'm a clinician first and foremost, I've never really been involved in research like this before so it was interesting to me that from all that we did can stem so many possible research

opportunities like for example me being interviewed by you today about our experience of the process you know I never would have thought of that initially, I never would have thought that there's this much wealth of information in all of that you know. And I can remember being when it was suggested first kind of thinking is that really all that interesting or relevant? But then when you really get into it you see yes it really is" (Joanne IS5).

Participants described feeling more confident about the whole research process; planning and identifying a question, applying for ethical approval for a study, analysing qualitative data, writing up and presenting research and the application of evidence to practice.

"I'm much more confident at looking at the articles, researching the articles and actually applying them to the work and you know elements of that." (Patricia IS5).

Three group members identified that they could now appreciate the practical and real-world effects of research from participating in the process. The benefits of PAR for affecting changes for clients were also identified.

"Yeah I suppose I would have been involved in different research projects in the past my experience would have been cynically that often they're a paper exercise ... prior to the PAR project I hadn't seen how something could actively influence practice" (Louise IS5).

"Hi Joanne and Louise, My reflections on PAR process....The steps are clear and I like the fact of it been such a practical approach, we will and our patients will benefit from approach" (email from Niamh to Louise and Joanne for their AOTI conference presentation 20.5.2010).

Participants described much learning through their experiences of questioning and reflecting on practice, designing a study, planning for data collection, data analysis, appraising papers, reading, synthesising, summarising findings, preparation of abstracts, conference presentations, workshop presentations, writing up the VR handbook and articles based on the PAR process.

"there's been a lot of learning when I, when the group evolved I hadn't anticipated you know how much would come out of it in terms of learning, in terms of reading and understanding ... the research process and how to apply that in practice, you know and I've gained a lot from the group but also from understanding the research process" (Louise IS5).

Participants identified the group as a supportive forum for enabling EBP skills development as they were not doing it alone.

Summary of findings.

A six stage PAR process identified addressing client's vocational needs as the greatest challenge faced by participants. The PAR process enabled participants to take multiple actions to address this problem including the development of a handbook to guide vocational rehabilitation with people with chronic pain. Participants described a positive experience of participation in; the PAR process, disseminating the PAR process, and participating in an academic-practice partnership. Participants described the development of a network of personal and professional relationships through participation in the group and identified the group format as supportive for learning and change. Moving through the PAR process led to radiating changes in practice, changes for colleagues, managers and clients and generated multiple off shoots and new questions. Participants described feeling more confident and competent and identified behaviour change in occupational therapy practice and EBP after engaging in the PAR process.

Discussion

Participant's Experiences of PAR

The central characteristics of PAR as described by McIntyre (2008 p.ix) are evident across the six stage process described in the findings. The findings presented illustrate the active participation of participants in the co-construction of knowledge; the promotion of self- and critical awareness that led to individual and collective change and the building of alliances between researchers and participants in the planning, implementation and dissemination of the research process.

Freire emphasises that participants should come to an understanding of how dominant social structures and ideologies produce or contribute to the problems they experience (1970; 1993). Similarly, Savin-Baden and Wimpenny (2007) highlight that PAR involves examining an issue systematically from the perspective and lived experience of the individuals most affected by that issue. In this study participants moved from bringing practice under critical review, through interviews and analysis of those interviews, to taking action in light of the new knowledge generated by this

critical review. Carr and Kemmis describe praxis as where practice is brought under considered critical control and enlivened with a commitment to values (1986). Wilding and Whiteford (2009) concluded based on a PAR process undertaken with occupational therapists that therapists can be wiser and more ethical practitioners by engaging in praxis. In keeping with this, the qualitative in-depth interviews completed at stage one of the PAR process allowed participants to reflect on their practice and identify challenges including the structure of services, especially the challenge of working within acute hospitals with a biomedical focus, issues around occupation-based practice and evidence based practice were also raised alongside the challenges in vocational rehabilitation that were agreed as the focus of action.

The work of Etienne Wenger on social learning systems is highly applicable to the findings of this PAR process. In this study participants described the development of a network of relationships through participation in the group and stressed the benefits of the group format for information sharing, learning from experience of others, and support for taking action and making change. The participants in this study meet the criteria for a community of practice as described by Wenger (1998) given the shared domain of interest, shared competence of the members, the relationships between participants and the development of shared practice over the course of the PAR process. The advantages of meeting in person over teleconferencing were stressed by all participants for strengthening relationships. Similarly, Wimpenny et al, found that the development of a community of practice, collective effort, and a shared dialectic through PAR had the potential to overcome barriers to the implementation of the Model of Human Occupation across a mental health occupational therapy service (2006; 2010). Wimpenny (2010) describes how learning in a community enabled knowledge to take on greater significance and be sustained. The role of tacit knowledge in the translation of evidence to practice has been discussed by a number of occupational therapists (Metzler and Metz 2010; Kinsella and Whiteford 2009; Craik and Rappolt 2003). Tacit knowledge is frequently not valued in the same manner as research evidence, yet as discussed by Lencucha et al (2007) therapist-to-therapist interaction is consistently identified across studies as the primary source of knowledge acquisition. Metzler and Metz (2010) in a discussion on the translation of knowledge to practice recommend forums for sharing of tacit knowledge, such as, interest groups. In keeping with these findings, participants in

this study stressed the benefit of learning from other group members and also described their colleagues outside of the PAR process as learning from them.

Achieving occupation-based practice through participatory action research.

McTaggart (1997) stresses that PAR becomes a living dialectical process which changes the researcher, the participants, and the situations in which they act. This is evidenced in this study through the finding of ‘radiating effects’ in the reflective analysis at stage 6. Changes for participants, clients, colleagues and team members were identified and many of these changes were unanticipated outcomes of the process. The group took action primarily to develop a VR handbook which facilitated changes in practice. The handbook was developed in response to participant’s self-identified knowledge and skill gaps in meeting the vocational needs of their clients and functioned ultimately as a strategy to achieve occupation-based practice in occupational therapy.

There are high rates of work disability among those with chronic pain disorders (Burton et al 2006; Dagenais et al 2008). The significance of work and productive occupations is well understood within occupational science and therapy (American Occupational Therapy Association 2008; Joss 2002; Shaw and Dann 1999; Stone 2003). Much research attests to the health and well-being benefits of work (Murphy and Athanasou 1999; Parker et al 2003) and the negative consequences of unemployment (Clark et al 2004; McKee-Ryan et al 2005; Winkelmann and Winkelmann 1998). Occupational therapists are arguably best placed to address the vocational consequences of chronic pain (Robinson et al 2011).The use of work activities as therapy extends to the very origins of occupational therapy (Kielhofner 2009; Ross 2008). However, in the United Kingdom and Ireland the role of occupational therapists in vocational rehabilitation has become diminished (Joss 2002; McNamara and Miller 2008), in contrast to other countries where the legislative system has supported vocational rehabilitation services. In 2004 Auldeen Alsop identified that occupational therapists were beginning to re-establish themselves as leaders in vocational rehabilitation in the United Kingdom. The College of Occupational Therapists have published a strategy on Vocational Rehabilitation where they stress the expertise that occupational therapists have in the use of occupation and purposeful activity, occupational analysis and therapeutic interventions in the workplace (2008). Many occupational therapy scholars have

discussed the gap between the theory of occupation and the practice of occupational therapy (Molineux 2004; McLaughlin-Grey 1998). The centrality of occupation and occupation-based practice to vocational rehabilitation is unquestionable.

In this study interviews at stage one identified that participants were struggling to meet the vocational needs of their clients. Other gaps in practice that participants identified would be met through addressing client's vocational needs were difficulties enacting occupation-based and evidence-based practice. Throughout the PAR process and the development and dissemination of the handbook participants stressed the link between vocational rehabilitation and occupation-based practice. In the first workshop one presentation focused on the occupational nature of work and the relationship between work and health. This emphasis continued through to the final handbook where the introduction presents an occupational perspective on work and the most effective VR interventions are identified as reflecting core occupational therapy beliefs about occupation, such as, the importance of context, the just right challenge, and importance of meaningful occupation.

Participant's descriptions of changes in practice are in keeping with both the recommendations of the handbook and occupation-based practice. Participants described a changed understanding, and new appreciation of the health and well-being benefits of work and productive activities and feeling more confident and competent about addressing the work needs of clients. Thus, the development and use of the handbook functioned as a strategy to aid occupation-based practice and to close the theory-practice gap in occupational therapy.

The Enactment of Evidence-Based Practice

Participants described changed beliefs about EBP and described a new appreciation of the evidence generated from their own reflections on practice. Reason (1998) has identified that PAR has a double objective, both to produce knowledge and action directly useful to a group of people and to empower people at a second and deeper level through the process of constructing and using their own knowledge (Reason 2001, p. 182). In this study participants own experiences were used as the starting point for delineating the problem to address and in the final stages participants reported feeling more confident and competent about practice and research and reported valuing the process and the learning generated. Although the term empowerment was not used by participants their descriptions of increased

confidence in their capacities and taking action to address issues affecting them are in keeping with the concept of empowerment (Gibson 1991).

Fals-Borda (1987) stressed that participants in a PAR project are the stakeholders of project related data and therefore should be in control of its use, publication and dissemination at every stage of the research process. How PAR groups move from exploring aspects of their lives to presenting knowledge of their exploration and analysis to outsiders is unique to each group (McIntyre 2008). The plan for dissemination was discussed with participants and evolved throughout the project with participants identifying upcoming conferences and calls for abstracts. Drafts of presentations/posters/papers circulated and agreed before presentation. Participants in this study were equally in control of the dissemination of the process, the first author was not in attendance at all conferences where work was presented and was not centrally involved in many of the posters or presentations. Although this paper was prepared by the first author; the other paper generated by this process was co-authored and prepared in conjunction with a participant from the group.

Participants described feeling more confident and competent and identified behaviour change in EBP after engaging in the PAR process and participating in disseminating the PAR process. Freire states "to be a good [participatory researcher] means above all to have faith in people; to believe in the possibility that they can create and change things" (1971, p.62). There was little formal education on EBP as part of this process. At various points throughout the process different learning occurred for different participants. For example the participants working on the intervention section of the handbook had many discussions with the first author about levels of evidence, the nature of systematic reviews – which were not the same as the discussions the first author had with the participants who were researching community based education, training and volunteering resources. Therefore, the process was not standard for everyone and the aim was not to change knowledge, skill or behaviour in EBP specifically. However, all participants reported these changes. This was described as resulting from the type of partnership and engaged scholarship described by (Kielhofner 2005). Where knowledge was created in a participatory way and participants were empowered to solve problems that were grounded in the reality of their every day context. Many occupational therapists have called for the development of relationships between researchers and practitioners in occupational therapy (Kielhofner 2005; Bryant and McKay 2005) and Lencucha goes further in

describing a potential triangular relationship which takes account of social learning in practice and academic-practice partnerships.“ We envision a relationship that includes both researcher-therapist and therapist-therapist interaction. This triangular relationship will support practice and will facilitate the incorporation of field experience into the research cycle” (Lencucha et al 2007). Participant’s accounts of their experiences of an academic-practice partnership and the radiating effects of their learning on the practice of their colleagues reflect this vision.

A systematic review of action research in healthcare concluded (Waterman et al 2001) that AR can be valuable for developing innovation, improving healthcare, developing knowledge and understanding in practitioners and involvement of users and staff. Hughes highlights (2008) that not all health questions are best answered by a RCT especially when we are trying to measure complex social change. Therefore although the outcomes in terms of EBP are difficult to measure in a standard manner and varied for each participant the qualitative analysis illustrates multiple changes in research and EBP skills, knowledge and behaviour. The findings of this study are broadly in keeping with the available literature on effective strategies for implementing EBP, i.e. that multifaceted interventions targeting different barriers to change are more likely to be effective than single interventions (Grimshaw et al 2001) and education linked to clinical practice is more effective than standalone EBP education (Coomarasamy and Kahn 2004). The findings of this process raise questions about EBP that reflect criticisms of EBP that have been discussed in recent years. In preparing the VR handbook participants in this study considered what the most appropriate evidence to draw on was and had multiple discussions where they articulated a desire to stay true to an occupational perspective of health. This is evidenced in the table of contents of the handbook. Thus, a critical questioning approach was adapted to not alone translating the highest quality evidence to practice, but also, considering the fit between the identified evidence and the professional domain. Furthermore, the participants discussed fears that the handbook would be viewed as a cookbook or recipe for ‘how to do VR with a client with chronic pain’. Therefore, in the introduction the need for clinical reasoning and judgment in applying the information contained in the handbook and the need to integrate the client’s desires and values in this process is stressed. The guidelines contained in the handbook combine expert opinion, clinical experience and research evidence, although the included evidence was not systematically reviewed, a number of other

clinical guidelines are cited in the handbook alongside other meta-analyses, systematic reviews and multiple individual studies including qualitative studies. This evidence is presented alongside locally specific information for example about employment related legislation of relevance to VR and case studies written by participants. A number of authors have questioned and critiqued the EBP model and its suitability for professional practice (Polkinhorne 2004; Kinsella and Whiteford 2009), these perspectives have been articulated in alternative models such as values based practice (Rose and McCarthy, 2010), wise practice (Higgs and Titchin 2001) and judgement based care (Polkinghorne 2004). These approaches placed increased value on practice based knowledge, practitioner expertise and practitioner reasoning. Although Cusick and McCluskey (2000) recommend use of clinical guidelines as a strategy to becoming an evidence based practitioner they note that guideline development is a complex, highly demanding task. However, this study has shown that the development of guidelines locally in response to the practice needs of a group of occupational therapists may be an effective knowledge translation strategy. Undoubtedly, there is a pressing need for further critical discussion and exploration of EBP within occupational therapy.

The PAR Process and Knowledge Translation

The evidence undoubtedly shows that occupational therapists report low levels of knowledge and skill in EBP (McCluskey 2003; Murphy and Robinson 2010) and limited use of EBP to inform practice (Cameron et al 2005; Bennett et al 2003). It is also clear from systematic reviews that there are no clear or easy answers in terms of how to best address the problem of EBP implementation across health disciplines (Greenhalgh et al 2004; Grol et al 2007; Oxman et al 1995).

A number of theories and models have been developed and applied to implementing changes in health care. These include theories relating to individuals, the social context, and the organizational context (Grol and Wensing 2004). The empirical evidence of the effectiveness and feasibility of most theoretical approaches to produce change in healthcare is limited; therefore no one approach can be identified as superior to the others currently (Grol et al 2007).

The changes described by participants as a result of participation in the PAR process were considerable – feeling more confident and competent about addressing client's work needs, feeling more skilled and knowledgeable in vocational

rehabilitation, offering new services, communicating with new agencies alongside numerous changes in their knowledge skills and attitudes towards research and EBP.

A model of diffusion of innovations in service organisations presented by Greenlough et al (2004) was considered in light of the findings of stage six. This model was commissioned by the United Kingdom Department of Health, and is a parsimonious and evidence-based model for considering the diffusion of innovations in service organisations based on a systematic literature review. The model's main components are; attributes of the innovation, adoption by individuals, and assimilation by the system, diffusion and dissemination, system antecedents for innovation, system readiness for innovation and the outer context. The model was not used during the process or in the planning of the handbook. However, in considering the six stage PAR process multiple ways in which change was supported throughout this process in keeping with the model were identified. The innovation participants were attempting to diffuse had a number of attributes which have been identified as explaining the variance in adoption rates including compatibility, complexity, trialability, reinvention, and risk (Greenlough et al 2004). The handbook was compatible with the participants values as it was based on self-reported difficulties in practice and reflected occupational therapy philosophy, the handbook guidelines were purposefully written in a simple manner with key messages identified throughout, changes in practice could be trialled with individual clients without needing wholesale adoption, the handbook was designed to be used in a flexible, non prescriptive way, and adoption presented a low level of risk to participants. A number of factors are identified in Greenlough et al's model as supportive of individuals to adopt change based on Roger's literature on adoption of innovation (1995). Factors identified in this PAR process as supportive of participant's adoption of the innovation were; the innovation met a need identified by participants, participants were aware of the innovation and had sufficient and ongoing information about how to use the innovation thus supporting its ultimate adoption. Greenlough et al's model identifies that the spread of innovations from diffusion to dissemination is influenced by a number of factors. In this PAR process the network structure was clearly horizontal and thus more effective for spreading peer influence, furthermore, the group were similar in terms of educational and professional backgrounds therefore helping to diffuse the innovation. In terms of the system, the positive managerial attitudes, the

mature state of the services, and the fit of the innovation with service goals and vision may have all influenced change.

Knowledge translation is gaining ground as a useful concept to understand the complexity of change in healthcare practice. In this study a participatory self-initiated change process undertaken by a group of occupational therapy participants appears to have met many of the criteria for the successful diffusion of innovation in service. Further research on strategies for successful knowledge translation in occupational therapy is urgently required to develop the quality and efficacy of services received by clients.

Limitations of the Study

The PAR process was not empowering for people with chronic pain or their families, however it remains a worthwhile project that generated useful practical knowledge and led to changes in services that will potentially benefit people with chronic pain. Hughes notes (2008) that AR can occur where those most affected by an outcome are not involved in the process.

A further limitation is that the account presented here (**paper III**) reflects the first author's reading of the data and the process. In order to address this shortcoming the paper (**III**) and all publications arising from this process were circulated to all participants and all feedback or comments were addressed. The reflective learning generated from the process is based on participant's accounts in the interviews completed at stage six. The first researcher integrated these reflective accounts with her own knowledge and personal reflections alongside her attempts to be reflexively aware of her role in the process.

A central limitation of this overall study is that the analysis of the interviews at stage one and the evaluation at stage six were completed by the participants in the study. Therefore the changes identified are based on participant self-report and further research is required to validate these findings and explore the consequences of these changes for clients with chronic pain. This limitation is concerned with the validity of this PAR project. The very notion of 'validity' in PAR has been questioned by many as the positivist worldview that this notion rests on is at odds with PAR. Bradbury and Reason (2006) recommend a shift from traditional positivist notions of validity to a concern for engagement, dialogue, pragmatic outcomes, and an emergent, reflexive sense of what is important. In terms of the quality of PAR Freire (1982) noted "We

have to be very clear about the objective of this work: it is the people themselves, not the advancement of science" (in Kemmis and McTaggart 1988, p. 272). This comment stresses that PAR replaces the traditional hierarchical approach to research with a commitment to mutual inquiry and promotion of active involvement of participants in order to effect real world change. PAR projects must be considered in light of pragmatic questions about outcome and practice and researchers must be reflexive about this (Reason and Bradbury 2006). The outcomes of the work are also connected with the value of the work "we may ask as action researchers how our work calls forth a world worthy of human aspiration, so that ideally people will say that 'work is inspiring, work helps me live a better life'" (p.345). The findings at stage six of the process on changes in occupational therapy practice, evidence based practice changes and the radiating effects of taking action clearly demonstrate the usefulness and the pragmatic value of the project.

In keeping with the quality criteria discussed earlier (Viswanathan et al 2004) Reason and Bradbury stress the need to evaluate PAR by considering the nature of participation for those involved (2006). The findings clearly revealed the nature and extent of community involvement in this project. The findings revealed the development of new insights and a critical consciousness by participants as they considered their practice and context.

Both the criteria described by Viswanathan et al (2004) and Reason and Bradbury (2006) on quality in PAR consider the development of capacity within the community for the work to continue and develop in the future without the involvement of the initiating researcher. The findings at stage six describe multiple future plans generated by participants and the sense of ownership held by participants over the project and the future direction and work of the group.

As noted in the method section the overall design of the study was in keeping with descriptions of second-person or interpretative action research where the researcher is reporting on what others or a group are doing (McNiff and Whitehead, 2011). The centrality of participation to this approach meant that in presenting this account the researcher attempted to integrate participant's reflective accounts (interviews stage 6) with her own knowledge, personal reflections and reflexive awareness. This presents certain limitations as the account does not rely on the researchers' reflective learning alone. If that was the case, the learning presented would potentially be more critical and integrated to a greater extent with theory.

However, as stressed earlier the participative and pragmatic nature of this process meant primacy was given to ensuring that the learning was locally owned, understandable and useful to participants.

Conclusion

This study has a number of implications for occupational therapy practice and research. Occupational therapists should seek out opportunities to learn with others, share tacit knowledge and to develop communities of practice to aid the translation of knowledge to practice. It appears that academic-practice partnerships and participatory action research may be effective means of addressing many of the barriers to the translation of evidence to practice and closing of the theory-practice gap in occupational therapy. Future research to validate the findings of this study and to determine the outcomes of this PAR process over time and the outcomes for clients and other stakeholders would be of value. Research on strategies for successful knowledge translation in occupational therapy are urgently required to develop the quality and efficacy of services received by people with chronic pain.

In conclusion, PAR offered a valuable framework for participants in this study to achieve changes in occupational therapy services for people with chronic pain across Ireland and for evidence to be translated to practice through a participatory self-initiated change process.

Table 1. Key events

Date	Event	Number of participants
2.9.2008	Teleconference	4
7.10.2008	Meeting	3
25.11.2008	Teleconference	5
16.2.2009	Teleconference	4
26.3.2009	Teleconference	4
14.5.2009	Teleconference	7
23.6.2009	Teleconference	6
28.7.2009	Teleconference	5
10.11.2009	Teleconference	7
18.1.2010	Teleconference	6
9.3.2010	Teleconference	5
13.4.2010	Teleconference	Not recorded
29.4.2010	Workshop 1	9
25.5.2010	Teleconference	6
22.6.2010	Teleconference	6
24.8.2010	Teleconference	Not recorded
16.9.2010	Workshop 2	5
10.10.10	Teleconference	5
1.12.2010	Teleconference	7
25.2.2010	Workshop 3	4
21.4.2011	Teleconference	4
2.6.2011	Teleconference	6
14.7.2011	Teleconference	4

Table 2. Number of e-mails sent by each participant

Participant	Number of e-mails
Rachel	550
Patricia	50
Beth	16
Louise	91
Niamh	50
Joanne	171
Jenny	266
Simone	122
Sarah	13

Table 3. Description of participants

Pseudonym	Work Setting	Years since qualification as an occupational therapist
Patricia	Acute general hospital	20
Beth	Acute general hospital	4
Louise	Acute general hospital	11
Niamh	Acute general hospital	26
Joanne	Acute general hospital	14
Sarah	Acute general hospital	11
Rachel	Academic and research setting	10
Simone	Acute general hospital	14
Jenny	Acute general hospital	11

Table 4. Dissemination activities and log of participation.

Publication type	Conference/ Journal	Prepared by	Presented by
Oral paper	Association of Occupational Therapists of Ireland Annual Conference 2010	Joanne and Louise with input from all group members	Joanne and Louise
Poster	15 th World Congress of the World Federation of Occupational Therapists	All group members. Compiled by Rachel.	
Poster	International Association for the Study of Pain World Congress 2010	Niamh and Rachel. Draft version reviewed by all.	Niamh and Rachel
Poster	Irish Society for Rheumatology and IRHPS conference	Jenny and Rachel. Draft reviewed by all group members.	Jenny
Oral paper	Association of Occupational Therapists of Ireland Annual Conference 2011	Patricia and Rachel.	Patricia and Rachel
Interactive poster	Vocational Rehabilitation Association Conference 2011	Jenny and Rachel.	Jenny
Journal paper	Submitted to BMC Musculoskeletal	Joanne and Rachel.	

	Disorders.	
Journal paper	Submitted to the Irish Journal of Occupational Therapy	All group members.

Table 5. Aid to thematic analysis circulated to group

Code	Transcript	Code
Session on leisure as part of PMP	I think the leisure session would have been, it would have been much more sort	Style of leisure session is interactive/group
Content of leisure session; (value of leisure, benefits of leisure for health, exploring current leisure participation, abandonment of leisure activities)	of interactive and group participation then we would have talked about the value of leisure and why leisure is important and why it's important not to abandon leisure activities and all of that	participation

Table 6. Vocational rehabilitation handbook: Table of contents

Vocational Rehabilitation Handbook Table of contents

Introduction and Background

- Work: An occupational perspective
- What constitutes 'good' work
- Musculoskeletal disorders and work disability
- Vocational Rehabilitation: An introduction

The VR Process : Step by Step

Vocational Assessment

Key Principles

Assessment Process: person, environment and occupation

Vocational assessment initial interview

Assessment of; occupational performance, physical functioning, psychosocial factors, worker role, work instability, work performance, functional capacity, job/task, environment, and career-based assessment.

Intervention to address clients vocational needs

Clinical practice guidelines

Be proactive

Take a holistic approach

Timing is everything!

The benefits of (multidisciplinary) teamwork

Involve the employer and go to the workplace

Always consider temporary modified work

Ergonomic interventions

Work hardening

Volunteering in Ireland

Sample work instability group program

Sample VR Session for a Pain Management Program

Resources for further learning

Case studies

Figure 1. Six stages of a PAR process (Taylor, Braverman, and Hammel 2004).

Figure 2. Timeline of the PAR process.

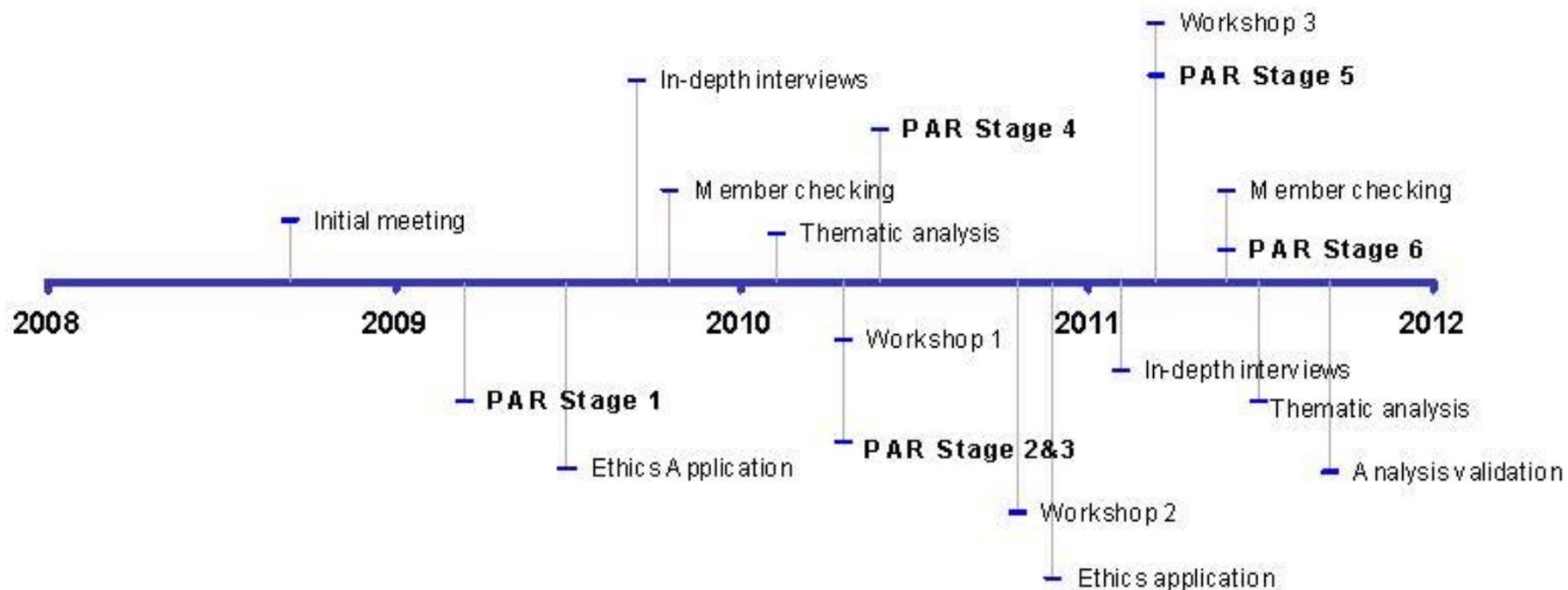
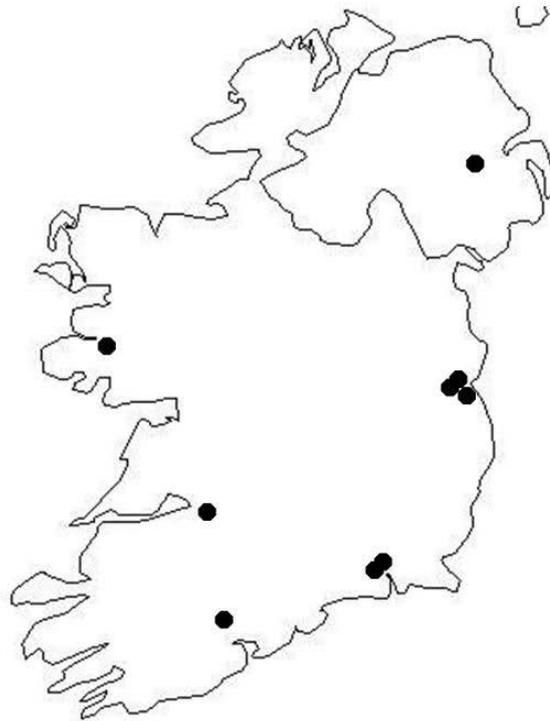


Figure 3. Geographical location of participants.



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Paper IV

Robinson, K., Kelley, V., Kennedy, N., and Harmon, D.
Qualitative description of occupational therapy practice
with people with chronic pain in Ireland.

Abstract

Background: Occupational therapists are regarded as integral to a multidisciplinary approach to the management of chronic pain; however mis-understandings of the role of the occupational therapist abound.

Aims: To describe occupational therapy practice with people with chronic pain in the Republic of Ireland and Northern Ireland.

Methods: Eight occupational therapists from separate health-care services in the Republic of Ireland and Northern Ireland participated in in-depth semi-structured interviews about their clinical practice. Transcribed interviews were analysed thematically.

Results: Six themes were identified; healthcare context, holistic assessment, enabling participation in activities, strategies for managing pain, theoretical approaches, and challenges in practice. Participants practice was shaped by the healthcare context (secondary care) and by the multidisciplinary team. Therapists described a holistic approach to assessments where all aspects of activity performance are considered. The core focus of the intervention described by participants was enabling participation in activities. This was achieved through an appreciation of the complex relationship between chronic pain and activity, the use of activity as therapy, goal setting and the use of strategies such as pacing. A number of theoretical approaches guiding practice were identified by participants including the biopsychosocial model, adult education theory and client-centred practice. **Conclusions:** These findings clarify the unique contribution of occupational therapy to a multidisciplinary approach to the management of chronic pain.

Keywords: Occupational Therapy; Qualitative; Interview; Chronic Pain; Thematic Analysis

*Note

Paper IV is presented for an inter-disciplinary audience and the term activity is used instead of occupation for greater clarity given the audience. This paper was written for this audience in order to clarify the unique contribution of occupational therapy in multidisciplinary pain management services.

Introduction

A recent community prevalence study identified the prevalence of chronic pain in the Republic of Ireland at 35.5% (Raftery et al 2011). The appalling lack of appropriate services for people with chronic pain in the Republic of Ireland has been highlighted with calls for a national strategy on chronic pain to address this situation (Fullen et al 2006).

Multiple clinical experts have stressed that occupational therapy is an integral part of a multidisciplinary approach to the management of chronic pain (Guzmán et al 2001; Sanders et al 2005). The benefits of a multidisciplinary approach to chronic pain management have been expounded for years (Gatchel 1999); however, the individual contributions made by the rehabilitation professions remain largely unclear. Furthermore, very little attention has been paid to how multidisciplinary teams in chronic pain services operate. Interdisciplinary teams are characterised by high levels of collaboration and communication with professionals having skills across several disciplines and have been shown to have better team working and team effectiveness than multidisciplinary teams (Körner 2010). A body of research on interdisciplinary practice has developed in recent years which identified multiple benefits for clients including reduced hospitalisations and reduced mortality (Holland et al 2005; Malone et al 2007; McAlister et al 2004; Mccallin 2001). The World Health Organisation (WHO) has endorsed collaborative practice as strengthening health systems and leading to improved health outcomes (2010). Core competencies for patient-centred collaborative practice as described by health care professionals included ‘understanding and appreciating professional roles and responsibilities’ (Suter et al 2009). Similarly, the WHO has identified understanding the role, responsibilities and expertise of other health workers as a key outcome in inter-professional education (2010).

A number of authors have indicated that misconceptions and misunderstanding of occupational therapy exist among healthcare professionals (Bannigan 2000; Duffy and Nolan 2005; Moore et al 2006; Sachs and Jarus 1994; Simpson et al 2005; Withers and Shann 2008). Based on a number of studies Kinn and Aas (2009) summarise that occupational therapists report feeling invisible, misunderstood, stereotyped by traditional images and undervalued by those in related disciplines. It is clear that across international and different clinical contexts occupational therapists do not perceive that their MDT colleagues understand and appreciate their role.

Descriptions of occupational therapy frequently do not clearly communicate the unique contribution of the profession, for example, Schatman notes that “on many ICPM [interdisciplinary chronic pain management] teams, there is considerable overlap between the duties of physical and occupational therapists. Areas that are considered primarily within the domain of occupational therapist include ergonomic training, upper extremity activities of daily living, work activities, leisure activities, and any other activities that are meaningful and purposeful to the individual patient” (2010, p.1525).

This study aims to describe current occupational therapy practice (assessments, interventions, theoretical influences and challenges faced in practice) with people with chronic pain in Ireland. These findings are relevant to all multidisciplinary team members and occupational therapy researchers as they clarify the unique expertise and focus of occupational therapist’s when working with people with chronic pain.

Method

The study employed a qualitative inductive approach as the aim was to reveal rich, contextualized accounts and allow unanticipated categories of meaning to emerge (Willig 2001).

Participants

In 2008 eight members of a special interest group of occupational therapists working with people with chronic pain in Ireland together decided to describe their practice through qualitative inquiry as part of a larger action research cycle. All participants were Irish/ Northern Irish and were fluent in English. In order to protect participant and service anonymity minimal identifying information has been reported and pseudonyms are used alongside quotes.

Procedure

In-depth interviews were selected for data collection in order to allow each participant to reflect on, and describe their practice in detail. In order to promote honest reporting of topics such as competence in evidence-based practice an independent researcher unknown to the group members was recruited to complete and transcribe the interviews. The interview schedule was developed based on similar studies in other clinical areas and refined through group discussion and consensus

seeking. The schedule covered five key areas; day to day practice, assessments, interventions, overview of services and challenges faced in practice. The interview used probes and follow-up questions to explore the topics in-depth. Each interview lasted between one and a half and two hours long and was digitally recorded. Ethical approval was obtained from the University of Limerick Research Ethics Committee.

Data analysis

Based on the research aim thematic analysis situated within an essentialist/realist epistemology was selected for data analysis. Thematic analysis is a theoretically flexible approach which can potentially provide a rich and detailed, yet complex, account of the data (Braun and Clark 2006). An inductive approach to analysis was undertaken (Patton 1990) using the six stage guide to thematic analysis described by Braun and Clark (2006). All interview data was fully transcribed and entered into NVivo 8 (a qualitative data software package). The first phase involved a process of familiarisation with the data through repeated reading. Phase two involved the identification of initial codes. For this phase all research participants were involved in the analysis of their own transcript. Both the first author (KR) and each participant produced initial codes from the data based on a guide written by the first author. All disagreements were discussed and this phase led to the identification of 53 initial codes. The third phase was completed by the first (KR) and second author (VK) only, and this phase re-focused the analysis at the broader level of themes by sorting the different codes into potential themes. In the fourth stage all themes were reviewed and discussed by the first and second author to ensure all themes had internal homogeneity and external heterogeneity as described by Patton (1990). In the fifth phase themes were named and defined.

Trustworthiness

In order to ensure rigor all participants member-checked a transcript of their interview. During stage one of the analysis two people coded each transcript and all disagreements were resolved through discussion until consensus was achieved. One person (KR) coded every transcript and ensured decisions made during one stage of analysis were carried forward to analysis of the next transcript and was familiar with every change to the coding scheme as analysis progressed. A quality indicator for thematic analysis is that the identified themes are internally coherent, consistent, and

distinctive (Braun and Clark 2006). This is the case for the results presented, themes are related however distinct from one another.

Results

Analysis revealed five themes; healthcare context, holistic assessment, enabling participation in activities, theoretical approaches, and challenges in practice.

Healthcare Context

This theme comprises of two sub themes; health service aim and multidisciplinary team working.

Health service aim.

The majority of therapists in this study worked within secondary care services that offered a Pain Management Program (PMP). Participant's described the overall health service aim as pain management and improved quality of life rather than cure or alleviation of pain. Therapists stressed the value of the whole team having a shared aim for intervention. This aim was described as a focus on pain management not cure, an emphasis on education, the development of self-management strategies, empowerment, supporting clients to make changes and equipping clients with skills. "I suppose our approach is to really, we're very clear to the patients at assessment that we're not there to cure their pain or take away their pain, our key message is that we're there to help them manage their pain and therefore hopefully improve their quality of life" (Louise).

Multidisciplinary team (MDT) work.

All therapists worked as part of a MDT. The benefits of working as part of a MDT identified included, reinforcing the same messages to clients, improved client outcomes, and professional support and learning. The most common challenge presented by MDT working was the negotiation and management of role boundaries and the need to maintain a unique professional focus while having a shared MDT approach. Role overlap was identified as a potentially positive experience for clients as similar messages were reinforced or multiple opportunities to develop skills were available to clients. MDT meetings were identified as an opportunity to discuss referrals, client's post-assessment (including suitability for PMP participation), current clients, follow-up of clients, client goals, and to reflect on current practice and plan for improvements in practice and service developments.

“I think a programme like that (PMP) you need to have your individual roles and you need to appreciate the value of everybody working together and how that’s so much more powerful than any of us when we work on our own with any of the client groups and I think if everybody has that understanding it works well ...so that the clients know we’ve all got the same message at the end of the day” (Patricia).

Holistic assessment

This theme comprises of three sub themes; domains assessed, assessment methods and challenges of assessment.

Domains assessed.

Therapists described a holistic approach to assessment where all aspects of the individual and their activity performance are considered. The domains assessed included; activity performance (self-care, leisure and work performance), activity patterns, roles, habits, routines, the client’s self-perception of their activity performance, client’s values and beliefs, readiness to change, coping strategies, social and physical environment (including home and work site evaluations), physical function, quality of life and the client’s social network. Most participants assessed clients for participation in a PMP which included assessing activity performance, readiness and physical capacity.

“I suppose if you’re going to participate in that type of cognitive behavioural programme you have to be willing to accept that your cognition and your behaviour are influencing the pain experience and if somebody for example was deemed not ready [by the MDT] it might be because they were still really seeking out a biological cure to their pain, like they might be really keen to have surgery or really keen to try new medications” (Rachel).

Multiple standardised assessments and outcome measures were in use such as the Roland Morris Disability Questionnaire, the Work Instability Scale for Rheumatoid Arthritis (RA-WIS), the Pain Catastrophising Scale and the Role Checklist.

Assessment methods.

Participants emphasised the need to engage with the client during assessment in order to hear the client’s story. Many participants stressed the benefits of interview based assessments over questionnaires. Interviews were identified as opportunities for clarification, rapport building and relationship development. Functional assessments (for example through everyday activities) were identified as opportunities to garner

information other than self-report. The benefit of the Canadian Occupational Performance Measure (COPM) as a client-centred outcome measure capable of detecting change in valued activities was stressed.

“you really get to hone in on what are the person’s priorities [using the COPM]” (Simone).

Challenges of assessment.

Therapists described challenges faced during assessment including assessment fatigue for clients, the abstract nature of some scales, client difficulty in identifying problems, and the insensitivity of some assessments to change.

“we maybe fill out about eight outcome measures in total so it should be quite comprehensive but there’s a lot of things that aren’t picked up on that. We also do a patient satisfaction questionnaire and a goodbye speech and the amount of stuff that comes out in that that you don’t pick up on those measures you know that’s hard to, hard to measure properlyYes there’s a lot of qualitative stuff and that’s quite hard to grasp, quite hard to measure” (Patricia).

Most therapists reviewed the assessment findings of their colleagues, were aware of standardised assessments used by colleagues to avoid repetition and two participants reported completing joint assessments with a physiotherapist or psychologist colleague.

Enabling Participation in Activities

This theme illustrates the interventions described by participants and comprises of four sub themes; the relationship between activity and chronic pain, activity as therapy, goal setting to enable participation in activities, and strategies for managing pain and enabling activity.

The relationship between activity and chronic pain.

Participants described a complex relationship between chronic pain and activity performance including client difficulties completing activities and fulfilling social roles, the need for delegation and role re-structuring, and altered habits, routines and activity patterns.

“like one particular lady she kept minimising it, all the problems, but you know what she could nothing, she couldn’t drive, she couldn’t work, she couldn’t go out but even while she was in her house I noticed that she actually was delegating an awful lot of stuff to her husband” (Niamh).

Participants described how pain may lead to abandonment of activities, increased time alone, over-activity or under-activity and particular difficulties with physical activities. Therapists identified how frequently leisure activities were severely affected as people with chronic pain continued essential self-care and work activities. Participants also described multiple benefits to activity participation including pain management and mental health benefits. Participants identified that activity participation provided opportunities for clients to experience satisfaction, pleasure, success, mastery and distraction from pain.

Activity as therapy.

Therapists described the use of activity as therapy. While using activity as therapy multiple aims were being addressed for example; practice of pain management strategies, problem-solving, increasing activity participation, safe exposure to movements and distraction from pain. For example a cooking session on a PMP was described by one therapist as including menu planning, shopping and meal preparation. This activity was used to practice pain management strategies, for example assertive communication and pacing, the activity also allowed clients to give each other feedback, experience pleasure, achievement, and productivity and also helped with closure of the PMP. Other examples of therapy through activity included a daily walk on the PMP where clients have individual goals for time and distance and creative activities including pottery, creative writing, poetry, art, photography, woodwork, clay work and embroidery. Therapists described educating clients about the physical and mental health benefits of activity in order that clients would appreciate how changes in activities could lead to broader health changes.

“Woodwork and lots of art and craft activities and clay work and very traditional OT craft work are used as part of the programme. How people were engaged in these activities, they all had different goals to implement, like they might have been pacing themselves like every ten minutes they had to change position or they could only work for fifteen minutes without taking a break and they are supposed to be learning about how they can manage their pain through engaging in an activity” (Rachel).

Goal setting to enable participation in activities.

Goal setting was described as both guiding therapy and intervention and also as an intervention itself. Goal setting was described as being connected to making changes and achieving goals in activities and roles. Goal setting was described across all activity domains; social activities, housework, self-care, work and hobbies. The

importance of goals being connected to personal values to ensure goals are personally meaningful was stressed and COPM was promoted as a means of ensuring this.

“We try and encourage them to think ... around all aspects of their life ... social, work, home, individual, household, every sort of goal they could work on and we’ll get them to think about ... the balance of their life ... we cover the SMART [specific, measurable, attainable, realistic, timed] goals... and sometimes it will be very simple housework goals, a lot of them will have fitness related goals, like I want to be able to walk more because it will be linked with functional things like need to be able to get to my shop or whatever. Some of them will have kids and will have a lot of goals set around ‘oh I’d love to be able to play with the kids again’ ... so it’s very individual but the most important thing obviously is it’s important to them you know, its things that are going to be life changing for them. (Joanne)

Strategies for managing pain and enable activity.

A number of strategies for the management of pain were identified. These strategies were aimed at longer term improved activity performance or increased client satisfaction with activity performance. Many of these strategies were introduced or practiced through activity as therapy as described above. A core strategy described by all participants was pacing, both quota based and pain contingency based pacing were used by participants. Pacing interventions comprised; education of clients about activity patterns, the use of energy conservation techniques, environmental adaptations, assistive devices, adapted methods of accomplishing activities, setting baselines, practice of pacing through activity as therapy, timer use, daily diary use, prioritisation and planning of activities, task simplification and mindfulness based approaches to pacing. Other strategies or techniques used by almost all participants were; de-sensitisation and mirror therapy, coping strategies, stress management, fatigue management and anger management interventions, techniques for dealing with loss, supporting change, dealing with procrastination, body mechanics, education and training about correct postures, dealing with flare up’s and sleep hygiene. Vocational interventions described by participants included; advice, information, contact with external agencies in training and education, workplace assessment, contact with employers/worksite, workplace modification, work task changes and implementation of pain management strategies at work. Most therapists identified a need to further develop the vocational services they are offering however the constraints of the

structure of PMP's limited many in being able to offer individualised intervention or worksite based intervention.

“throughout the programme the client had some meetings with his employer and established if the suggestions we made be integrated into his work place like a writing slope, a laptop rather than a computer you know on a stand. He was going to have a high stool at the end of the class and at the top of the class ... and then he did return to work for a staggered, you know for two days and increased that over time” (Louise).

Theoretical Approaches

A number of theoretical approaches guiding practice were identified by participants. The biopsychosocial model, adult education theory and client-centred practice were identified as strongly influencing practice. Other theories used included cognitive behavioural theory, humanism, educational theory, rehabilitation theory and the transtheoretical model of change.

Adult approaches to learning.

Many interventions described by participants aimed to educate clients. Participants described using adult learning theory to guide education of clients with chronic pain. This adult approach to education was described as incorporating group based approaches to learning through discussion, brainstorming, sharing of experiences, giving each other feedback and problem based learning in groups. Active learning strategies were also described where clients learned through participating in activities. In order to aid transfer of learning from the clinical situation to home, goal setting, worksheets, and homework activities were described. The difference between this approach to learning and lecture based or didactic education was stressed.

“but I would like to think that it's not just me lecturing them it's a much more shared experience” (Niamh).

Client-centred practice.

All participants described using a client-centred approach based on humanistic principles and identified the difficulties that many people with chronic pain face in being believed. Key features of being client-centred described by participants included; being available to clients, being respectful of client's experiences, listening to clients, validating client's experiences, having unconditional positive regard for clients, prioritising client determined goals and validating client's experiences.

“And we also say phone us you know we give them our phone numbers, if you need to get in touch with us at any point for a top up session or a quick chat over the phone” (Sarah).

“What would you say would be the most effective advice or types of interventions you do?” (Interviewer) “Well I think overall sometimes it’s just even listening to them you know” (Beth).

Challenges in practice.

A number of core challenges emerged across most participants accounts. Difficulties with the current structure of services were identified. Most services were based in acute hospitals with long waiting lists for services. The need for expanded community based services and better follow-up services were identified. The structured nature of PMP’s led to difficulties for participants in being client-centred and offering an individualised service. Most participants identified difficulties enacting therapy through activity because of limited resources, time, skills and a perceived lack of evidence to support activity based interventions. Participants recognised the need to enhance and develop their knowledge and skills in vocational rehabilitation to address their clients work needs comprehensively.

“That’s an area [vocational rehabilitation] that I think is vastly underworked, if we could, if we had, we could bring them further on you know. I’d love to be able to make sure they get back in their jobs, it’s sort of left hanging there mid-air ...but five weeks, you can’t do everything in five weeks; it’s a very short time” (Patricia).

Discussion

The healthcare context (secondary care) and working as part of an MDT shaped the interventions offered by occupational therapists in this study. Results of this study indicate that participants identify role overlap however stressed the need to retain a unique focus and manage role boundaries, which is more in keeping with a multidisciplinary rather than an interdisciplinary approach. However, the description of regular face to face meetings, common goals for intervention and shared intervention sessions reflects an interdisciplinary approach as described by Boon et al (2004) in their conceptual framework of team-orientated healthcare practices. Given the compelling evidence for collaborative and interdisciplinary approaches to healthcare and their endorsement by the WHO (2010) it may be timely to consider a

shift in chronic pain rehabilitation services from multidisciplinary team working to interdisciplinary team working.

Participants described the MDT as having a shared aim of pain management and client self-management of their condition. Self-management is an accepted approach in the management of chronic pain. Ersek et al (2004) identified that multimodal therapies incorporating cognitive and behavioural strategies aim to enhance the ability of patients to successfully self-manage their pain. Five core self-management skills have been identified; problem solving, decision making, resource utilisation, forming of a patient/health care provider partnership and taking action (Lorig and Holman 2003). These five skills are evident throughout the occupational therapists accounts of goal setting, client-centred practice, the use of activities to solve realistic problems and teaching of problem solving and decision making. Thus the practice of occupational therapists is in keeping with the overall shared MDT aim of self-management.

A number of theoretical approaches guiding practice were identified by participants including the biopsychosocial model, adult education theory and client-centred practice. Client-centred practice is internationally accepted as a guiding principle of occupational therapy practice (Maitra and Erway 2006; Sumsion 2009). “Client-centred practice refers to collaborative approaches aimed at enabling occupation with clients... Occupational therapists demonstrate respect for clients, involve clients in decision-making, advocate with and for clients in meeting clients’ needs, and otherwise recognise clients’ experience and knowledge” (Canadian Association of Occupational Therapists 1997, p.49). In a critical review of literature associated with client-centred practice Sumsion and Law (2006) identify a number of key elements to a client-centred approach including; power, listening and communicating, partnership, choice and hope. These key elements of client-centred practice were reflected in the accounts of participants in this study. A number of qualitative studies attest to the difficulties people with chronic pain face in being believed by health professionals (Sim and Madden 2008), therefore the need to establish trusting, egalitarian relationships to ensure patient satisfaction with health care services is of paramount importance. Client-centred services have the potential to address many of the difficulties described by people with chronic pain in their interactions with health service providers.

Therapists in this study described a holistic approach to assessments where all aspects of activity performance are considered. The philosophy of occupational therapy is grounded in holism (Finlay 2001; Mayers 1990), a view which appreciates the unique nature of each person and the integrated nature of the body, mind and spirit. The biopsychosocial model of health is widely accepted as the most heuristic approach in chronic pain services (Gatchel et al 2007) and reflects the holistic perspective of occupational therapists who view and treat people as complex whole beings (Finlay 1997). The value of interview based assessments for developing a relationship with clients was stressed by participants. Many therapists in this study used the Canadian Occupational Performance Measure (COPM). The COPM is an individualized measure designed to detect a self-perceived change in occupational performance problems over time (Law et al 1998). The client is helped through a semi-structured interview to identify up to five activities that are most problematic and then is invited to rate out of 10 their performance and satisfaction with that performance in each of the identified activities (Law et al 1998). The validity of COPM as an outcome measure for a PMP (Carpenter et al 2001) and as an outcome measure with individuals with temporomandibular disorder and orofacial pain (Rochman et al 2008) has been identified. The strong external validity and responsiveness to change of COPM when addressing the goals of clients with chronic low back pain was identified by Walsh et al (2004). COPM is a means of enacting client-centred practice as evidence suggests that COPM improves clients active participation in the rehabilitation process (Wressle et al 2002) and satisfaction with services (Law et al 2003) and provides the treatment team with data related to occupational performance and patient satisfaction (Rochman et al 2008). Given the participants stated overall aim of self-management, a client-centred approach to goal setting to identify patient perceived difficulties and goals is imperative as self-management must be based on patient perceived problems (Lorig and Holman 2003).

The theme 'enabling participation in activities' describes the focus of intervention described by participants. This unique focus of occupational therapists on activity participation was achieved through an appreciation of the complex relationship between activity and pain, the use of activity as therapy, goal setting and the use of strategies such as pacing. Occupational therapists are centrally concerned with the activity consequences of chronic pain (Robinson et al 2011a, 2011b; Strong 2002) and participants in this study demonstrated a sophisticated understanding of the

complex consequences of chronic pain on activity. Chronic pain significantly affects activity performance across multiple spheres of life; vocational, family and leisure. Chronic pain severely affects sleep, ability to exercise, walk, work, do household chores, attending social activities and maintain an independent lifestyle (Breivik et al 2006). Turk et al (2008) completed focus groups with people with chronic pain (n=31) to identify aspects of their lives that were significantly impacted by the presence of their symptoms and for which improvements were important criteria they would use in evaluating the effectiveness of any intervention. Nineteen key aspects were identified and were dominated by activities including; sex life, taking care of family, employment, household activities, planning activities, participating in family events/activities, participating in recreational and social activities, physical activities and hobbies. The importance of these items was confirmed by a web based survey of people with chronic pain (N=959) (Turk et al 2008). Increased or improved activity performance is frequently cited as the outcome of chronic pain interventions (Hanson and Gerber 1990; Keefe et al 2002; Williams et al 1996), and the importance of improvement in activities as an outcome to patients has also been identified (Casarett et al 2001).

Occupational therapists enable clients to engage in everyday activities that they want and need to do in a manner that supports health and participation. As reflected in the accounts of the therapists in this study occupational therapists work towards an end goal or outcome of engagement in activities and also use activities as a method of intervention, by engaging clients in therapeutically selected activities (American Occupational Therapy Association 2008). Thus, activity is both the means and end of occupational therapy (Trombly 1995). This central defining feature of the profession is grounded in the relationship between what people do and their health and wellbeing. Occupational therapists appreciate the potential health benefits of all types of activities for example the health and well-being benefits of employment (Waddell and Burton 2006), social and productive activities (Glass et al 1999) and creative activities (Runco 2004). Participants in this study described using many different activities as therapy (e.g. woodwork, walking and creative writing) and identified client activity goals across all activity domains (self-care, work and leisure). In keeping with the accounts of participants in this study Skjutar et al (2010) completed focus groups with occupational therapists (n=25) to describe their perceptions of indicators for occupational therapy interventions among clients with

chronic pain. Limitations of occupational performance emerged as the greatest indicator of need for occupational therapy intervention. This included difficulty in completing activities, a wish to resume previous activities or to learn new activities. Müllersdorf through survey research (n=443) identified dissatisfaction with time spent in self-care, leisure and work, and the performance of activities with increased effort and tension due to pain, as the occupational therapy needs most frequently identified by people with chronic pain (2000). Thus people with chronic pain themselves identify activity related needs as their greatest occupational therapy needs.

In this study a number of strategies for enabling participation in activities were identified including stress management, anger management, supporting change, dealing with procrastination, fatigue management, body mechanics, sleep hygiene and vocational rehabilitation interventions. These strategies were used for the longer term goal of improved activity performance or improved satisfaction with activity participation. A core strategy described by all participants was pacing, both quota based and pain contingency based pacing were used by participants. Pacing interventions included; education, use of energy conservation techniques, environmental adaptations, setting baselines, timer use, diary use, task simplification and mindfulness based approaches to pacing. McCracken and Samuel (2007) note the little research attention paid to activity patterns such as pacing in comparison to the attention to activity avoidance in pain research. The paucity of outcome studies specific to pacing as an intervention has been identified by Gill and Brown (2009) who concluded that pacing lacks consensus of definition and lacks a demonstrable evidence-base. Given the clinical importance of pacing to occupational therapy practice there is an urgent need to define pacing and research the efficacy of pacing interventions.

Given the exploratory nature of this study and the constraints imposed by the design the results prompt further research questions. Future research is required to define occupational therapy interventions with people with chronic pain and validate the findings of this study. This could be achieved through a large scale multi-national Delphi survey of occupational therapists. Efficacy studies of occupational therapy for people with chronic pain are urgently required. Further research on team working within chronic pain rehabilitation services is also warranted, particularly the outcomes of inter-professional or collaborative practice.

There a number of limitations to this study. Firstly, the sample size is small and not representative of the population although all occupational therapists in the Republic of Ireland working in dedicated pain management posts participated in the study. Secondly, the analytic process, although rigorous, is open to criticism as the participants were involved in data analysis and therefore shaped the presented findings and the analysis was completed exclusively by occupational therapists.

Conclusion

Occupational therapists are regarded as central members of a multidisciplinary healthcare team approach to the management of chronic pain. In order for multidisciplinary teams to function optimally it is imperative that the unique contribution and role of each team member is understood. This qualitative study of the clinical practice of occupational therapists in the Republic of Ireland and Northern Ireland clarifies the unique contribution of occupational therapy to a multidisciplinary approach to the management of chronic pain. Findings revealed that occupational therapist adopt a holistic approach to assessment where all aspects of activity performance are considered. The core focus of the intervention of occupational therapists with people with chronic pain is enabling participation in activities. This is achieved through; an appreciation of the complex relationship between chronic pain and activity, the use of activity as therapy, goal setting and the use of strategies such as pacing. A number of theoretical approaches guide the practice of occupational therapists including the biopsychosocial model, adult education theory and client-centred practice.

Table 1 Description of study participants

Pseudonym	Years since qualification	Work setting
Rachel	10	Academic and research setting
Patricia	20	Acute general hospital
Beth	4	Acute general hospital
Louise	10	Acute general hospital
Niamh	26	Acute general hospital
Joanne	14	Acute general hospital
Sarah	11	Acute general hospital
Simone	14	Acute general hospital

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Paper V

Brennan, B., Corcoran, O., Irudayaraj, B., Kearney, S.A.,
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S. Vocational Rehabilitation for People with
Musculoskeletal Disorders: Implications for Practice.
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Abstract

There is high incidence of musculoskeletal disorders among the working age population, and high rates of work disability among those with musculoskeletal disorders. Work related disability has significant costs for the individual, families and society. Occupational therapists are highly skilled and optimally placed to play a central role in vocational rehabilitation. A review of evidence is presented on various vocational rehabilitation (VR) interventions for people with musculoskeletal disorders. Occupational therapists are encouraged to be proactive, not reactive, in addressing the work needs of clients with musculoskeletal conditions. Early intervention is critical to successful VR. Particularly important is the need to intervene before the person has lost their job and to communicate as early as possible with the employer. Occupational therapists should adopt a holistic approach in working with clients with musculoskeletal disorders given the high rates of mental illness among this group and the complex interplay between physical and psychosocial factors in work related disability. Multidisciplinary rehabilitation programs, for example Pain Management Programs (PMP's), with cognitive behavioural principles are appropriate approaches to achieve return to work (RTW) for people with chronic/persistent musculoskeletal disorders. The context of VR is important as successful VR cannot occur in isolation from the workplace and the employer. Temporary provision of modified work leads to faster and better return-to-work outcomes. These findings support an occupational perspective of health and reflect the benefits of work for people with musculoskeletal disorders. The most effective VR interventions reflect core occupational therapy beliefs about the importance of context, the just-right challenge, and the importance of meaningful occupation.

Key Words: Occupational Therapy, Vocational Rehabilitation, Musculoskeletal Disorders, Chronic Pain, Work

Introduction

Musculoskeletal disorders (MSD's) encompass a spectrum of conditions, from those of acute onset and short duration to lifelong disorders; including osteoarthritis, rheumatoid arthritis, osteoporosis, and low back pain (Woolf and Pfleger 2003). A community prevalence study identified the prevalence of chronic pain in the Republic of Ireland at 35.5% (Raftery et al 2011). The most common condition associated with chronic pain is chronic back pain. The majority of people living in the industrialised world will experience an episode of acute back pain and of those 10-50% will experience back pain for more than three months (Henschke et al 2008). Other conditions included under the umbrella of chronic pain include arthritis, fibromyalgia, chronic pelvic pain, chronic headache and complex regional pain syndrome. The economic costs associated with chronic pain are staggering and include; healthcare costs, lost working time, legal fees, insurance costs and welfare costs. In 2002 in Ireland approximately €348 million in illness related income support was paid to people with low back pain alone (Fullen et al 2006). A systematic review of cost of back pain studies concluded that the greatest cost savings from a societal perspective may be obtained from interventions that promote early return to work (RTW) and minimise lost work productivity (Dagenais et al 2008). Chronic pain significantly affects the ability to complete every day activities including work (Breivik et al 2006) and occupational therapists are recognised as key members of a multidisciplinary pain management team (Sanders et al 2005) having a unique focus on the activity consequences, including work disability, associated with MSD's.

Work: An Occupational Perspective

The significance of work and productive occupations is well understood within occupational science and therapy. Work is not just paid employment but includes employment interests and pursuits, employment seeking and acquisition, job performance, retirement preparation and adjustment, volunteer exploration and volunteer participation (American Occupational Therapy Association 2008). Work is a means of obtaining adequate economic resources (which are essential for material well-being and full participation in society), meeting important psychosocial needs, and is central to individual identity, social roles and social status (Waddell and Burton 2006). There is strong evidence that unemployment is generally harmful to physical and mental health and strong evidence that work is associated with indices of well-

being and health (Clark et al 2004; Waddell and Burton 2006; Winkelmann and Winkelmann 1998). A robust body of evidence also supports the multiple benefits of volunteering for well-being (Baker et al 2005; Borgonovi 2008; Meier and Stutzer 2008; Morrow-Howell et al 2003; Thoits and Hewitt 2001). Given occupational therapists sophisticated understanding of the complexity of occupational performance, the profession is arguably best placed to address the vocational consequences of chronic pain and musculoskeletal disorders (Robinson et al 2011).

In relation to MSD's, work has been shown to be positively associated with physical health related quality of life for working age people with Rheumatoid Arthritis and Ankylosing Spondylitis (AS) (Chorus et al 2003).

However, not all work has these potential benefits, it is important to note that for work to be health-promoting it must constitute 'good work'. Coats and Lehki (2008, p.6) identified the following features of 'good work'.

- Employment security
- Work that is not characterised by monotony and repetition
- Autonomy, control and task discretion
- A balance between the efforts workers make and the rewards they receive
- Whether workers have the skills needed to cope with periods of intense pressure
- Observance of the basic principles of procedural justice
- Strong workplace relationships

Musculoskeletal Disorders and Work Disability

There is high incidence of musculoskeletal disorders among the working age population and high rates of work disability among those with musculoskeletal disorders. A review of cross-sectional and longitudinal studies found substantial work disability rates in people with RA (Verstappen et al 2004). In 2008 a survey of people with Rheumatoid Arthritis (RA) in Ireland showed that 70 per cent were not able to work outside the home because of their condition (Arthritis Ireland 2008). Similarly, a Lithuanian study found that after 10 years of rheumatoid arthritis, 48% of patients had withdrawn from the labour force (Dadoniene et al 2004). Withdrawal from work has been shown to be 3.1 times higher in patients with Ankylosing Spondylitis (AS) than expected in the general population (Boonen et al 2001). A systematic review of

studies of productivity loss due to RA found that a median of 66% of employed people with RA experienced productivity loss due to RA in the previous 12 months for a median of 39 days (Burton et al 2006). In a systematic review of cost of back pain studies 50% of people with back pain had <30 days work disability duration, 25% had 30 to 90 days, 12% had 91 to 180 days and 13% had >180 days work disability duration (Dagenais et al 2008).

For those with MSD's who remain in work employment costs of MSD's include both work absences (absenteeism) and decreased productivity for those who continue to work despite being affected by their condition (presenteeism) (Goetzel et al 2003). In a prospective interview based study with people with arthritis 63.1% of respondents remained employed throughout the study however work transitions were common (reported by 76.5% of participants) productivity losses, especially job disruptions such as being unable to take on extra work, were the most frequently reported (Gignac et al 2008).

Vocational Rehabilitation: An Introduction

Vocational rehabilitation (VR) has been defined as 'a process to overcome the barriers an individual faces when accessing, remaining or returning to work following injury, illness or impairment. This process includes the procedures in place to support the individual and or/employer or others (for example family and carers), including help to access VR and to practically manage the delivery of VR; and in addition, VR includes the wide range of interventions to help individuals with a health condition and/or impairment overcome barriers to work and so remain in, return to, or access employment. For example, an assessment of needs, re-training and capacity building, return to work management by employers, reasonable adjustments and control measures, disability awareness, condition management and medical treatment" (Department for Work and Pensions UK 2004, p.14-15).

Occupational therapists are highly skilled and optimally placed to play a central role in VR. Although many professional disciplines provide VR services occupational therapists offer a uniquely valuable service based upon extensive expertise (Bade and Eckert 2008). Occupational therapists have a distinctive value in VR based on their holistic training in both physical and psychosocial sciences, activity analysis, rehabilitation, design of accommodations, team dynamics, negotiation skills and organizational behaviour (Bade and Eckert 2008).

Occupational therapists have unique knowledge of occupation and expertise in the use of occupation. ‘Occupational therapist’s help people to maximise employment opportunities by developing strategies to prevent injury or illness in the workplace, ensuring health and safety at work, carrying out workplace assessments, task analysis, capacity and motivation building, and absence management’ (College of Occupational Therapists [COT] 2008, p.1). It is widely acknowledged that the role of an occupational therapist in VR is extensive and may include; assessment, functional capacity evaluation, career exploration, work modification, work conditioning, return to work planning, advice on coping strategies and occupational counselling, functional education and work task coaching, case management, assistance advice and training for employers and supervisors (COT 2008; Ross 2008; Holmes 2007). Throughout the VR process occupational therapists utilise their specialised knowledge of the complex relationship between occupation, health and wellbeing and their unique knowledge of the ‘therapeutic power of occupation’ (Pierce 2001).

Key Principles to Guide Vocational rehabilitation with Clients with Musculoskeletal Disorders

Practice Guidelines and Review Documents

Waddell, Burton and Kendall were commissioned by the Vocational Rehabilitation Task Group (a group of stakeholders representing the UK Government, employers, unions and insurers) in association with the Industrial Injuries Advisory Council (IIAC) to independently review the scientific evidence for VR. Evidence was extracted from over 450 publications for this review (2008). Reproduced in Table 1 are the eleven evidence statements which summarize the findings of this review.

The College of Occupational Therapists National Association of Rheumatology Occupational Therapy Clinical Guidelines for the Management of Rheumatoid Arthritis (2003) and the findings of the ‘Fit for Work’ European report (Bevan et al 2009a) are in keeping with the recommendations of Waddell, Burton and Kendall (2008).

The College of Occupational Therapists have developed clinical guidelines for occupational therapists working in rheumatology (2003). These guidelines support early intervention, specialist work rehabilitation, the use of cognitive behavioural therapy, joint protection and ergonomic interventions taught at work, the use of

assistive devices, graded return to work (after extended absence), and workplace accommodations for reducing work disability (COT 2003).

'*Fit for Work Europe*' was a major pan-European study conducted by The Work Foundation exploring the impact of low back pain and work-related upper limb disorders and rheumatoid arthritis (RA) and spondyloarthropathy (Bevan et al 2009a). In keeping with the above reviews '*Fit for Work Europe*' endorses; early intervention, adjusting work demands to facilitate return to work (physical environment, working time, psychological support etc.), workplace interventions as potentially supportive of job retention, return to work interventions, VR, and timely interventions from physiotherapists and psychologists (Bevan et al 2009a). The Irish strand of the '*Fit for Work*' report endorses early intervention, a focus on capacity not incapacity by clinicians, imaginative job design as key to rehabilitation and this report stresses the need for clinicians to think beyond physical symptoms alone (Bevan et al 2009b).

The American Occupational Therapy Association (AOTA) published Practice Guidelines for Individuals with Work-related Injuries and Illnesses (Kaskutas and Snodgrass 2009). Evidence for interventions for low back pain, clinical conditions of the elbow, clinical conditions of the hand, wrist and forearm, and clinical conditions of the shoulder are presented. For back pain the review recommends; work conditioning or work hardening combined with cognitive behavioural approaches, exercise instruction combined with proper body mechanics (back schools) in an occupational setting, environmental modifications (worksite visit, ergonomic modifications) and heat wrap therapy (for acute or sub-acute back pain) (Kaskutas and Snodgrass 2009).

Based on these review documents and a review of literature the following key principles were identified to guide VR with clients with MSD's.

Be Proactive

Occupational therapists should be proactive in addressing the work needs of clients with MSD's as this group may be unwilling to reveal their condition in the workplace and may not know how to access work rehabilitation services. A telephone survey of 498 people with chronic musculoskeletal pain (screened from a total of 3323) and 150 general practitioners (GP's) in Ireland found that chronic musculoskeletal pain affected one in six of the people screened (Veale et al 2008). However, 25% of those surveyed have never consulted a doctor about their condition

and many others had waited up to two years before seeking help. The survey found that people with chronic musculoskeletal pain have misconceptions about their condition, treatment options and side effects and patients rarely receive written information from their GP on these subjects (Veale et al 2008). In a qualitative interview-based study with ten Irish participants with RA most participants recognized a need for work intervention, however many did not know when or how to access it (Codd et al 2010). Furthermore, it has been identified that the concealment of arthritis in the workplace is common (Gignac et al 2004; Gignac et al 2008).

Adopt a Holistic Approach

Holism is central to the professional philosophy of occupational therapy (Finlay 2001; Mayers 1990); this view appreciates the integrated nature of the body, mind and spirit. It is crucial that occupational therapists adopt a holistic approach in working with clients with MSD's given the high rates of mental illness among this population and the interplay of physical and psychosocial factors in work related disability.

A report by the Work Foundation 'Body and Soul' outlines the connection between physical and mental health and the benefits of work for recovery and overall health of the workforce. The following findings were identified in this review (McGee and Ashby 2010):

- The rate of mental health conditions is higher among those with chronic physical health conditions (Katon et al 2007; Mousavi et al 2007).
- Approximately 25% of people with arthritis report a mental health condition (Tang et al 2006).
- In a national epidemiologic survey about 19% of people who were absent from work because of chronic pain were depressed whereas only 8% who were not absent were depressed (Munce et al 2007).
- Co-morbid mental and physical health conditions leads to worse functional health outcomes (Schmitz et al 2007)
- Work stress and co-morbid physical and mental health conditions can lead to more disability days, partial disability days and extra effort days (Dewa et al 2007).

Psychosocial variables are central to understanding the relationship between impairment, pain and function. Physical impairment and pain correlate poorly with

disability (Gallagher et al 1995; Turk and Okifuji 1996; Waddell et al 1984). A systematic review to determine factors that are predictive of work disability for people with RA found strong evidence that physical job demands, low functional capacity, old age and low education level predict work disability; however, biological variables did not consistently predict work disability (DeCroon et al 2004). In a cross-sectional study of 8000 workers high exposure to both physical and psychosocial work risk factors was associated with the reporting of low-back, upper back, neck, shoulder, elbow/forearm and hand/wrist musculoskeletal complaints (Devereux et al 2004). In a follow-up study of 3,139 of these workers over approximately 15 months high exposure to both physical and psychosocial work risk factors also increased the likelihood of reporting new episodes of self-reported low-back, neck, shoulder, elbow/forearm and hand/wrist complaints (Devereux et al 2004).

Timing is Everything

Timely intervention is critical to successful VR. Especially important is the need to intervene before the person has lost their job and if possible while the individual is in the early stages of work instability. The likelihood of return to work (RTW) after musculoskeletal injury is greatest in the first month and becomes less likely with passage of time and least likely once the person has lost their job (Haldorsen et al 2002; Watson et al 2004; Waddell and Watson, 2004). Early communication between healthcare provider and employer is also recommended (Kosny et al 2006).

Evidence to support targeted and comprehensive occupational therapy for improving work outcomes in people with arthritis who are experiencing work instability exists. A six month prospective randomised controlled trial of occupational therapy versus usual care for employed people with RA with perceived work disability risk was completed (Macedo et al 2009). The improvement in the occupational therapy group was significantly greater than that in the usual care group for functional and work-related outcomes. The occupational therapy group received six months of comprehensive occupational therapy over 6-8 sessions following assessment from a therapist with specialist training in rheumatology and VR. Typical interventions provided included; education on RA, medications, compliance and management within the Rheumatoid Arthritis Centre clinics, self-advocacy, work place rights and responsibilities, ergonomic reviews, discussions with employers regarding accommodations, posture advice, pacing, activities of daily living, stress

management, assertiveness, sleep posture and hygiene, exercises, footwear, splinting and assertive communication (Macedo et al 2009, p.1523).

Another randomised controlled trial (n=242) to determine the efficacy of VR for people with rheumatic diseases while they are still employed but at risk of job loss demonstrate delayed job loss for those receiving VR (Allaire et al 2003). The VR intervention consisted of two 1.5 hour sessions of VR, delivered by rehabilitation counsellors and participants were followed up at 48 months (Allaire et al 2003).

A study to examine the effects of pain chronicity on the responsiveness of psychosocial variables to intervention for people with whiplash injuries also demonstrated the effects of timely intervention (Adams et al 2007). Seventy five work-disabled participants with whiplash (Grade II) participated in a ten week community based psychosocial intervention aimed at facilitating return to work. Participants were classified as sub acute (4-12 weeks), early chronic (3-6months) or chronic (6-18 months), Return to work rates were 80% (sub-acute), 72 (early chronic), and 32% (chronic) (Adams et al 2007).

Work with a (Multidisciplinary) Team

Multidisciplinary rehabilitation programs (for example Pain Management Programs, PMP's) with cognitive behavioural principles are appropriate approaches to achieve return to work for people with chronic/persistent musculoskeletal disorders.

In their systematic review Waddell, Burton and Kendall (2008) identified strong evidence that structured multidisciplinary rehabilitation programmes, including cognitive behavioural principles to tackle psychosocial issues, are effective for helping people with persistent musculoskeletal disorders return to work.

A population based randomised controlled trial (n=134) in a primary care setting compared usual care to integrated care for people with chronic low back pain. Integrated care consisted of a workplace intervention based on participatory ergonomics, involving a supervisor and a graded activity program based on cognitive behavioural principle (Lambeek et al 2010). The integrated care was provided by a team consisting of a clinical occupational physician, a medical specialist, an occupational therapist and a physiotherapist. Integrated care led to substantially reduced work disability, median duration from randomisation to return to work was 88 days for the integrated care participants and 208 days for participants receiving usual care (Lambeek et al 2010).

Involve the Employer and Go To the Workplace

Successful VR cannot occur in isolation from the workplace and the employer. Latest evidence supports the use of biopsychosocial approach in close proximity to work for improved early management of musculoskeletal disorders (Breen et al 2005; 2007; Hagberg 2005; Nordmark et al 2006).

Ross recommends that following a comprehensive assessment (including a work-site assessment) a return to work (RTW) plan should be generated (2008). A RTW plan is developed by an occupational therapist in collaboration with the employee and the employer and includes details of workplace modifications required, what are suitable duties for the worker, what are suitable work hours, and duties/tasks to be avoided, and any supervision, training, or other support required (Ross 2008; WorkCover NSW 2003). The RTW plan is a contract between all parties and it should be written and signed by the occupational therapist, worker and employer.

A review of the effectiveness of workplace interventions to prevent and manage common health problems found that interventions which included some form of employer/employee partnership, and/or consultation, demonstrated improved results compared to those which did not (Hill et al 2007). Similarly, a systematic review of the effectiveness of workplace based return to work interventions for people with musculoskeletal or other pain-related conditions concluded that there is strong evidence that work disability duration is significantly reduced by workplace accommodations and contracts between healthcare providers and the workplace (Franche et al 2005).

Further evidence to support contact between the health service provider and the workplace and employer includes a Cochrane review of multidisciplinary biopsychosocial rehabilitation for sub-acute back pain which concluded there is moderate scientific evidence showing that multidisciplinary rehabilitation, including a worksite visit or more comprehensive occupational health care intervention, helps patients to return to work faster (Karjalainen et al 2003).

Always Consider Temporary Modified Work

Temporary provision of modified work leads to faster and better return-to-work outcomes. Many studies indicate that the workplace is the most appropriate place for the employee to recover and that rehabilitation needs to be focused on the

tasks that are required for work (Hanson et al 2006). In an evidence synthesis of management of upper limb disorders early return to work, or work retention are recommended as an important goal for most people, which may be facilitated by transitional work arrangements (Burton et al 2008). Clients with musculoskeletal disorders who performed modified work had a lower risk of recurrence of sick leave than those who returned directly to full duties (van Duijn and Burdorf 2008). The provision of temporary modified work is frequently a low cost VR intervention (Waddell et al 2008).

Ergonomic Interventions

Ergonomic interventions alone do not appear to have a strong effect on return to work but appear to be effective in combination with other approaches. European guidelines for management of low back pain based on systematic evidence reviews endorse modified work and ergonomic workplace adaptations to facilitate earlier return to work for workers sick listed due to low back pain, however, they note that there is insufficient consistent evidence to recommended physical ergonomics interventions alone for prevention in low back pain (COST B13 Working Group 2004). A review of intervention programmes for neck or upper extremity musculoskeletal conditions found limited evidence that work environment or workstation adjustments (mouse/keyboard design) can improve neck or upper extremity musculoskeletal conditions in display screen workers, but insufficient evidence for equipment interventions among manufacturing workers (Boocock et al 2007). In a systematic review of work-related complaints of the arm, neck, or shoulder conflicting evidence concerning the effectiveness of ergonomic programs over no treatment was found (Verhagen et al 2007). A systematic review of the effectiveness of workplace rehabilitation interventions for injured workers with low back pain found that ergonomic interventions such as participatory ergonomics and workplace adaptation, adaptation of job tasks and adaptation of working hours were effective in returning injured workers to work (Williams et al 2007).

Work Hardening

Currently strong evidence to support work hardening alone as a strategy to return clients with musculoskeletal disorders to work does not exist. Work hardening or physical conditioning simulate or duplicate work tasks in a supervised

environment, tasks are then progressively graded to increase tolerance over time. A Cochrane review of work hardening for people with back pain concluded that for workers with chronic back pain work hardening had a small effect at long term follow-up (Schaafsma et al 2010). This review also found that work hardening/physical conditioning may have an effect on sick leave for workers with sub-acute back pain and work-place involvement might improve the outcome (Schaafsma et al 2010).

In keeping with the studies reviewed earlier on workplace based rehabilitation it appears that physical conditioning may be more effective when completed in an occupational health setting or when combined with on-the-job evaluations. A systematic review of effective return to work program interventions among sick listed patients with no specific musculoskeletal complaints found physical conditioning and work hardening were part of six effective programs, physical conditioning combined with on-the-job evaluations led to faster return to work times than physical conditioning alone (Meijer et al 2005). Furthermore, a randomised control trial found that graded activity for low back pain in an occupational health setting had a significant effect on absence from work compared to usual care (Staal et al 2004).

Job placement

Results of a randomised controlled trial of the efficacy of a job placement and support programme for workers with musculoskeletal disorders who are having difficulties resuming the work role indicated significantly higher return to work in the job placement group (73%) compared to the control group (51.6%) (Li-Tsang et al 2008). The job placement and support program comprised of an individual interview, vocational counselling, job preparation training, and assisted placement using a case management approach (Li-Tsang et al 2008).

Summary and Conclusion

There is high incidence of musculoskeletal disorders among the working age population and high rates of work disability among those with musculoskeletal disorders. Based on the reviewed literature a number of principles have been identified to guide VR interventions with people with MSD's. Occupational therapists are encouraged to be proactive, not reactive, in addressing the work needs of clients with MSD's as this group may be unwilling to reveal their condition in the workplace

and may not know how to access work rehabilitation services. Early intervention is critical to successful VR; especially important is the need to intervene before the person has lost their job, if possible in the early stages of work instability. Occupational therapists should adopt a holistic approach in working with clients with musculoskeletal disorders given the high rates of mental illness among this group and the interplay of physical and psychosocial factors in work related disability. The context of VR is important to consider as successful VR cannot occur in isolation from the workplace and the employer. It appears that temporary provision of modified work leads to faster and better return-to-work outcomes. Multidisciplinary rehabilitation programs with cognitive behavioural principles are appropriate approaches to achieve return to work for people with chronic/persistent musculoskeletal disorders.

These findings and principles for practice support an occupational perspective of health stressing the benefits of work for people with chronic pain and MSD's. The most effective VR interventions reflect core occupational therapy beliefs about the importance of context, the just right challenge, and the importance of meaningful occupation. These principles are reflected in the evidence that the most effective VR involves real work tasks, in the work environment, graded to the individual's capacity. The holistic perspective of occupational therapy which appreciates the influence of multiple factors resonates with the growing awareness that biological factors alone do not explain work disability or ability in people with chronic pain.

Table 1. Evidence Statements from 'Vocational rehabilitation - what works for whom, and when?'

Evidence Statements from 'Vocational rehabilitation - what works for whom, and when?'

(Waddell, Burton, and Kendall, 2008, p.16-18)

There are good epidemiological and clinical reasons and widespread acceptance throughout the literature that **early return to work** and **stay at work** approaches are appropriate and beneficial for most people with most musculoskeletal disorders.

A common set of approaches for helping people return to work are effective across the range of musculoskeletal disorders/injuries (accepting that some specific diagnoses require condition-specific treatment).

There is strong evidence that vocational outcomes for most people with most musculoskeletal disorders are improved by **(increasing) activity**, including **early return to (some) work**.

Early intervention through delivery of appropriate treatment, positive advice/reassurance about activity and work, and/or workplace accommodation is sufficient for many people with musculoskeletal disorders; those who do not respond in a timely manner may require more structured vocational rehabilitation interventions.

Treatments to address any specific pathology and to reduce symptoms are integral to vocational rehabilitation, but **treatment *per se* has little impact** on occupational outcomes.

There is moderate evidence (and wide consensus) that vocational rehabilitation entails a number of elements, which must take account of the individual, their health condition and their work; **involvement of the workplace is crucial**.

There is strong evidence that temporarily **modified work** (transitional work arrangements) can facilitate early return to work.

There is strong evidence that structured **multidisciplinary rehabilitation programmes**, including cognitive behavioural principles to tackle psychosocial issues, are effective for helping people with persistent musculoskeletal disorders return to work.

There is strong evidence that commitment and coordinated action from **all the players** is crucial for successful vocational rehabilitation: especially important is **communication between healthcare professionals, employers and workers**, which should be initiated at an early stage of absence.

There is general consensus and limited evidence that successful return to work requires the provision of **consistent information and advice** (including the correction of unhelpful beliefs and myths) for all the players.

There is limited evidence that (some aspects of) vocational rehabilitation for musculoskeletal disorders can be cost-effective

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Paper VI

Robinson, K., Kennedy, N. and Harmon, D. Happiness:
A Review of Evidence of Relevance to Occupational
Science. Accepted for publication in *Journal of
Occupational Science*.

Abstract

Occupational scientists must synthesise and apply knowledge generated within related disciplines to ensure the continued development of the discipline. This paper reviews the evidence available to occupational scientists on human happiness. This body of research can be utilised by occupational scientists to better understand the subjective experience of occupational engagement. Two key philosophical traditions in happiness studies, hedonism and eudaimonia, are presented and theories of human happiness, including set-point theory, are described. A number of thematic areas of research on human happiness are reviewed. The relationships between happiness and health, living situation, personal goals, work, volunteering, flow, religiosity and relationships are reviewed. The reviewed studies underscore the centrality of occupation to contemporary understandings of human happiness.

Key words: Happiness, Well-Being, Occupation, Flow

Introduction

Many disciplines have studied human happiness and its correlates. This body of research can be utilised by occupational scientists to better understand the subjective experience of occupational engagement, which has been recognised as a central concern of occupational science (Clark et al 1991). In this review, theories of human happiness and a number of thematic areas of research on human happiness are presented. The included studies were generated by multiple keyword searches using databases including PubMed, CINAHL, PsychINFO, Elsevier ScienceDirect, EBSCO and Web of Science. The keywords were generated following an initial review of happiness theories. This review focuses on studies of happiness that relate to human occupation and were considered of interest to occupational science. In psychology the term 'activity' is used to refer to the realm of things that people do which occupational scientists commonly refer to as 'occupation'. As illustrated in the definition of activity as "anything an organism does or that occurs within an organism involving energy expenditure" in a dictionary of psychology (Basavanna 2000, p.6).

Clark (2006) called for occupational scientists to be "open, flexible, proactive, abreast of trends, and able to wax and wane as circumstances change" in order for the discipline of occupational science to survive. If the discipline of occupational science is to thrive occupational scientists must be creative in synthesising and applying knowledge generated within related disciplines. The review and application of related bodies of research to occupational science will not alone strengthen the empirical foundations of the discipline but also will potentially facilitate greater interdisciplinary research within occupational science. Clark (2006) notes that despite the founding vision of occupational science as interdisciplinary, currently only a handful of scholars from other disciplines are publishing in occupational science journals, joining societies or attending occupational science symposia. Clark (2006) calls for occupational scientists to work harder to develop an interdisciplinary community of scholars. Review articles such as this may assist colleagues in disciplines beyond occupational therapy to see connections between their disciplines and occupational science.

The French philosopher Edgar Morin examined fundamental problems that are overlooked or neglected in education for UNESCO in 1999. These problems are presented as "seven complex lessons" that should be covered in an education of the future in all societies in every culture. He discusses the separation of knowledge

within different disciplines “Our compartmentalized, piecemeal, disjointed learning is deeply drastically inadequate to grasp realities and problems that are ever more global, transnational, multidimensional, transversal, polydisciplinary and planetary” (Morin 1999, p. 13). Occupational science will only live up to the vision of its founders when there is truly interdisciplinary collaboration on occupation. In discussing the human condition Morin stresses the need for an integrated approach “Humans are physical, biological, psychological, cultural, social, historical beings. This complex unity of human nature has been so thoroughly disintegrated by education divided into disciplines, that we can no longer learn what human being means” (Morin 1999, p. 2). Occupational science embraces a similar perspective where the contributions of multiple different disciplines are embraced.

Positive Psychology: An introduction

The field of positive psychology has emerged within psychology in the past 10 years, to study “the strengths and virtues that enable individuals and communities to thrive” (Compton 2005, p. 22). After decades of studying dysfunction and negative human experiences, this movement represents an attempt to rebalance psychology by studying concepts such as wisdom, hope, resilience and happiness (Seligman and Csikszentmihalyi 2000). Happiness was chosen for review as the concept is well developed and researched within psychology and in attempting to understand happiness daily activity has been considered extensively.

Happiness: Theoretical Perspectives

Hedonism and Eudaimonia

Two philosophical traditions in the study of happiness exist; eudaimonia and hedonism. Eudaimonia refers to the fulfilment of our potential as human beings through realising our daimon or true nature and this view can be traced to the writings of Aristotle. Waterman (1993) proposed that eudaimonia occurs when people’s activities are most congruent with deeply held values and the individual is fully engaged in the activity. In a similar vein, Ryff (1995) defined well-being as “the striving for perfection that represents the realization of one’s true potential” (p. 100). Eudaimonia resonates with an occupational perspective of health as described by Ann Wilcock. Using a historical research approach Wilcock proposes that the human need to engage in occupation is innate and related to health and survival. “There is a 3-way

link between occupation, health, and survival, in that occupation provides the mechanism for people to fulfil basic human needs essential for survival and health; to adapt to environmental changes; and to develop and exercise genetic capacities in order to maintain health and to experience physical, mental, and social well-being.”(Wilcock 2006, p.50). It is the third function of occupation; to exercise and develop personal capacities that enable the organism to be maintained and to flourish (Wilcock 2006) that reflects a eudaimonic perspective.

Hedonia or hedonic happiness is a subjective experience of pleasure (Waterman 2008). Hedonism reflects the view that well-being consists of happiness, pleasure or avoiding something unpleasant (Kahneman et al 1999; Ryan and Deci 2001). A wide range of occupations may enable the experience of hedonia and these occupations vary from individual to individual. Within hedonic psychology subjective well-being is thought to have three components; life satisfaction, positive mood and the absence of negative mood (Diener 1984). Its measurement is popular using self-report and the concept has frequently been used interchangeably with ‘happiness’ (Diener and Lucas 1999). Within occupational science the concept of well-being has been extensively considered and described as the outcome of occupational performance (Jonsson 2008; Reid 2008; Reynolds 2004; Stone 2003). There is no comparable construct to measure eudaimonic happiness, but concepts that do not rely on an explicit affective component such as flourishing and flow have been used (Kashdan et al 2008). Other constructs assessed under the umbrella of eudaimonia include self-determination and the satisfaction of essential human needs for autonomy, competence and belonging (Deci and Ryan 2000); intrinsic motivation and pursuing goals that are congruent with one’s core interests and values (Ryan et al 2008); taking part in activities that make people feel alive, engaged and fulfilled (Waterman 1993; Waterman et al 2008); and living in accordance with meaning and purpose in life (McGregor and Little 1998; Seligman 2002). Many of these constructs are also of interest to occupational scientists, who associate them with human occupation. We propose that eudaimonia is a more useful conceptualisation of happiness for occupational scientists, however research on happiness to date is dominated by measurement of subjective well-being, reflecting a hedonistic perspective of happiness.

Set Point Theory and Hedonic Adaptation

The set point theory of happiness asserts that people have a natural set point of happiness to which they return after positive and negative experiences. Positive experiences may temporarily shift people from their baseline or set point of happiness, however an individual's happiness cannot improve long term. Another theory that challenges the idea that well-being can improve is hedonic adaptation or the hedonic treadmill, a term first used by Brickman and Campbell (1971) to explain that although people continue to accumulate objects and experiences that make them happy or unhappy, their overall well-being tends to remain fairly static. The hedonic treadmill illustrates this notion of human adaptation to all things positive and negative. This theory is supported by research such as twin studies and adoption studies which illustrate that the heritability of well-being may be as high as 80% (Lykken and Tellegen 1996). Set point theorists would posit that little other than personality is important for determining happiness or life satisfaction, with personality appearing to be a strong predictor of subjective well-being (DeNeve and Cooper 1998; Diener and Lucas 1999; Judge et al 2002). The evidence for that association is strong with one meta-analysis having reviewed evidence from 148 studies including 42,171 adult participants (DeNeve and Cooper 1998). The consequences of hedonic adaptation for individual and societal efforts to improve well-being are vast (Lyubormirsky et al 2005). Nevertheless, the set point theory of happiness is increasingly being challenged (Diener et al 2006) as life events and interventions have been shown to have lasting effects on happiness (Diener et al 2006; Headey 2008; Lucas et al 2003; Sheldon et al 2002). The accuracy of Lykken's (2000) interpretations about subjective well-being, based on 9-year correlations are challenged by Huppert (2005) as are his assumptions that identical twins with the same genes are bound to experience the same levels of subjective well-being, irrespective of life experiences.

Set-point theory is significant for occupational scientists to consider as this theory does not recognise any long lasting benefits or negative consequences from changes in activities. This is in complete contrast to the occupational perspective articulated by Wilcock (2006). A number of studies of occupational change and disruption have identified changes in well-being in contrast to set-point theory. For example Ludwig et al (2007) describe disruption in meaningful occupation for grandmothers caring for grandchildren as causing a threat to well-being. Stone (2003)

identified changes in well-being as a result of deprivation of opportunity to engage in meaningful occupation.

Broaden and Build Theory of Positive Emotions

The benefits of positive emotions extend beyond the moment they are experienced. The broaden and build theory of positive emotion suggests that positive emotions broaden an individual's momentary thought–action repertoire, for example joy sparks the urge to play and interest sparks the urge to explore, which facilitates the development of physical, intellectual, social and psychological resources (Fredrickson 1998; 2004). This is in contrast to negative emotions that prompt narrow, survival-oriented behaviours. Over time, the skills and resources built through broadened behaviour and thought enhance survival (Fredrickson 2001). The broaden and build theory proposes a link between positive emotions, activities and subsequent generativity, resilience, flourishing and longevity (Fredrickson 2004; 2006).

Architecture of Sustainable Happiness

Lyubomirsky et al (2005) proposed an integrative model of happiness (architecture of sustainable happiness) where happiness is governed by three major factors; a genetically determined set point for happiness, circumstantial factors and happiness relevant activities and practices. They further suggested that the activity category potentially offers the best opportunity to increase happiness levels (Lyubomirsky et al 2005; Sheldon and Lyubomirsky 2006).

Happiness Studies: A Review

In the remainder of this paper a number of thematic areas of happiness research of direct relevance to occupational scientists are presented. Specifically, the relationship between happiness and health, work, goals, volunteering, flow, religiosity, relationships and living situation are reviewed.

Money and Happiness: Debunking a myth

Despite the centrality of human activity in models and theories of happiness, many people think that money and material goods are important for happiness (Kahneman et al 2006). The relationship between material wealth and happiness has

been extensively studied. Evidence suggests that income and happiness are related for those living in poverty and that income is a powerful predictor of happiness in developing countries (Veenhoven 2002). However, multiple longitudinal studies show that as income increases and levels off, happiness remains unchanged (Easterlin 2003). For instance Myers (1993) studied the relationship between after-tax income and happiness between 1960 and 1990 and demonstrated that despite increasing income, happiness levels remained unchanged. Similarly, Moghaddam (2008) used an ordered Probit model and the 1998 General Social Survey (US) data to demonstrate that non-pecuniary elements such as faith significantly determine happiness, whereas the absolute value of nominal income does not. In keeping with these findings people report valuing happiness far above wealth (Diener et al 1999).

Health and Happiness

The relationship between health and happiness is not simple. In a discussion of the promotion of happiness, Veenhoven (2010a) concluded, based on multiple studies that physical health is important for happiness but mental health is even more important. This is supported by findings from studies of Swiss students (Perneger et al 2004) and Kuwaiti undergraduates (Abdel-Khalec 2006).

The available research indicates that adverse health changes and disability have lasting negative effects on happiness (Easterlin 2003; Mehnert, et al 1990; Uppal 2006). Conclusive findings were reported by Lucas (2007), who used data from two nationally representative panel studies in Germany (study 1 n=39,987; study 2 n=27,406) to investigate adaptation following the onset of long-term disability and found that disability was associated with moderate to large drops in happiness followed by little adaptation over time. An often cited study in support of the idea that complete adaptation to adverse changes in health is possible is Brickman, Coates and Janoff-Bulman's (1978) comparative study of people after accidents (paraplegics and quadraplegics) and controls. That study found that the people after accidents, while less happy than controls, were not as unhappy as would be expected. However the sample size was small: 29 people with paraplegia or quadraplegia and 22 controls.

In addition to those findings a range of physiological, cognitive, social, and behavioural factors may be linked to emotional experience and health (Salovey et al 2000), and a relationship between various dimensions of eudaimonic living and positive health has been identified (Ryff and Singer 2000). Findings from the nun

study (a longitudinal study of ageing and Alzheimer's disease) support the idea that positive emotions predict quantity of life. In this study handwritten autobiographical accounts from 180 Catholic nuns composed when they were a mean age of 22 years old were scored for emotional content and these scores were related to survival at ages 75 to 95 (Danner et al 2001). A strong inverse relationship was found between positive emotional content in these accounts and risk of mortality in later life. A review of the empirical evidence for the effect of happiness on physical health focusing on longevity, thus assessing if happy people live longer, concluded that happiness does not predict longevity in sick populations; however happiness does appear to predict longevity in healthy populations (Veenhoven 2008). The size of the effect of happiness on longevity in healthy populations was comparable to that of smoking or not.

Living Situation

In addition, a number of factors associated with an individual's living situation have been shown to be associated with happiness. Drawing on a meta-analysis Veenhoven (1991), identified that happiness is associated with living in an economically prosperous country where freedom and democracy are respected and political stability exists. Studies in occupational science have highlighted the occupational consequences of being a refugee (Connor Schisler and Polatajko 2002; Whiteford 2004) and living in a combat zone (Lavin 2005). Multiple life events are known to impact upon happiness including separations, the death of loved ones and job loss (Veenhoven 1991). The impact of changes in life events on occupation has been illustrated by studies of the occupational consequences of unemployment (Jakobsen 2004) and bereavement (Pollard 2006).

Relationships

Relationships including family relationships and friendships are significant factors in human happiness (Myers 1993; Veenhoven 1988). Intimate personal relationships with a partner and friends are strongly correlated with happiness (Headey and Wearing 1992). Whereas loneliness has been demonstrated to be negatively associated with positive affect and life satisfaction (Lee and Ishii-Kuntz 1987). Relatedness has been specifically identified as significant for well-being (Argyle 1987). With one review concluding that although quantity of interactions

does not predict happiness, quality of relatedness does (Nezlek 2000). That finding is supported by a study that explored the relationship between personality, number of friends, best friendship quality and happiness in young adults (n=423) (Demir and Weitekamp 2007). Multiple hierarchical regression analysis revealed that friendship quality predicted happiness above and beyond the influence of personality and number of friends, and friendship variables accounted for 58% of the variance in happiness. Further evidence is produced by a study of 222 undergraduates where the upper 10% of consistently very happy people were compared with average and very unhappy people. The very happy people were highly social, and had stronger romantic and other social relationships than less happy groups (Diener and Seligman 2002). The available evidence also suggests that marriage may be more important than friendship for happiness. A study of a national sample of Americans and found that married people are happier than cohabiting people, cohabiting people are happier than people who are steady dating, people who are steady dating are happier than multiple daters and multiple daters are happier than people who are not dating (Kamp Dush and Amato 2005). Furthermore, a study of the effect of marital transitions on life satisfaction using data from over 24,000 individuals in a longitudinal study found that some, not most, people achieve long-lasting and perhaps permanent improvements in their subjective well-being as a result of getting married (Lucas et al 2003). Another facet of the interaction of social relationships and happiness was revealed by a longitudinal study (20 yrs+) of a cohort of the Framingham heart study (n=4739), which demonstrated that individual's happiness is dependant on the happiness of others with whom they are connected (Fowler and Christakis 2008).

Occupational science recognises the social nature of occupation (Dickie 2003; Humphry 2005; Whiteford 2007). However, despite this, occupational science has been critiqued for being overly individualistic (Dickie et al 2006) and there have been calls for occupational scientists to better understand the complexities of the social coordination of co-occupations (Larson and Zemke 2003). Occupational transaction has been proposed by Dickie et al., (2006) to understand occupation as a process located at the level of the situation of which the person is a part.

Work

Meta-analyses show that work is positively linked to indices of well-being (Murphy and Athanasou 1999; Parker et al 2003). Underemployment (Freidland and

Price 2003) and unemployment (McKee-Ryan et al 2005) are related to lower levels of psychological well-being. Winkelmann and Winkelmann (1998) using a longitudinal data-set on life-satisfaction of working-age men in Germany found that unemployment had a large detrimental effect on satisfaction and the non-pecuniary effect is much larger than the effect that stems from the associated loss of income. Based on data from a 15 year longitudinal study, Clark et al (2004) demonstrated lasting negative effects on well-being from unemployment experiences. Three theories exist to explain the relationship between satisfaction at work and overall life satisfaction; the spill-over model, the compensatory approach and the segmentation model (Iverson and Maguire 2000; Loscocco and Roschelle 1991). The spill-over model posits that when one is satisfied with one's work, the positive effects spill-over into other non work areas of life and vice-versa. The compensation model suggests that those who are dissatisfied at work seek out greater satisfaction in their non-work activities, thus this model explains a negative relationship between job and life satisfaction. The segmentation model posits no relationship between job and life satisfaction. Iverson and Maguire (2000) concluded that there is greatest empirical evidence to support the spill-over model, however, although studies support this correlation of job and life satisfaction, causation cannot be assumed and a myriad of other factors are also at play.

Goals

Feeling competent and confident with regard to valued goals has been demonstrated to be associated with well-being (McGregor and Little 1998). One review of narrative accounts or life stories found that individuals whose narratives are rich in intrinsic goals for personal growth tended also to display psychological well-being as an indicator of eudaimonia (Bauer et al 2008). Findings from the German Socio-Economic Panel Survey (SOEP) suggest that life goals matter to happiness (Headey 2008). Sheldon has completed a large body of research on the relationship between goals and well-being including a number of longitudinal studies (Sheldon and Elliot 1999; Sheldon et al 2002, Sheldon and Houser-Marko 2001) which demonstrates that well-being increases are most likely when people choose and attain self-concordant goals, for instance, Sheldon and Kasser (2001) found that age-related increases in well-being (n=108 adults) are in part mediated by volitional changes, including older people's ability to select more enjoyable and self-appropriate goals.

The available evidence suggests the personal goals are important for happiness, particularly self-concordant goals, mirroring Christiansen's (2000) findings that goal-directed occupations contribute to identity and well-being.

Volunteering

Volunteering is considered a pro-social activity, and a number of studies indicate the positive effects of volunteering on happiness and well-being. Drawing on German Socio-economic Panel data, Meier and Stutzer (2008) found robust evidence that volunteers are more satisfied with their life than non-volunteers. Thoits and Hewitt (2001) used two waves of panel data (N=2,681) from the Americans' Changing Lives study (House 1995) to demonstrate that volunteer work enhances six aspects of well-being (happiness, life-satisfaction, self-esteem, sense of control over life, physical health and depression). Using the same data set, Morrow-Howell et al (2003) also studied the effects of volunteering on the well-being of older adults revealing that older adults who engage in more hours of volunteering report higher levels of well-being. Baker et al (2005) also demonstrated that as time dedicated to productive activities increased life satisfaction also increased in a sample of older adults, again using data from the American's Changing Lives study. Five broad categories of productive activities were included in this study; paid work, formal volunteering, caregiving, informal helping behaviours and do-it-yourself activities, for example yard work and home repair. Using more recently collected data, a correlation between volunteering and happiness was demonstrated by Borgonovi (2008) based on the Social Capital Community Benchmark Survey (SCCBS) dataset collected in 2000.

Flow

The concept of flow was developed by Csikszentmihalyi on the basis of empirical studies of the experiences of a variety of groups including artists, surgeons and devotees of sport (Csikszentmihalyi 1975). Csikszentmihalyi found that it was characteristic of these groups that their activities were autotelic, meaning an activity that is "done not with the expectation of some future benefit, but simply because the doing itself is the reward" (Csikszentmihalyi 1990, p. 49). Flow is an optimal subjective psychological state "in which people are so involved in an activity that

nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it” (Csikszentmihalyi 1990, p.4).

One theory of the neurocognitive mechanisms which underlie the flow experience suggests that the brain operates two distinct information processing systems to acquire, memorise and represent knowledge; the explicit and implicit systems (Dietrich 2004). The explicit system has evolved to increase cognitive flexibility and is associated with the higher cognitive functions of the frontal lobe and medial temporal lobe structures. The implicit system has the advantage of being more efficient and is associated with the skills-based knowledge supported primarily by the basal ganglia. Dietrich presented an analysis of the trade off between flexibility and efficiency in these information processing systems to support her proposal suggesting that the flow state is a period during which a highly practiced skill that is represented in the implicit system’s knowledge base is implemented without interference from the explicit system.

The potential of flow theory to inform occupational therapy and science has been identified by multiple authors over the past 15 years. In 1998 Emerson presented a literature review of flow and occupation highlighting the link between the autotelic nature of flow and beliefs about occupation. A small number of empirical studies of flow have been completed and disseminated within occupational therapy and science. Kennedy and Vecitis (2004) described the flow experiences of women with HIV/AIDS using ESM and found participants experienced flow 21.6% of the sampled time and described some correlates of the flow experience. They stressed the value of ESM as it captures the experience of occupation in real time. Wright, Sadlo and Stew (2006) described the commonalities and differences in flow and mindfulness experiences based on a qualitative study of three people, revealing that participants described both high challenge and skill experiences and mindfulness experiences as flow. They have also reported a phenomenological investigation of the flow experiences of seven participants, where participants described the flow processes as varying between challenge-skills, enjoyment, positive distraction and mindfulness experiences. Participants described these experiences as positive psychological states that occurred as a consequence of occupation (Wright et al 2007).

Within psychology and related fields a large body of research has developed which validates flow experiences as optimal psychological experiences associated with happiness and well-being. Furthermore, studies of the correlates of flow have

revealed multiple benefits associated with flow experiences. The quality of experience (affect, potency, cognitive efficiency and motivation) has been shown to be strongly influenced by whether a person is in flow or not (Csikszentmihalyi and LeFevre 1989). In an experience sampling methodology survey of a national sample of American youths (n=828) the frequency of time spent in flow was identified as a very strong predictor of happiness even when demographic variables are taken into account (Csikszentmihalyi and Hunter 2003). Empirical studies have shown that when people are in flow they have more positive moods, higher self esteem (Wells 1988), stronger intrinsic motivation, more intense concentration and a greater sense that what they are doing is important (Hektner 1996; LeFevre 1988, Massimini and Carli 1988). Salanova et al (2006) demonstrated that the experience of work-place flow has a positive effect on personal resources (self-efficacy). The association between flow and positive experience has been validated by a number of studies (Chen 2006; Jones et al 2000; Moneta and Csikszentmihalyi 1996). Those who experience flow more often (autotelic persons), tend to report more positive psychological states overall and tend to feel that their lives are more purposeful and meaningful (Adlai-Gail 1994; Hektner, 1996). The experience of flow has been demonstrated to be associated with psychological well-being in students (Clark and Haworth 1994) self-concept in athletes (Jackson et al 2001) and task interest and performance in achievement oriented adult workers (Eisenberger et al 2005). Demerouti (2006) demonstrated using moderated structural equation modelling analyses that flow predicted in-role and extra-role performance for conscientious employees. Bakker (2005) demonstrated that job resources (autonomy, performance feedback, social support and supervisory coaching) have a positive influence on the balance between music teachers' challenges and skills, which in turn contributes to their experience of flow. Data gathered from in excess of 4,500 participants highlighted that repetitive, easy and low information tasks are never associated with flow, while complex occupations requiring specific competencies, autonomous initiative and focused attention are widely reported while in flow (Massimini et al 1996). In an ESM study of adult workers participants experienced flow almost three times more often in work than they experienced flow in leisure activities (Csikszentmihalyi and LeFevre 1989).

Asakawa (2004) demonstrated the applicability of flow theory cross culturally as high skill/challenge situations were shown to create an optimal state of mind for Japanese college students. Furthermore student's experiences of flow were related to a

Japanese index of psychological well-being (jujitsu-kan). However, Moneta (2004) identified a cultural variation of the flow model as Chinese participants experienced the highest levels of state intrinsic motivation in low challenge/high skill conditions rather than in high challenge/high skill conditions. Moneta proposed that this difference may be due in part to the Chinese student participant's internalisation of collectivist values.

Religiosity

Faith in supernatural order seems to enhance subjective well-being, a low but consistent relationship between religiosity and happiness is evident (Csikszentmihalyi and Patton 1997). Koenig et al (2001) reviewed more than a thousand investigations and identified many that report positive effects of religion on physical and mental health. Studies indicating a positive relationship between religiousness and happiness include Blazer and Palmore (1976), Moberg (1979), Ferriss (2002), Swinyard et al (2001), and Snoep (2008). Based on a meta-analysis of religiosity and mental health Hackney and Sanders (2003) conclude that among Western samples religiosity has a small but salutary relationship with psychological adjustment. Corelations between religiosity and life satisfaction have been demonstrated, even when controlling for age, (Clark and Lelkes 2009; Francis et al 2003). It has been proposed that an individual's spirituality is the foundation of meaningful activity (Canadian Association of Occupational Therapists 1991). Unruh et al (2004) considered the place of spirituality within occupational science and identified that research to date on spirituality has been concerned with the meaning and purpose associated with various occupations, views of spirituality within the context of specific occupations or occupations as spiritual activity.

Discussion

To truly fertilise occupational science as an interdisciplinary field concerted effort to work with partners in other disciplines is required. The studies reviewed in this paper are evidence of the wealth of empirical research within the field of positive psychology of direct relevance to an occupational science understanding of the function and meaning of occupation.

The world database of happiness is a continuous register of scientific research on the subjective appreciation of life that is maintained by Ruud Veenhoven (2010b)

at Erasmus University Rotterdam in the Netherlands. One part of that database comprises 13,181 correlational findings observed in 1314 studies, that is, studies describing conditions that differ systematically between happy and unhappy persons. The catalogue is ordered into correlation findings from studies of how one lives, how well one lives, one's background, what kind of person one is, where one lives and with whom one lives. The section on 'how one lives' includes abilities, activities, consumption, leisure, life-style, occupation (meaning employment), social network and work. In this database, as in the model of happiness proposed by Lyubomirsky et al., (2005), activity is considered to be central to subjective well-being. However, a review of theories of happiness suggests the eudaimonic perspective has the greatest resonance with occupational science. A comprehensive review of flow was undertaken in this paper as flow theory reflects a eudaimonic perspective of happiness. The experience of flow, through participation in occupation, is a positive psychological experience leading to multiple benefits, and flow theory helps to explain the complex link between what people do and well-being. However, the majority of happiness research has measured subjective well-being reflecting a hedonic understanding of happiness.

This review has a number of limitations. Firstly in order to allow a broad review of studies and theories related to happiness a systematic review was not undertaken which weakens the quality of this work. The vast majority of the reviewed studies are quantitative and reflect the measurement issues inherent in measuring complex subjective internal states. Further, the majority of reviewed studies reflect a hedonic perspective on happiness and measure subjective well-being. These limitations' not withstanding this review has clearly illustrated the centrality of occupation to an understanding of human happiness.

The reviewed studies have demonstrated that health, especially mental health, is important for human happiness and adverse health changes appear to significantly affect happiness. Productive occupations including work and volunteering, personal goals, faith in supernatural order and relationships especially quality of relatedness are also significant factors in human happiness. The most significant findings of this review for occupational scientists are the centrality of activity to multiple models and theories of happiness and the philosophical links identified between eudaimonia and an occupational perspective of health. Flow theory has been considered and researched within occupational science and this review supports continued research

on flow and occupation given the congruence of flow theory with a eudaimonic perspective of happiness and the identified multiple benefits of flow experiences through participation in occupation.

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Paper VII

Robinson, K., Kennedy, N. and Harmon, D. The flow experiences of people with chronic pain. Accepted for publication in *OTJR: Occupation, Participation & Health*.

Abstract

This electronic momentary assessment study explored the relationship between flow and pain intensity and examines if flow is an optimal experience for people with chronic pain. Adults with chronic pain ($n = 30$) were signalled randomly seven times daily over one week to respond to a flow questionnaire via palm pilot. Seven hundred and eighteen questionnaires were responded to from 1447 beeps (response rate 49.6%). Results indicated that participants were most commonly at home, doing self-care activities, with family or alone. Participants experienced flow 34.9%, apathy 44.6%; relaxation 11.6%; and anxiety 8.9% of the sampled time. Participants mean concentration, self-esteem, motivation, and potency scores were highest, and mean pain intensity was lowest, in flow compared to the other three states. Separate one-way between-groups analyses of variance (ANOVA's) comparing concentration ($p < .001$), self-esteem ($p < .001$), motivation ($p < .001$), positive affect ($p = .035$), potency ($p = .000$), and pain intensity ($p = .245$) scores across the four states showed a significant overall effect on all comparisons except positive affect and pain intensity.

Key words: Chronic pain, Flow, Experience Sampling, Occupational Therapy

Introduction

Pain is defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Merskey and Bogduk 1994 p.210). Chronic pain is a major healthcare problem with at least 116 million U.S. adults suffering from common chronic pain conditions (Tsang et al 2008) and has been defined as pain lasting beyond the expected healing time (Turk and Okifuji 2001). The consequences of chronic pain are vast and include: vocational, economic, activity and emotional impacts (Breivik et al 2006). A growing body of qualitative research in occupational therapy has revealed the importance of ‘doing’ to people with chronic pain (Fisher et al 2006; Van Heut et al 2009) and the manifold occupational consequences of chronic pain including loss of occupations (Aegler and Satnik 2009).

Flow theory offers an explanation of the link between activity and well-being. Flow is an optimal subjective psychological state “in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it” (Csikszentmihalyi 1990, p.4). Emerson (1998) reviewed the literature on flow and occupation and concluded that flow theory is highly relevant to occupational therapy. A number of studies of flow have been completed within occupational therapy (Farnworth et al 1996; Gerhardsson and Jonsson 1996; Kennedy and Vecitis 2004; Wright et al 2006). These studies have reported on the flow experiences of fourth year occupational therapy students (Farnworth et al 1996), women with HIV/AIDS (Kennedy and Vectis 2004) and people with schizophrenia (Gerhardsson and Jonsson 1996). Wright, Sadlo and Stew have reported two qualitative studies of flow experiences (2006; 2007).

The flow state is described as having nine dimensions: clear goals, immediate feedback, personal skills matched with the challenge of the activity, concentration on the task, a sense of personal control, a loss of self-consciousness, an altered sense of time and the experience becomes autotelic (Csikszentmihalyi 1997). Two criteria must be satisfied in order to designate a flow experience; perceived level of challenge and skill level are in balance (Csikszentmihalyi 1990; 1996; 1997) and are high (Massimini et al 1996). The four channel model of flow describes four potential states; flow (above average skill and challenge), anxiety (above average challenge and below average skill), relaxation (above average skill and below average challenge) or

apathy (below average skill and challenge). Complex activities requiring focused attention are widely reported while in flow (Massimini et al 1996) and multiple studies demonstrate that the flow condition (high challenge and skill) is associated with an optimal experience (Nakamura and Csikszentmihalyi 2002).

The positive emotional state and the focused attention associated with flow could alter pain experiences as the available data suggest that emotion and cognitive factors have the potential to modulate pain (Villemure and Bushnell 2002). Current accepted models of pain emphasise the multidimensionality of pain where pain perception is not straightforwardly related to the noxious input but is influenced by psychosocial variables (Raj 1996). Studies have demonstrated that negative emotion and mood can lead to pain or exacerbate it (Wiech and Tracey 2009). Studies using mood induction and experimentally induced pain have found that positive mood reduces pain perception (De Wied and Verbaten 2001). An experimental study of induced mood in people with chronic pain indicated that induced happy mood resulted in significantly lower pain ratings at rest and greater pain tolerance (Tang et al 2008). Positive affect has been associated with lower pain from week to week in women with chronic pain (Zautra et al 2005). These findings are supported by imaging studies of experimentally induced negative mood which have revealed altered pain processing in the descending pain modulatory system (prefrontal, anterior cingulate and insular cortices, amygdala, hypothalamus, and brain stem) (Tracey and Mantyh 2007).

The role of attention in the modulation of pain has been researched for many years and multiple imaging studies have demonstrated reduced pain perception and reduced pain-evoked activity when attending to or participating in an activity, for example, a cognitive task (Brooks et al 2002; Petrovic et al 2000).

To date the flow experiences of people with chronic pain have not been described and flow theory potentially has much to offer occupational therapy in understanding and harnessing the potential for occupations that enable flow experiences to modulate pain experiences.

Method

The current study is a within-subjects experience sampling methodology study of the flow experiences of people with chronic pain.

Research Question

The current study examines the flow experiences of a group of people with chronic pain, including the percentage of sampled time spent in flow, to explore the relationship between flow and pain intensity and to explore if flow is an optimal experience for people with chronic pain. Our hypotheses are (1) pain intensity will be significantly lower while people with chronic pain are in flow compared to other states (anxiety, relaxation or apathy) (2) flow is an optimal experience for people with chronic pain (3) frequency of flow experienced will differ across the contexts of 'at home' and 'somewhere other than home' (4) frequency of flow experienced will differ across the activity categories of 'self-care' 'work' and 'leisure'.

Participants

A total number of thirty participants (20 women, 10 men) with chronic pain from the chronic pain clinic at an Irish Regional Hospital were recruited for participation (Table 1).

Procedure

The Ethics Committee of the institution approved the study before data collection. Over a four month period all new and existing patients who presented to the pain clinic and met inclusion criteria were invited to participate in the study. Inclusion criteria were (a) experiencing chronic pain (defined as pain lasting beyond the expected healing time as designated by a pain medicine physician) and (b) aged above 16 years. Exclusion criteria were (a) significant visual or hearing impairment (b) significant hand function impairment (c) being non-fluent in English. Participants were not compensated for participation. Following recruitment all participants attended an orientation meeting which included; a description of study goals, assurance of confidentiality, signing of consent form and training in how to use the palm pilot. Explanation of survey items was given and a trial survey was completed with all participants. During un-interruptible activities (e.g. driving) participants were instructed to ignore the signal. Researcher contact details were included on the consent form and on the rear of the palm pilot. All participants were telephoned mid-week to respond to any questions.

Electronic Diary and Assessment

Each participant carried a palm pilot computer (Palm Zire 22). Questions were presented on screen (160x160mm) for completion via the use of a stylus, entries were both time and date stamped. The user-configurable open-source software program, Experience Sampling Programme Version 4 (Barrett and Barrett 2000) was used to program the palm pilots to beep (single tone sound) seven times per day for seven days at random intervals during waking hours (9am-10pm). Data were downloaded and copied into SPSS v16.0 where the data was cleaned and checked for analysis which involved the removal of trial questionnaire data completed at the orientation meeting. The advantages of electronic surveys over paper diaries have been described (Stone et al 2002) including their ability to rule out 'fake compliance' (Stone et al 2003a) and minimize recall bias (Stone and Shiffman 1994). Electronic pain diaries have been effective in maximizing participant compliance with completing pain intensity ratings (Stone et al 2003b) and the validity of those ratings has been established (Jamison et al 2001).

Measures

Demographic and condition variables. At the orientation meeting demographic variables (age, gender and current work status) and condition variables (length of time with chronic pain) were assessed from client self report.

Pain intensity. Pain intensity was assessed using a 11 point numerical rating scale (0-10) 0 meaning 'No pain' and '10' meaning 'Pain as bad as you can imagine' (Dworkin et al 2005). Participants were asked to mark the number that best described their pain at the moment of signalling. The scale was displayed on a slider scale with the stylus used to drag the indicator to the desired location on the scale.

Flow Questionnaire. The flow questionnaire developed by Csikszentmihalyi and Csikszentmihalyi (1988) was adapted to allow electronic data collection. Thirty three items were included in total. Items 1-4; asked participants; the main activity they were doing (self-care, leisure, or work (paid or unpaid)), where they were, why they were doing this activity (had to, wanted to, had nothing else to do) and who they were with when the beeper signalled them. All other items used a nine point Likert scale. The mood items (happy, sociable, relaxed, strong, active, alert, excited) were assessed using opposite emotions on a nine point Likert scale. The challenge and skill items were phrased 'how challenging was the activity you were doing when you were

beeped?’, ‘what was your skill level in the activity you were doing as you were beeped?’ and assessed with a 9 point Likert scale. In the results section individual questionnaire items are grouped together into commonly used composite variables (positive affect, potency, self-esteem, motivation and concentration) with established internal consistency (Hektner et al 2007) based on other studies of flow experiences. The individual questionnaire items used to create the composite variables are shown in table 3.

Flow state was designated by participant’s responses to the ‘Skill’ and ‘Challenge’ items described above. Raw scores for the challenge item and skill item were transformed into z scores for each participant separately. When transformed in this manner an individual’s mean score on a given variable becomes 0 and scores that are one standard deviation above are 1.0, and one standard deviation below -1.0. The z scores of the challenge and skill items were then used to determine which of four states subjects were in; flow (>0 challenge + >0 skill), anxiety (>0 challenge + <0 skill), relaxation (<0 challenge + >0 skill) or apathy (<0 challenge + <0 skill). The rating for challenge and skill is not used in any of the composite variables (positive affect, potency, self-esteem, motivation and concentration).

Plan for Statistical Analysis

Summary statistics were used to describe the demographic characteristics of the sample. Means and SD’s are used for continuous data and categorical items are described using frequency statistics. Chi square analyses were used to determine significant effects of location and what activity people were doing on the four states (flow, apathy, relaxation and anxiety). Separate one-way between-groups analyses of variance was conducted to explore differences in pain, concentration, self-esteem, motivation, positive affect and potency scores across the four states and effect sizes were calculated using eta-squared. The Welch test was also conducted for four of these variables (pain, concentration, self-esteem and motivation). Post-hoc comparisons using the Games-Howell test were completed to take account of unequal group sizes (flow, apathy, relaxation and anxiety) (Games et al 1981).

Results

Seven hundred and eighteen questionnaires were responded to from 1447 beeps (response rate of 49.6%) (Range 3-48, SD=12.61). Table two illustrates where

participants were, what they were doing, who they were with and why they were doing that activity when beeped. Descriptive statistics for the individual questionnaire items and composite variables are presented in table 3. For all reported questionnaire items 718 responses are included.

Time Spent in Flow

Using participants' z scores for the challenge and skill item each questionnaire was identified as meeting the conditions for; flow 34.9%, apathy 44.6%, relaxation 11.6% and anxiety 8.9% of the sampled time. Table 4 demonstrates participants' mean scores on measured variables across the four states (flow, apathy, relaxation and anxiety). Participants' mean concentration, self-esteem, motivation, positive affect and potency scores were highest, and mean pain intensity was lowest, in the flow state.

Analysis of Variance

Separate one-way between-groups analyses of variance were conducted to explore the composite variables and pain intensity scores across the four states. There was a statistically significant difference at the $p < .008$ level across the four states for concentration, self-esteem, motivation, and potency. Pain intensity and positive affect were not significantly different across the four states. See table 4 for F values and significance levels. Based on the Levene's test the assumption of homogeneity of variance was violated for the following variables; pain, concentration, self-esteem and motivation. Although ANOVA is quite robust against violations of this assumption (Lindman 1974) the Welch test was also completed (Tomarken and Serlin 1986) revealing very similar F statistics and significance results to the ANOVA (Table 5). The effect size of each variable was calculated using eta-squared (Table 4). Small effects were identified for motivation and moderate effects were identified for concentration, self-esteem and potency.

Post-hoc comparisons using the Games-Howell test demonstrated that: Concentration scores were significantly higher in flow than apathy or relaxation and lower in apathy than anxiety, self-esteem scores were significantly higher in flow than apathy or anxiety and lower in apathy than relaxation, motivation scores were significantly higher in flow than apathy, relaxation or anxiety and lower in apathy than anxiety, and potency scores were significantly higher in flow than apathy, relaxation or anxiety.

Associations between Flow and Daily Life Contexts

Table 6 presents a crosstabulation of flow states and locations (at home, somewhere else). A Chi-Square test of independence indicated a significant relationship between location and flow state, $\chi^2(3, N = 708) = 40.69, p < .001$, Cramers V = .24

Table 7 presents a crosstabulation of flow states and activities being performed when beeped. A Chi-Square test of independence indicated a significant relationship between the activity in which people were engaged and flow state, $\chi^2(6, N = 708) = 1.50, p < .001$, Cramers V = .325

Discussion

It was hypothesised that pain intensity scores would be lower while people are in flow than the other states because emotion and attention are known to modulate pain experiences (Villemure and Bushnell 2002). Mean pain intensity scores were lowest in the flow state (5.01) when compared with apathy (5.38), relaxation (5.03) and anxiety (5.50); however, this difference was not statistically significant as measured by a one way ANOVA or the Welch test. ESM could cause participants to attend more to their pain than they would otherwise, however little evidence of reactive effects in sampling participants with electronic diaries has been reported (Stone et al 2003b). Further exploration of this relationship is warranted as mean scores indicate a trend towards lower pain intensity while in flow, if a relationship between pain intensity and flow was demonstrated it would support interventions which identify and facilitate engagement in specific activities that are likely to lead to flow experiences.

The second hypothesis was that flow is an optimal experience for people with chronic pain. This was assessed by testing if the flow state (above average skill and challenge) actually coincides with the flow experience (positive emotional, cognitive and motivational state). We found that scores for concentration, self-esteem, motivation, and potency differed significantly across the four states. Concentration, self-esteem, motivation, positive affect and potency mean scores were highest in the flow state and mean scores were lowest in apathy and anxiety states. Post-hoc comparisons demonstrated that: concentration scores were significantly higher in flow than apathy or relaxation, self-esteem scores were significantly higher in flow than apathy or anxiety, motivation scores were significantly higher in flow than apathy,

relaxation or anxiety and potency scores were significantly higher in flow than apathy, relaxation or anxiety. Motivation demonstrated small effects and concentration, self-esteem and potency demonstrate moderate effects. These findings validate the identified flow experiences as optimal psychological experiences and are in keeping with studies which have found that when people (without chronic pain) are in flow they tend to have more positive moods (Chen 2006), higher self-esteem (Wells 1998), stronger intrinsic motivation and more intense concentration (Hektner 1996; LeFevre 1988; Csikszentmihalyi and LeFevre 1989). These findings are in keeping with the experience of engagement in occupation described by people with chronic pain in qualitative studies including; motivation, enjoyment, satisfaction, achievement, emotional benefits (Van Heut et al 2009), challenge (Stamm et al 2008), pleasure, (Keponen and Kielhofner 2006) and diversion from pain (Fisher et al 2007).

The ESM data identified the context for each of the participant's daily life experiences. Participants in this study spent a much higher proportion of time at home (71% of time) than other ESM studies of adults have reported (40%) (Kubey and Csikszentmihalyi 1990). A Chi-Square test of independence indicated a significant relationship between location and flow state. While at home apathy was reported most frequently and while somewhere other than home the most frequently reported state was flow. The most common psychological experience identified by this study was apathy (44.6% of overall sampled time) and is alternately called boredom. On average participants were engaged in unchallenging activities ($M = 3.27$, $SD = 2.38$) and perceived themselves as having low level of skill in these activities ($M = 3.6$, $SD=2.56$). A number of qualitative studies have identified boredom as a feature of daily life for people with chronic pain (Miles et al 2005). Boredom is a salient topic for occupational therapy given the associations between boredom and daily occupations and the implications of boredom for health and well-being (Ilott 2007; Martin 2009). Corvinelli (2005) has developed guidelines for the remediation of boredom and apathy in adult males recovering from substance abuse including recommendations to adapt environmental elements and the provision of activities that have the right balance of skill and challenge to enable flow experiences.

Participants were engaged in self care, work and leisure activities 36%, 22% and 42% of the sampled time respectively. Participants in this study spent more time on self-care and less time working than other studies have reported. Other experience sampling studies have identified that adults spend 24 to 29% of their time on

maintenance activities (Kubey and Csikszentmihalyi 1990; Hoogstra 2005), and 27% of their time working (Kubey and Csikszentmihalyi 1990).

Flow was most frequently experienced by participants in this study while engaged in work activities (44.9% of flow experiences), whereas, only 5.4% of apathy experiences occurred during work activities. A number of studies have demonstrated that adults are more likely to experience flow at work than in leisure situations or at home (Csikszentmihalyi 1990; Csikszentmihalyi and LeFevre 1989) and work is associated with indices of well-being and health (Waddell and Burton 2006). Among people with chronic pain rates of unemployment and work disability are extremely high (Breivik et al 2006), and our findings indicate that participants in this study appear to have limited opportunities to engage in highly challenging activities, particularly work activities.

Limitations

There are a number of limitations to this study. The percentage of missing data is comparable to some studies and exceeds some studies, signal contingent studies tend to have response rates of 50-70% (Christensen et al 2003). Missing data may be explained by the large number of questionnaire items (33), the intrusive nature of the signal contingent sampling method and the fact that there was no compensation paid to participants. ESM is burdensome and creates self-selection bias and selective non-response bias (Scollon et al 2003). In this study analysis was completed at the response level leading to some individuals providing more data than others.

Recommendation for future research

Future research in this area should explore the pain flow relationship and related variables through the use of multilevel modelling which is recommended for the analysis of ESM data due to its ability to handle nested data (repeated observations nested within individuals) with unequal numbers of observations across individuals (Hektner et al 2007; Schmidt et al 2007). Multilevel modelling would improve upon the analysis presented here as it takes into account the underlying response level variability and allows understanding of the effects at both within-person and between-person levels simultaneously (Schmidt et al 2007). Further exploration of the boredom and apathy experiences of people with chronic pain is also warranted.

Conclusion

Theoretically occupation has the potential to modulate the pain experience for people with chronic pain through emotional and cognitive factors. This study validates the flow state as an optimal experience for people with chronic pain. The study findings lend support to occupational therapy interventions that enable people with chronic pain to participate in challenging occupations that exercise their skills, particularly productive occupations; including paid work, unpaid work and volunteering. For occupational therapists working with people with chronic pain, the high rates of apathy identified by this study are of particular concern and should be considered in assessment and intervention with people with chronic pain.

Table 1. Demographic characteristics of the sample

Variable	Value
Sex:	
Male	10 (33%)
Female	20 (66%)
Mean age (SD, range)	51 (SD 15.35, 21-77)
Race:	
White	30 (100%)
Mean chronic pain duration in months (SD)	68 (65.67)

Table 2. Daily life contexts

Variable	% of sampled time
Location when beeped	
At home	71%
Somewhere other than home	29%
Activity being performed when beeped	
Self care activities	36%
Work activities	22%
Leisure activities	42%
Why doing this activity	
Because they had to	35.1%

Because they wanted to	40.4%
Because they had nothing else to do	18.3%
Who with when beeped	
Alone	34.3%
With family	43.7%
With friends	5.8 %
With colleagues	4.4 %
With general public	4.4 %

Table 3. Electronic questionnaire descriptive statistics.

Variable	Mean	SD
Pain intensity (0-10)	5.23	2.56
Positive affect (0-8)	5.14	1.00
Happy	6.56	1.18
Sociable	4.52	1.09
Relaxed	4.36	1.46
Potency (activation) (0-8)	6.24	.97
Strong	6.22	1.25
Active	6.07	1.38
Alert	6.84	1.50
Excited	5.87	.85
Self-Esteem (0-8)	5.50	1.10
Living up to own expectations	5.35	2.40
Living up to expectations of others	4.66	2.65
Control	6.15	2.11
Success	5.92	2.40
Motivation (0-8)	5.07	2.10
Wish to be doing current activity	5.79	3.20
Importance of activity to self	5.38	2.87
Importance of activity to others	4.11	3.02
Importance in relation to overall goals	5.03	2.60
Concentration (0-8)	4.52	1.33
How well concentrating	5.59	2.23
How difficult to concentrate (reversed)	3.44	2.19
Variables used to determine flow state		
Challenge (0-8)	3.27	2.38
Skill (0-8)	3.60	2.56

Table 4. Mean questionnaire item scores across the four states and analysis of variance.

Variables	Flow N=247	Apathy N=316	Relaxation N=82	Anxiety N=63	F value F(3)	Eta- suar ed	p value
	M(SD)	M(SD)	M(SD)	M(SD)			
Pain	5.01 (2.48)	5.38 (2.71)	5.03 (2.20)	5.50 (2.44)	1.39		.245*
Concentration	4.88 (1.16)	4.25 (1.47)	4.41 (1.16)	4.80 (1.18)	11.85	.048	<.001*
Self-esteem	6.02(1.77)	5.12(2.06)	5.77(1.84)	5.04(1.69)	11.98	.048	<.001*
Motivation	5.96 (1.74)	4.37 (2.18)	5.03 (2.10)	5.04 (1.73)	29.29	.011	<.001*
Positive affect	5.25 (1.00)	5.07 (1.01)	5.17 (.90)	4.89 (.97)	2.89	.012	.035*
Potency	6.58 (.97)	5.99 (.88)	6.25 (.97)	6.03 (.92)	19.88	.078	<.001*

Note. All measures are on a 9 point scale except pain intensity 0-10

*p< .008

Table 5. Welch test for pain, concentration, self-esteem and motivation across the four states (flow, apathy, anxiety and relaxation).

Variables	F value	df 1	df 2	p value
Pain	1.433	3	200.91	.234*
Concentration	12.06	3	201.3	<.001*
Self-Esteem	12.5	3	198.77	<.001*
Motivation	30.76	3	196.23	.<.001*

*p<.05

Table 6. Flow state and location crosstabulation

Flow state variables	At home	Somewhere else	Chi-square test of independence p value
Flow			<.001*
Count	142	105	
Expected count	175.1	71.9	
Apathy			
Count	255	61	
Expected count	224.1	91.9	
Relaxation			
Count	65	17	
Expected count	58.1	23.9	
Anxiety			
Count	40	23	
Expected count	44.7	18.3	
Total count	502	206	

Table 7. Flow state and activity crosstabulation

Flow state variables	Self-care	Work	Leisure	Chi-square test of independence p value
Flow				<.001*
Count	79	111	57	
Expected count	90.4	53.0	103.6	
Apathy				
Count	117	17	182	
Expected count	115.6	67.8	132.6	
Relaxation				
Count	39	9	34	
Expected count	30.0	17.6	34.4	
Anxiety				
Count	24	15	24	
Expected count	23.0	13.5	26.4	
Total count	259	152	297	

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Paper VIII

Robinson, K., Kennedy, N. and Harmon, D. Discourses
used to construct the experience of chronic pain.
Submitted to *Scandinavian Journal of Occupational
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Abstract

Chronic pain is a complex disorder with multiple consequences for individuals, families and society. The aim of this study was to investigate the discourses used by people with chronic pain. Using qualitative interview data from five Irish people with a variety of chronic pain conditions Foucauldian discourse analysis was undertaken to identify the discourses in operation in participant's accounts. Three discourses were identified; a moral discourse, a discourse of pain as personal tragedy and a biomedical discourse. A moral discourse was used to construct participants as moral individuals experiencing real pain who try to accomplish activities and fulfil social roles without burdening others. The discourse of chronic pain as personal tragedy describes the multiple negative consequences of chronic pain including activity, relationship, physical, financial and emotional consequences and changed expectations of the future. This discourse bolsters the moral discourse through rejecting any benefits associated with chronic pain. Participants rejected a biomedical discourse by; proposing their own explanatory models of pain, resisting psychosocial understandings of pain, criticising medical professionals and healthcare services and challenging medical expertise, professionalism and power. These practices allow participants to reject the patient subject-position with its attendant passivity and requirements for adherence and compliance. These findings challenge the hegemonic view of occupation that exists within occupational therapy.

Key words: Chronic Pain, Discourse Analysis, Occupational Therapy, Qualitative

Introduction

Chronic pain is a major international healthcare problem (Blyth et al 2004). Nearly one in five adult Europeans (Breivik et al 2006) and over fifty million Americans live with chronic pain (Gatchel 2004). Chronic pain is described as pain that persists beyond the normal time of healing (Turk and Okifuji 2010, p. 14).

A major body of qualitative research within the social sciences is available to inform occupational therapy practice with people with chronic pain (Mitchell and MacDonald 2009; Sim and Madden 2008). These studies have revealed the contested nature of many chronic pain diagnoses (Lillrank 2003), the multiple losses (Carson and Mitchell 1998; Walker et al 2006), and the suffering experienced by people with chronic pain (Carr et al 2005). In 2003, Neville-Jan noted that the available occupational therapy literature placed little emphasis on how the person with pain performs and participates in occupations and how such participation is experienced (Neville-Jan 2003). Since then a growing body of research has explored and described the complex relationship between occupation and chronic pain (Aegler and Satink 2009; Borell et al 2006; Fisher et al 2006; 2007; Keponen and Kielhofner 2006; Persson et al 2011; Stamm et al 2008). These studies have highlighted the vast occupational consequences of chronic pain including changed occupational performance, abandonment of occupations, and difficulties completing all categories of occupations. However, these studies are primarily situated within an interpretative perspective and seek to understand the individuals' subjective experience. In contrast, a social constructionist approach is concerned with how experience is constructed by culturally available discourses. A constructivist approach does not diminish the authenticity of the individuals experience; rather it proposes that experience itself is an effect (Latimer 2008). It is important to interrogate the socially constructed nature of the experience of people with chronic pain as discourses have real effects for experience and practice.

A social constructionist approach

Beginning with the seminal work of Berger and Luckmann (1966) social constructionism is a sociological theory of knowledge which centers on the idea that *“the world we live in and our place in it are not simply and evidently ‘there’ for participants. Rather, participants actively construct the world of everyday life and its constituent elements”* (Gubrium and Holstein 2008, p.3). Language is of critical

concern to social constructionists, as language functions as a form of social action. Language can be viewed as structured into a number of discourses. Parker defines a discourse as “*a system of statements which constructs an object*” (1992, p.5). Dominant discourses enjoy widespread acceptance in the form of commonsense and function to sustain prevailing power relationships (Burr 1995). Discourse analysis and in particular critical approaches to discourse analysis are becoming more established as a research method in healthcare (Cheek 2004; Lupton 1992; Traynor 2006) and in occupational therapy (Ballinger and Payne 2000). Michael Iwama has highlighted the socially constructed nature of occupational therapy knowledge and has identified the operation of meta-narratives within occupational therapy (2006).

Discourse and practice

A multiplicity of environmental and cultural factors influencing human occupation is acknowledged in theoretical models of occupational therapy. However, occupational therapy is founded on humanistic principles and does not consider culture or the environment to influence occupational performance in the manner proposed by social constructionists such as Foucault.

A Foucauldian concept of discourse is not purely a linguistic concept, for Foucault discourse is about both language and practice (what one does) (Hall 1992). Foucault emphasised that subjects are not constituted through discourses alone but through practices which sustain and bolster discourses “*It is not enough to say that the subject is constituted in a symbolic system. It is not just in the play of symbols that the subject is constituted. It is constituted in real practices. There is a technology of the constitution of the self which cuts across symbolic systems while using them*”. (Foucault 1984, p.369). Taking a discursive approach to understanding the practices of people with chronic pain is warranted given the focus of occupational therapy on human occupation.

In summary, the available qualitative research on the experiences of people with chronic pain is dominated by interpretative approaches. This study analyses the talk of people with chronic pain to identify dominant discourses in operation in their accounts. These discourses are then considered in terms of their consequences for practice (what people can do).

Method

Design

This study aimed to identify the discourses used by people with chronic pain in describing their experiences of living with chronic pain. Foucauldian discourse analysis was used to analyse the interview data. This approach seeks to describe the discursive worlds people inhabit by identifying the discourses in operation within particular accounts (Willig 2008; Ballinger and Payne 2000). “Discourses both facilitate and limit, enable and constrain what can be said (by whom, where, when)” (Parker 1992, p.xiii). Alongside identifying discourses in operation, discourse analysis considers the implications of particular discourses for individuals as discourses offer subject positions which when taken up have implications for subjectivity and experience (Willig 2008).

Participants

People were included in this study if they were; 18 years of age or over, experiencing chronic pain and had no significant hearing or speech impairment. A purposeful strategy was used to recruit adults with chronic pain. Participants were approached at a weekly outpatient pain clinic at an Irish urban hospital and invited to participate in this study. The first five potential participants were given an information sheet informing them of the study procedures and giving assurances of confidentiality. Subsequently, all five expressed interest in participating and were contacted by the first author and interviews were scheduled. Four women and one man were recruited, see table one for participant details. All participants were Irish and were fluent in English. Participants ranged in age from 25 years to 78 years. One participant was retired, one was on sick leave, two were not working and one was working part time.

Data collection

Data were obtained from in-depth lightly structured interviews. The light structure for the interviews focused on one theme; everyday life with chronic pain. Questions used by the interviewer included asking for a descriptions of social, household, work and leisure activities, and daily routines. In keeping with recommendations within discourse analysis literature the interviews are viewed as and carried out as conversational encounter, the same issue was considered several times and participants were allowed to go off on a tangent or ramble off the topic (Potter

and Wetherell 1987). All interviews were completed by the first author. Each tape recorded interview lasted between one and a half and two hours long. Ethical approval was obtained from the Research Ethics Committee at the study site. All digital data were stored securely on a password protected computer in a secure office. In order to protect participant anonymity minimal identifying information has been reported and pseudonyms are used alongside quotes.

Data analysis

Discourse analysis is an approach rather than a fixed method (Cheek 2004) and a number of 'types' of discourse analysis exist (Traynor 2006). A six stage approach to Foucauldian discourse analysis described by Carla Willig (2008) was used to analyse the transcribed interviews. Stage one involved identifying the different ways in which the discursive object 'the experience of chronic pain' is constructed. The second stage involved identifying discourses that could account for these references. This stage relied heavily on the author's interpretations as they considered from which historical, social and cultural resources these references originated. Three discourses were named by the authors based on their readings of the data. Stages three to six included identifying what is being achieved by the use of these discourses (Willig 2008). The analysis and discussion presented here emphasizes the relationship between the identified discourses and practice. In considering how discourse is related to practice Willig (2008) proposes that one should consider the ways in which discourses and subject positions open up or close down opportunities for action (Willig 2008 p.117). Certain practices or actions are legitimate forms of behaviour within particular discourses and function to further bolster the discourse. To ensure rigour a number of evaluative criteria for the quality of DA work as described by Taylor (2001) and Crowe (2005) have been adhered to throughout the research process. The data analysis process has been explicated and the authors have attempted to provide support for their interpretations by providing rich detail from the transcribed interviews. In the discussion the findings are located in relation to previously published work thus supporting the wider existence of the identified discourses. Throughout the research process the researchers aimed to be aware of their positions as healthcare professionals/researchers and the influence this had on their reading of the text through the maintenance of a reflective diary by the first author (KR). This is in keeping with calls from Finlay (2002) that a discourse

analyst should be cognizant of and explicit about her perspective and position in the analytic process. The interviewer (KR) identified herself as an occupational therapist to participants, however stressed that she was separate to any services participants were receiving.

Results

Three discourses were identified in participant's accounts; a moral discourse, a discourse of pain as personal tragedy and a biomedical discourse.

Moral Discourse

Participant's descriptions of themselves, their pain, the response of others to them, the variability of their pain, and their own use of pain management techniques were identified as accounted for by a moral discourse by the authors. The adjective moral is defined as "concerned with principles of right and wrong behaviour" (Waite and Hawker 2009, p.599). Therefore, in using a moral discourse, participants are constructing themselves as moral beings who are conducting themselves in a good or correct manner. Immoral behaviour for people with chronic pain includes malingering and exaggerating or lying about pain in order to access potential 'rewards' such as time off work, financial reward through litigation/compensation, attention and exemption from responsibilities. Participants described themselves before the onset of pain as active people with high energy levels and the ability to cope with multiple demands, thus constructing their characters in a positive manner.

I mean I'll give you an example of my energy or the energy levels that I used to have right, eh, twenty-one years ago I had a son who died now before he died before he died em he was in X hospital ... and I had my daughter ... was downstairs in Y ward he was upstairs in Intensive Care, my mother was very sick and she was over in the Z Hospital ... and I ran my household ... and I managed to do all that and find the energy to do it. (Patricia)

Participants presented lengthy descriptions of themselves as not complaining about pain or the consequences of pain. In contrast to themselves as stoic, participants described other people as not stoic and not having a high pain tolerance.

like my brother in law if he sneezed twice you know he was calling the undertaker you know 'I'm dying' (Jack)

Participants described a number of responses from others including; sympathy, being made to feel they are complaining, doubting, disinterest and being watched. The response described in most detail was doubt. Participants described doubting of both the level of pain and the validity of their pain. Providing evidence of the reality of their pain allows participants to reject the implicit assumptions of the mistrustful responses of others.

then at times if somebody calls and if you're laughing and you're chatting away 'God you're really not too bad today are ya' and I feel like going 'I'm trying to hide it I could sit there with a long face the next day' and you know you are actually in a fair bit of pain (Mary)

Participants described an unpredictable experience of both good and bad days of chronic pain. This was described as leading to a difficulty in planning ahead. This description of pain as unpredictable functions as evidence of the individual's lack of control over their pain and therefore the reality of their pain.

it is yeah yeah you can't predict it because you could be fine today doing the very same thing say doing shopping but tomorrow you could be half ways around with your trolley shopping and you could be dead with the pain (Mary)

A range of pain management techniques were described by participants including; the use of equipment, music, movement techniques, changing position, taking breaks, stretching, distraction and resting. In order to complete activities various strategies were employed; using medication, resting, taking breaks, changing position, prioritising, having targets, doing things differently and getting assistance. These techniques were developed through trial and error. Descriptions of these techniques present the individual as actively trying to manage their pain to enable activity and role participation. These strategies also counter claims of malingering. As exemplified in the following quote from Geraldine where she describes using medication in order to do housework.

I took two Panadol after breakfast because the pain was starting to kick in and it kind of numbs it just enough that you can do things and its great because then you think 'well I'll clean the house' ... so you sit down at the end of an evening 'ah Jesus that was brilliant I managed to actually do that now today' (Geraldine)

Participants described where in their bodies they experienced pain and used various terms to describe the quality and type of pain, for example, “burning”, “crippling”, “agony”, “horrendous pain”. Participants described real physical consequences of pain such as; nearly fainting, having to sit, having to lean over, an inability to lie on one side and difficulty breathing. These descriptions of pain are used as proof within participant’s accounts of the reality of their pain.

my sister got married this time last year ... I actually cried the whole way through the ceremony and the funny part was everyone thought I was upset because she was getting married ... but in effect I was very near fainting at that point from the pain (Mary)

Discourse of Chronic Pain as Personal Tragedy

Participants identified a range of overwhelmingly negative consequences of chronic pain including activity, relationship, physical, financial and emotional consequences and changed expectations of the future. These descriptions were identified by the authors as accounted for by a discourse of pain as personal tragedy. This discourse constructs the chronic pain experience as a tragedy for the person where multiple aspects of their lives are destroyed. This tragedy is personal in that it is not shared with others but experienced by the individual with chronic pain alone. This discourse bolsters a moral discourse as they both reject any claims that people with chronic pain are benefiting from their pain.

Participant’s accounts of the future were dominated by uncertainty and concerns about the progression of their pain and, or, their condition and their ability to do things in the future.

You know the the mother in law will call and say ‘oh you’ll have to come up’ and someone else will have to do something. Its like I am only thirty six, thirty seven this year and I’m not far behind her really . . . Will I be forty five before I actually become totally almost incapacitated? (Geraldine)

Participants described many negative activity consequences of chronic pain including; experiencing pain, lack of comfort, fear, and self-monitoring during activities, the need for assistance and slowed activity performance. Many activities could no longer be completed, for example exercise and dancing. Activity changes were identified as leading to loss of routine, boredom, loss of pleasure, and diminished self-esteem.

Now he brought up the sticks to me last night because I crawled like a little chimpanzee up the stairs. Now I sit down and go down on my behind down the stairs. (Fran)

Participants described difficulty fulfilling social roles as particular activities could no longer be completed. Participants described these changes as placing a burden on others. Participants also described the emotional and mood consequences of chronic pain as affecting relationships.

But yeah it kind of does because it becomes a thing of ‘mammy can we go down to the park’, well ‘no, you cant’, because I cant stand the pushing on the I couldn’t stand and push him on the swing or some of the little rides are so down low that you’d kind of have to get down to his level and its kind of or ‘mammy can we go hurling’, ‘no you’ll have to wait until your daddy’s finished work and see will he bring you’ or everything is, ‘no you cant’ (Geraldine)

Participants described their bodies as changed by pain, many participants described their bodies as aged, and other changes included gaining or losing weight and changes in their hair.

At what I feel what I feel very frustrated by is in my mind I feel young and fresh but I feel like I’m in the body of an eighty year old that’s how I feel about the body that I have (Patricia)

Participants described negative financial consequences of chronic pain including loss of income because of inability to work and healthcare costs.

oh yeah definitely money I mean money is the bee all and end all of everything you know especially like my friends are up to date with the style and stuff and me like looking through magazines I wish I could have like (Fran)

Participants described negative emotions and moods because of pain and because of the consequences of pain. Feelings described included; tiredness, feeling cranky, feeling short-tempered, heartbroken, frustration, anger, anxiety, panic, insecurity, upset, uselessness, low spirits, stressed, disappointed, worried, agitated, overwhelmed, being depressed, going downhill mentally, being on a downward emotional spiral, and reduced self esteem.

You know if you have to run after them (children) you’re fecked like, and then you find yourself angry, ‘why did you make me run after you?’ ‘I can’t run

after you, I can't do it' and its just you do you become a bear with a sore head
(Geraldine)

Biomedical Discourse

Participants criticised extensively the healthcare services they had experienced and described their own explanatory models of pain beyond biopsychosocial understandings. The authors identified these reports as accounted for by a biomedical discourse. However, participants did not use a biomedical discourse in the accepted manner, that is, respecting the power and scientific knowledge of medicine and accepting the patient role. Rather, participants' accounts were identified as a rejection of a biomedical discourse. Participants' descriptions of their experiences of healthcare were overwhelmingly negative. Almost all participants described experiences of misdiagnosis and medical error. Participants described not being examined, inappropriate investigations and referrals, missing test results, poor or no record keeping and doctors who were lacking knowledge about chronic pain. Participant's subjective experiences of healthcare were described as demeaning, upsetting, disempowering, overwhelming and as a battle. Multiple organisational issues were highlighted including; waiting lists, lack of follow-up, healthcare costs, lack of services locally, poor communication between healthcare providers, inaccessible services, lack of access to consultant doctors and constantly changing junior doctors. Doctor's attitudes were described as dismissive, disinterested, careless, defensive and unsympathetic. Participants described overly casual prescribing of medication with little information about risks, addiction, and side effects. Participant's experiences of medication were negative overall, with little success and many side effects. Participants described needing to 'be able' for doctors, to be informed and assertive in interactions with doctors. Participants suggested that doctors need to listen to patients and stressed the need for a diagnosis. Many participants described a long process of getting a diagnosis.

I had a doctor one night that came down in the middle of the night and examined me and said I had appendicitis and they were admitting me and I was for theatre in the morning I said 'thanks doctor that's great' I had had my appendix out six months before that and just for the sake of actually being admitted and someone to realise I said 'fine' and I went up the ward (Mary)

Participants proposed a number of alternative causes of pain outside of biopsychosocial explanatory models. Proposed causes included; sitting down wrong, pregnancy, a fall, domestic violence, circumstances of life, epidural and given by God. These explanations for chronic pain served to challenge the dominance of biological, psychological and social understandings of pain causation within medicine. A number of participants described chronic pain as leading to depression and most participants rejected the idea that mental illness causes chronic pain. Various onsets of their chronic pain were described including gradual and dramatic onset.

That's one of the things I think that set it off I went to America and one of my old adversaries on the table tennis table happened to be there and I said 'would you a game of table tennis' . . . and we went there like that and without warming up or anything we went at it. Pow, and I beat him. From that point on the shoulder without warming up and not playing for three or four years it really, pow, ground the thing down (Jack).

Discussion

Limitations of the Study

This study has a number of limitations. The study was exploratory and cannot be considered exhaustive. The small number of participants in this study is in keeping with discourse analytic research, however, further research is required to validate these findings. The participants had diverse chronic pain diagnoses and length of time since diagnosis. The experiences of people with contested diagnoses are likely to vary from those with accepted diagnoses, for example arthritis. The analysis presented relies heavily on the interpretations of the authors, particularly in the naming of discourses. The authors have attempted to be aware of their own personal biases, nonetheless, other readings of the data are possible and the analysis presented here are undoubtedly influenced by the position and beliefs of the authors. It has been highlighted that critical DA researchers can find what they are looking for in the texts they are analysing (Schegloff 1997). However, Smith (2007) argues that this bias is inherent in DA and cites Chouliaraki and Fairclough (1999) to stress that the possibility of multiple readings is central to critical DA.

Discussion of Results

Moral discourse.

A moral discourse was used in participant's accounts to construct themselves as legitimate, honest people experiencing real pain who try to accomplish activities and meet the requirements of social roles despite pain and do not burden others. Similar findings have been reported by a number of qualitative studies of people with chronic pain (Nettleton 2006; Glenton 2003). Ong et al. reported on a qualitative study of people with low back pain where accounts were identified as a performance which sought to portray participants as fulfilling their obligations in order to establish the fact that they are a person with high moral standards (2004). Participant's descriptions of themselves also mirror the findings of Werner et al (2004) where women described themselves in interviews as strong, not complaining and having seldom been sick before the onset of their chronic pain. Eccleston et al (1997) used Q factor analysis to illustrate patient and professionals' understandings of chronic pain. The patient account included denial that any blame can be attached to the sufferer and rejected the idea that pain is caused by individual weakness or personality or that chronic pain is a plea for sympathy, attention seeking or an excuse to avoid work.

The unpredictability of pain is presented as evidence of participant's lack of control over their pain. As their pain is 'real' and therefore not within their control participants cannot plan ahead. Studies by Ong et al (2004) and Patel et al (2007) describe the unpredictable nature of chronic pain and the lack of certainty as to what type or severity of pain they would encounter at any time.

The consequences of this discourse for practice are multiple and complex as this discourse is intimately connected with behaviour. A central practice implication is the need for participant to take actions to address the doubting of their experience. This is achieved through active attempts to manage their pain and efforts to complete activities and fulfil social roles and responsibilities despite pain. Participants described concealing their pain from others, not complaining and being stoic as tactics to manage social interactions.

These findings are mirrored in a number of studies of the occupational experiences of people with chronic pain. In a study of women with chronic pain one of four types of narratives identified was based on the metaphor of fighting which describes carrying on despite pain and completing what are perceived as duties or social obligations (Keponen and Kielhofner 2006). The desire of people with chronic

pain to engage in occupations despite pain was highlighted in a qualitative study of Swiss people with chronic pain (Aegler and Satink 2009). A qualitative study of the experiences of pain program participants identified pacing as a strategy to achieve daily activities (Van Heut et al 2009). A number of studies have identified strategies used by people with chronic pain to manage pain and accomplish activities (Löfgren et al 2006; Henricksson 1995; Aegler and Satink 2009; Closs et al 2007; Crowe et al 2010) and varied approaches to task performance and adaptation have also been described (Shariff et al 2009).

Discourse of chronic pain as personal tragedy.

A discourse of chronic pain as personal tragedy was identified in participant's accounts as they described multiple negative consequences of chronic pain. The victim subject-position is offered by this discourse and this discourse functions to counter claims that people are benefiting from their pain. Negative consequences of activity changes such as altered enjoyment and involvement, changed levels of independence and limited social contact have been identified in other studies of people with chronic pain (Walker et al 2006; Fisher et al 2007; De Souza and Frank 2007). A number of studies have described the impacts of chronic pain on families and social relationships (Walker et al 2006; Paulson et al 2002, Strunin and Boden 2004; Closs et al 2009). The negative financial consequences of chronic pain further bolster an account of chronic pain as a tragedy with multiple losses not gains. Studies by both Walker et al (2006) and Kemler and Furnée (2002) identify the financial consequences of chronic pain including loss of earnings and healthcare costs. A negative emotional experience is the natural consequence of this discourse and emotional suffering because of chronic pain is widely reported (Strunin and Boden 2004; Fisher et al 2007; Liddle et al 2007).

The consequences of this discourse and subject position for practice is primarily in the closing down of opportunities for action. Activities are restricted, movement is restricted and relationships are restricted. Inability to do everyday activities and restriction in performance of activities have been reported in other studies of people with chronic pain (Fisher et al 2007; Miles et al 2005; Walker et al 2006; Strunin and Boden 2004; Johansson et al 1999; Patel et al 2007).

Biomedical discourse.

Participants rejected a biomedical discourse and resultant patient subject-position as they criticised the healthcare they had experienced, described their own

explanatory models of pain and resisted psychosocial understandings of pain. Sakalys (2000) identifies that meta-narratives in healthcare function as hegemonic ideologies, dominating and objectifying the individual who is the patient. The dominance of a biomedical discourse of health has been discussed by many. Reports that people with chronic pains' accounts are met with scepticism and lack of recognition by doctors abound in qualitative research (Johansson et al 1999; May et al 2000; Werner and Malterud 2003). Chronic pain poses a threat to the logic of scientific biomedical thinking and that this may be why patients have difficulty being believed when presenting themselves to clinicians (May et al 1999; Lillrank 2003). People with chronic pain have described investing much energy, time and work before or during medical encounters in order to be perceived as a credible patient (Werner and Malterud 2003). Similar to the reports of participant's in this study the poor effectiveness, unpleasant side effects of medication (Closs et al 2007), unease about the potential for dependency on medication (Shariff et al 2009), struggle for diagnoses (Allcock et al 2007), and organisational issues such as waiting lists (Liddle et al 2007) have been identified in multiple studies of people with chronic pain.

Participants presented explanations for their chronic pain and these explanations extended beyond biological understandings of pain. Critically, however, these explanations did not include psychological causes of chronic pain. Accounts of the assignation of psychological explanatory models by healthcare providers are common (Werner and Malterud 2003; Walker et al 1999). Lillrank analysed Finish women's narratives about the process of getting back pain diagnosed where the experience of doctors indicating that participants' pain was psychological in origin was experienced as very stigmatising (2003). In keeping with the descriptions of onset in this study May et al (2000) identify how constructions of the cause of pain, such as arriving suddenly, without cause, as the result of a single catastrophic event or degeneration avoid the sufferer being implicated as responsible for the onset of their pain. Explanatory factors outside of biopsychosocial understandings have been identified in other studies such as a trigger, the environment or heredity (Richardson et al 2006). Horton-Salway (2004) emphasises how DA can show operation of resistance to power. Participant's descriptions of their health care experiences and their rejection of biopsychosocial explanatory models of pain clearly resist the patient subject-position. The consequences for action from rejection of this discourse include challenging medical expertise, professionalism and power and non-acceptance of the

patient subject position with its attendant passivity and requirements for compliance and adherence to medial advice.

Conclusion

Future discourse analytic research is required to validate these findings and future research on the discourses used by people with various subtypes of chronic pain would be of value.

The findings of this study challenge the hegemonic view of occupation that exists within occupational therapy by revealing the socially constructed nature of the experience of people with chronic pain and allowing their occupations to be understood as determined by dominant discourses. Continued occupational performance despite pain could be interpreted by an occupational therapist to mean the activity is valued or meaningful to the client, as opposed to the occupation being performed to construct the individual as a moral being. Non-participation in activities, non-compliance of clients with medications and treatments and criticisms of healthcare could lead to challenging client - therapist relationships. Resistance to psychosocial understandings of pain could be viewed as a lack of insight or acceptance on the part of the client. However, an awareness of the operation of a moral, personal tragedy and biomedical discourse in the accounts of people with chronic pain allows occupational therapists to consider these behaviours to be determined by culturally dominant discourses. The central implication for practice arising from this study is the need for awareness on the part of occupational therapists of the multiple factors shaping the occupational performance of people with chronic pain. Further practice implications include the need for recognition of client's pain, caution in the assignation of psychosocial explanatory models and the need for occupational therapists to communicate trust and belief of the person's pain.

Table 1. Description of Participants

Pseudonym	Age	Occupation	Diagnosis	Length of time living with chronic pain (months)
Jack	78	Retired	Rheumatoid arthritis	120
Geraldine	36	Part time cleaner	Back pain and/or fibromyalgia	120
Mary	25	Sick leave from care attendant job	Slipping rib syndrome	48
Patricia	56	Not working	Rheumatoid arthritis and Spinal TB	84
Fran	34	Not working	Rheumatoid arthritis	144

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Discussion

Discussion

The overall aim of this thesis was to explore the relationship between occupation and chronic pain, augment the evidence available to occupational therapists working with people with chronic pain and to develop occupational therapy services for people with chronic pain in Ireland in line with the best available research evidence. To address this overall aim the nature of current occupational therapy practice with people with chronic pain was considered (**papers I and II**), and the factors influencing occupational therapy services for people with chronic pain were explored (**papers I, II, IV and VIII**). Evidence to support occupational therapy practice with people with chronic pain was generated (**papers III, IV, V and VII**), and the relationship between activity and pain was explored (**paper VII**), specifically the relationship between flow experiences and pain (**paper VII**) and the way in which dominant cultural discourses shape the activities of people with chronic pain (**paper VII**). Finally, how occupational therapists can change practice in line with evidence and the philosophy of the profession was explored (**paper III**).

Discussion of Results

The first part of the thesis was concerned with exploring the nature of current occupational therapy services for people with chronic pain. An exploration of current published evidence indicated that occupational therapists may not be meeting the occupational needs of people with chronic pain. The professional practice of occupational therapy with people with chronic pain was critiqued and challenged and gaps were identified in the evidence base to support practice. An occupational perspective on chronic pain appreciates the complex relationship between occupation and chronic pain and a growing body of qualitative studies is exploring this relationship (Stamm et al 2008; Keponen and Kielhofner 2006; Fisher et al 2006; 2007; Borell et al 2006; Aegler and Satink 2009). However, this knowledge has not translated to practice as descriptions of practice appear to be overly influenced by a biomedical and biopsychosocial perspective leading to an overreliance on technique based practice. It was identified that descriptions of contemporary occupational therapy practice largely do not reflect the use of occupation as both ends and means (McLaughlin-Grey 1998). This was identified as being due, in part, to the influence of the biopsychosocial model which has provided fertile ground for the development of the plethora of psychosocial interventions for chronic pain, for example the use of

cognitive behavioural interventions. The unacceptability of psychosocial interpretations of pain to people with chronic pain is without dispute (Glenton 2003; Werner and Malterud 2003; Lillrank 2003; Nettleton 2006). Thus, the dominant understanding of pain informing health care and occupational therapy services is at odds with the views of service users. In light of this, recommendations for occupational therapists to research the efficacy of occupation-based interventions and to become expert in the judicious use of evidence to inform practice were made.

The second part of the thesis contains the main body of work in the thesis; a three year participatory action research (PAR) cycle with a group of Irish and Northern Irish occupational therapists. The PAR cycle aimed to develop occupational therapy services for people with chronic pain in line with the best available evidence. Participants in this study moved through a PAR cycle in order to reflect on and develop their practice. This PAR process involved working with occupational therapists to identify the inadequacies of current practice and developing an action plan to address these limitations of current practice. This action plan was then implemented by the participants and evaluated. The changes described by participants as a result of participation in the PAR process were considerable – feeling more confident and competent about addressing client’s work needs, feeling more skilled and knowledgeable in vocational rehabilitation, offering new services, communicating with new agencies alongside numerous changes in their knowledge skills and attitudes towards research and EBP. The findings of the PAR process illustrated the active participation of participants in the co-construction of knowledge; the promotion of self and critical awareness that led to change and the building of alliances between participants in the planning, implementation and dissemination of the research process. The process allowed participants to engage in praxis though bringing their practice under considered critical control and connecting their practice with their values. The findings reinforce what is known about the benefits of collaborative approaches to learning, learning in communities of practice, and the role of tacit knowledge in translating evidence to practice. The development and use of a vocational rehabilitation handbook as part of the PAR process was identified as functioning as a strategy to aid occupation-based practice, thus, closing the theory-practice gap in occupational therapy. Participants described feeling more confident and competent and identified behaviour change in EBP after engaging in the PAR process. This was described as resulting from the collaborative nature of the process

where knowledge was created in a participatory way and participants were empowered to solve problems that were grounded in the reality of their every day context. The findings of the PAR process are in keeping with the available literature on effective strategies for implementing EBP and effective diffusion of innovations (Grimshaw et al 2001; Coomarasamy and Kahn 2004; Greenlough et al 2004).

The findings of the PAR process indicate that academic-practice partnerships and participatory action research may be effective means of addressing many of the barriers to the translation of evidence to practice, closing of the theory-practice gap and the enactment of occupation based practice in occupational therapy.

Misunderstanding of the role of the occupational therapist abound and a number of studies have successfully explored and described the role of occupational therapy with a specific population or in a particular clinical setting through an inductive process (Rose and Mackenzie 2010; DeJong et al 2004; Prigg 2002; Myers 2008; Kinn and Aas 2009). The unique contribution of occupational therapy to a multidisciplinary approach to the management of chronic pain is presented based on qualitative interviews with participants in the PAR process. Uniquely, the core focus of the intervention of participants with people with chronic pain was enabling participation in activities. This was achieved through; an appreciation of the complex relationship between chronic pain and activity, the use of activity as therapy, goal setting and the use of strategies such as pacing. The findings of this study were on the whole in keeping with the analysis in the first stage of the thesis based on published accounts of the practice of occupational therapists in this clinical area. .

In this study the core focus of intervention was identified as enabling participation in occupation, in keeping with the professional domain. However, in describing how this is achieved both occupation-based interventions and multiple strategies or techniques with a long term goal of engagement in occupation were identified. This study answers, in part, calls for occupational therapists to articulate and make apparent occupational therapist's unique use of occupation as therapy (Yerxa 1998; Pierce 2003). It is reassuring to note the emphasis in participant's accounts on the relationship between occupation and pain, the use of occupation as therapy and the use of goal setting to enable participation in occupation. These findings are broadly in keeping with occupational therapy philosophy and the domain of the profession. In a similar study Skjutar et al (2010) completed focus groups with occupational therapists (n=25) to describe their perceptions of indicators for

occupational therapy interventions among clients with chronic pain. Limitations of occupational performance emerged as the greatest indicator of need for occupational therapy, which included difficulty in completing activities, a wish to resume previous activities or to learn new activities.

As part of the PAR process participants developed a VR handbook elements of which are presented in the thesis. In the handbook it is stressed that throughout the VR process occupational therapists utilise their specialised knowledge of the complex relationship between occupation, health and wellbeing and their knowledge of the therapeutic power of occupation (Pierce 2001). A number of principles were developed to guide vocational rehabilitation interventions with people with chronic pain for example occupational therapists are encouraged to be proactive in addressing the work needs of clients with musculoskeletal condition as people with musculoskeletal conditions may be unwilling to reveal their condition in the workplace. These principles support an occupational perspective of health stressing the benefits of work for people with chronic pain and musculoskeletal disorders. The most effective VR interventions identified in the handbook reflect core occupational therapy beliefs about the importance of context, the just right challenge, and importance of meaningful occupation. These principles are reflected the evidence that the most effective VR involves real work tasks in the real work environment being graded to the individual's capacity.

In the final part of the thesis evidence is generated to support occupation based practice with people with chronic pain. A review of happiness studies situated flow within a eudaimonic perspective and highlighted the congruence between eudaimonia and occupational science. This review justifies the following experience sampling study of the flow experiences of people with chronic pain as the links between flow, eudaimonia and occupation are explicated.

Theoretically occupation has the potential to modulate the pain experience for people with chronic pain through emotional and cognitive factors and a rationale for the modulation of pain by flow based on neuro-imaging and experimental studies of the emotional modulation of pain by emotion was presented. The experience sampling study was guided by four hypotheses. The first hypothesis was not supported by the data; that pain intensity will be significantly lower while people with chronic pain are in flow compared to other states (anxiety, apathy and relaxation). Pain intensity was not significantly lower in this study when participants were in flow; however mean

scores indicated a trend towards lower pain intensity in flow. Another potential hypothesis that was not explored in the study data is; pain intensity will be significantly lower in flow and relaxation states combined compared to apathy and anxiety states combined. This hypothesis is based upon the assumption that both flow and relaxation are relatively positive states in which pain is likely to be lower. Average pain intensity scores were lowest in flow and relaxation states of the four states. This untested hypothesis could potentially offer further support to the use of flow as an intervention with people with chronic pain. The findings also revealed that flow is an optimal psychological experience for people with chronic pain (significantly higher concentration, self-esteem, motivation, and potency scores) and high rates of apathy were identified in the data. The study findings lend support to occupational therapy interventions that enable people with chronic pain to participate in challenging occupations which exercise their skills, particularly productive occupations; including paid work, unpaid work and volunteering. For occupational therapists working with people with chronic pain the high rates of apathy identified by this study are of particular concern. Boredom was neglected as a topic in occupational therapy for many years and only recently has been considered theoretically and in terms of its consequences for occupational experiences and the potential of occupation as an antidote to boredom (Long 2004; Ilott 2007; Martin 2009; Corvenelli 2005).

The final study in the thesis is a qualitative in-depth interview based discourse analysis study of the activity experience of people with chronic pain. This study illustrates the profound role of cultural discourses in shaping human activity and experience. The value of social constructionist approaches in informing occupational therapy has been identified (Ballinger and Payne 2000). A multiplicity of factors influencing human occupational performance is acknowledged in occupational therapy and culture is frequently identified as a factor shaping what people do. However, models such as, the Canadian Model of Occupational Performance, do not consider culture to influence behaviour in the manner proposed by social constructionists such as Foucault. In occupational therapy the work of Michael Iwama has highlighted the socially constructed nature of occupational therapy knowledge and he has usefully identified the operation of meta-narratives within occupational therapy (2006). The findings of this discourse analysis study challenge the hegemonic view of the behaviour of people with chronic pain that exists within occupational therapy and

offer a new perspective on the occupations of people with chronic pain by presenting their actions as determined by dominant cultural discourses.

Methodological Considerations

Paper I is a discussion paper or commentary and is not guided by a specific methodology. Commentaries are defined by the expression of opinion by the author based on expertise in the subject area (Gray 1997). Therefore there is much potential for bias in an commentary, however, **paper I** has been peer reviewed and reviewers were in agreement with the arguments raised which are grounded in evidence. The purpose of this paper is to provoke dialogue and discussion within the profession about the scope and role of occupational therapy and the extent to which the occupational needs of people with chronic pain are being addressed through current services.

Paper II is an exploratory review of the literature on occupational therapy for people with chronic pain which aims to identify significant factors for the future development of occupational therapy. A methodology from the field of future studies; Causal Layered Analysis (CLA) was used to review the documentary data. The nature of CLA raises questions about bias in the presentation of an opinion oriented argument. The method does not involve systematic review of literature as the process is not guided by a clearly defined question. In contrast CLA embraces a hermeneutic and critical approach (Slaughter 1997) that relies on interpretation, reasoning and the expertise of the author. A major limitation of causal layered analysis is that it rests upon the author's interpretations and analytic abilities. This CLA process was commenced in early 2007 and reviewed and refined until submission to the Australian Journal of Occupational Therapy in mid 2009 following revisions it was accepted in early 2010 and published in 2011. Therefore the analysis was engaged in over a lengthy period of time. This lengthy engagement with the analysis process aided the hermeneutic interpretative process as there was time for reading and discussion with supervisors and others. Furthermore, the author had previous experience of critical post-structural analysis. In the early stages of the analysis mind maps and other visual representations aided the identification of issues within each layer of analysis. These issues were then discussed with supervisors, colleagues and occupational therapy practitioners working with people with chronic pain. As issues were identified literature was reviewed to consider these issues from the perspective of occupational therapists and academics from other disciplines. An iterative process of issue identification, literature search and review, refinement of issues and further literature searching and review was undertaken. As part of the analysis process many examples

of CLA particularly the CLA reader (Inayatullah 2004a) were reviewed alongside a wide range of publications in the Journal of Future Studies and in the discipline of future studies in general. Throughout the analysis the proposed issues and arguments are supported by findings from a breadth of chronic pain and occupational therapy research. In areas where hegemony is strong CLA may be a difficult method to use, for example where empiricist perspectives dominate (Inayatullah 2004b). Although the biomedical understanding of health dominates Western healthcare services in the field of chronic pain where cure is frequently unattainable the biomedical model has less power. In chronic pain services a biopsychosocial model of health is widely accepted as the most heuristic approach (Gatchel et al 2007). Thus a scientific/biomedical view is challenged within this domain already and it was possible given the large body of work available critiquing Western biomedicine in general and biomedical approaches to chronic pain in general to use CLA. A criticism of CLA is that as a relatively new method, although dozens of articles using the method have been published (Inayatullah 2004a; Terranova and Council 2004), to date empirical studies of the efficacy of CLA in policy making do not exist.

Paper III describes a PAR process with a national group of occupational therapists working with people with chronic pain. **Paper IV** describes an interview based study completed as part of the overall PAR cycle and **paper V** presents part of the vocational rehabilitation handbook that was an outcome of the PAR process. For the overall PAR process and the in-depth interviews completed during the PAR process four guiding principles for quality in qualitative research were considered in the design and reporting of these studies (Spencer et al 2003). The four principles are that research should be; contributory in advancing wider knowledge, defensible in design, rigorous in conduct and credible in claim.

PAR has been identified as an appropriate methodology within healthcare research where the research aim is the development or re-design of healthcare practice (Wilding and Whiteford 2008) and there are a number of examples of participatory research in occupational therapy which highlight how PAR has the potential to successfully change occupational therapy practice (Roth and Esdaile 1999; Wilding and Whiteford, 2007; 2008; 2009; Wilding, 2011). Data collected as part of the 33 month PAR process included; a log of activities, minutes from 19 teleconferences (1-2 hours in length), field-notes from three full-day workshops, 1329 e-mails sent between participants and 17 in-depth interviews. During stage one and stage five of

the PAR process in-depth qualitative interviews of 1-1 ½ hours were completed with all participants by an independent researcher. Written reflections from participants for a conference presentation on their experiences of the PAR process and written reflections collected at stage two were also included as data for analysis. The findings of the interviews from stage 1 are reported in **paper IV**. All interview data was transcribed in full and entered into NVivo9 and analysed using thematic analysis situated within an essentialist/realist epistemology. Thematic analysis is a theoretically flexible approach which can potentially provide a rich and detailed, yet complex, account of the data (Braun and Clark 2006), it was chosen as it is appropriate for use with those who have little experience of qualitative analysis and could therefore facilitate participation in the research process. The six stage guide to thematic analysis described by Braun and Clark (2006) was adhered to. During analysis of the data for **paper IV** two people coded each transcript and all disagreements were resolved through discussion. One person (KR) coded every transcript and ensured decisions made during one stage of analysis were carried forward to analysis of the next transcript and was familiar with every change to the coding scheme as analysis progressed. During analysis of the data for **paper III**, due to time constraints, the thesis author (KR) coded all interviews and presented the initial themes to all participants via e-mail and then discussed them at a teleconference to validate her analysis. A quality indicator for thematic analysis is that the identified themes are internally coherent, consistent, and distinctive (Braun and Clark 2006). This is the case for the results presented in **paper III** and **IV**, themes are related however distinct from one another. Criteria of quality in in-depth interviewing and qualitative analysis in general as described by Spencer et al (2003) were adhered to in the completion and analysis of the in-depth interviews at stage one and five. These criteria included clearly documenting the research process, explicating the route from data to conclusions, and, clearly and coherently reporting the process and findings. Alongside this approach to reporting the researchers also sought to provide adequate detail of the samples without revealing the identity of participants. The inclusion of extensive original data in **paper III** was used to convey the depth and complexity of the data.

A number of quality criteria described by Viswanathan et al (2004) were adhered to throughout the PAR process reported in **paper III**. In presenting the findings of this process examples of the following were included; the duration and

nature of community involvement, evidence of shared decision making, evidence that the study was designed to remove prior barriers to research participation, evidence that the researcher was flexible to community needs and priorities, and, evidence that the research effort contributed to individual or community capacity building.

Paper IV is limited due to the participative nature of the PAR process. The findings of **paper IV** revealed that no participant was using an occupational therapy conceptual model to guide their clinical practice.

Despite the sophisticated nature of occupational therapy theory and models, challenges remain for therapists to integrate the various concepts into an understanding of how theory can be used to guide clinical practice (Jung et al 2006). Many studies across international contexts attest to the limited use of theory by occupational therapists in day to day practice with clients. A survey of 137 occupational therapists working in mental health in the UK revealed 23% who used no specific conceptual model of occupational therapy (Craig et al 1998). A survey on occupational therapists' use of theory in practice with adults with mental retardation found that only 26% (n=126) considered theory important as a guide for daily practice (O'Neal et al 2007). Similarly, a survey of Swedish occupational therapists working in psychiatric care services (n=334) revealed that 75% of respondents did not identify theoretical thinking based on occupational therapy models behind their actions (Haglund et al 2000). Compounding this issue, often, where theory is identified as guiding practice the identified theory is not occupation focused. A survey of occupational therapists working with adults with mental retardation identified only the sensory integration model and the biomechanical model as used frequently to guide practice (O'Neal et al 2007). Similarly, a survey of Canadian paediatric occupational therapy practice (n=272) found that sensory integration and client centred practice were the most frequently used theories or practice models (Brown et al 2007), and a survey of Australian paediatric occupational therapists found the theoretical models used that were common to the most frequently seen client groups were focused on sensory integration, occupational performance, and client centred practice (Rodger et al 2005).

Across multiple studies it is clear that the often discussed theory practice gap in occupational therapy exists. **Paper IV** was written in collaboration with participants in the PAR project. The thesis author was a participant/researcher in this process. The thesis authors' critical reflections on this stage of the process included

reflections on the lack of reference to occupational therapy theory in the descriptions of practice of participants. The group consensus was to submit this paper for publication in an interdisciplinary journal in order to promote the role of occupational therapy in this clinical area. This presented a dilemma for the thesis author as the description of practice was not grounded in references to occupational therapy theory and raised concerns for her about communicating atheoretical practice outside the profession. Multiple theories were identified to guide practice however none were based exclusively on occupational performance. In keeping with the participative nature of PAR the thesis author decided to respect the descriptions of practice furnished by participants and the group decision to present this in an interdisciplinary forum. The focus of the data analysis stage was to identify the greatest challenges faced by participants to inform the PAR process by identifying a focus for action. In describing their practice through in-depth interviews and analysing the collected data participants identified opportunities to reflect and the development of new understanding of factors influencing their practice. Although the data collected did not describe practice based on an occupation focused model as recommended in the professional literature, the data collected was an accurate and honest account of everyday practice for this group. The group did reflect critically on their practice and for example came to a new awareness of the role of the healthcare context on their practice. For many this was the first time they identified how their colleagues, the medical model, and the health service aim influenced their work with clients. In writing the paper the thesis author encouraged the other participants to consider the unique contribution of occupational therapy to people with chronic pain. The data analysis was completed by all participants and the findings in relation to the focus of intervention were closely aligned to occupational therapy philosophy. The theme describing intervention was titled 'enabling participation in activities'. This theme included descriptions of the use of activity as therapy alongside the use of strategies to enable activity performance such as pacing. Thus participants described their intervention in terms of activity and occupational performance. Participants decided to use the term 'activity' instead of 'occupation' in order to communicate clearly with colleagues whom they believed frequently confuse the term 'occupation' with vocational activities. Therefore, the findings of **paper IV** are limited in terms of critical consideration of the use of occupational therapy theory by participants. The thesis author was aware of this limitation of the paper, however in keeping with the

spirit of PAR this critical awareness was not brought to bear on the paper and is considered here in the discussion of the thesis overall.

Papers V and VI are both narrative style reviews. The benefits of systematic review in health care have been identified for many years (Egger et al 2001). The value of narrative reviews in presenting a lot of information in a readable format and providing a broad perspective on a topic have been identified (Helewa and Walker 2000).

Paper V was written in response to participants self-identified knowledge gaps in relation to Vocational Rehabilitation. The papers reviewed in **Paper V** were not identified in a systematic manner. The group began with a broad clinical question ‘what are the most effective vocational interventions for people with chronic pain and musculoskeletal disorders?’ The literature on vocational rehabilitation is broad and spans multiple disciplines including occupational health, disability management, organisational psychology, occupational therapy, physiotherapy, and ergonomics. Much of this literature is located in journals related to vocational rehabilitation and also condition specific publications. Given the breath of available literature and the non-specific clinical question guiding the search a systematic approach was not feasible. The clinical question included a broad and heterogeneous population, multiple potential interventions, and multiple potential outcomes (for example, work instability, work disability, presenteeism, work absences). To conduct a comprehensive key word search in electronic databases a specific clinical question is required. Many evidence based practice resources describe the qualities of a specific question required to guide a literature search. The term PICO (patient, intervention, control and outcome) is frequently used in evidence based practice literature to describe the structure a clinical question requires (Mayer, 2004). The benefit of utilising high quality evidence based reviews to address complex broad questions are identified by Greenhagh (2010). Three high quality reviews were already known to the group. The first review read by the group was, the then recently published, ‘Vocational rehabilitation- what works, for whom, and when?’ This review of over 450 publications (Waddell et al 2008) gave a comprehensive overview of the evidence available on what helps people with health problems stay at, return to and remain at work. The eleven evidence statements generated from this review (see Table page 136) informed the structure of the review process for the group. Two other review documents known to the group were also considered; The College of Occupational

Therapists National Association of Rheumatology Occupational Therapy Clinical Guidelines for the Management of Rheumatoid Arthritis (2003) and the findings of the 'Fit for Work' European report (Bevan et al 2009). A search conducted by the first author of review documents on vocational rehabilitation for people with chronic pain or musculoskeletal disorders identified the American Occupational Therapy Association (AOTA) Practice Guidelines for Individuals with Work-related Injuries and Illnesses (Kaskutas and Snodgrass 2009). The *College of Occupational Therapists' Vocational Rehabilitation Strategy and their 'Work Matters'* publication were reviewed alongside two books on vocational rehabilitation and occupational therapy (Ross, 2008; Holmes, 2007). Contact was made with Joanne Ross and Janet Harkess (clinical specialist Rheumatology, Fife Scotland) for guidance on further publications. Together these four review documents, COT publications and books were used to identify key principles to guide occupational therapy work interventions with clients with chronic pain and musculoskeletal disorders. These principles include; the need to be proactive and holistic, the need to intervene early, the benefits of multidisciplinary work, the importance of involving the employer and going to the workplace, and the benefits of modified work. For each identified principle keyword searches were completed in Google Scholar and CINAHL to identify occupational therapy specific studies where possible or occupational therapy relevant studies to support that principle alongside review of the original studies included in the four systematic reviews. The findings and implications for occupational therapy practice of **paper V** are in keeping with multiple practice guidelines and systematic reviews of vocational rehabilitation internationally. The non-systematic nature of the search for articles in **paper V** affects the quality of this paper. Despite this limitation **paper V** presents a comprehensive overview of studies related to VR of relevance to occupational therapists and provides a good starting point for future systematic reviews of specific VR interventions and techniques appropriate to occupational therapy practice.

The aim of **paper VI** was to present an overview of theories of human happiness and synthesise evidence from the discipline of happiness studies of relevance to occupational scientists. A review of flow alone was not conducted as the author wished to locate flow theoretically within occupational science. In order to achieve this it was necessary to describe both eudaimonia and hedonism and the broader field of happiness research. In doing so, the review clearly identifies that flow is congruent with an occupational perspective of health therefore justifying the use of

this concept in occupational therapy research and practice. Theories of human happiness were firstly reviewed through recent edited positive psychology books and editorials. From this a number of key areas within happiness studies were identified as relevant to occupational science. These identified relevant thematic areas are centrally concerned with the meaning of occupation. Literature searches were completed within each thematic area to identify studies for inclusion in the review. The included studies were generated by multiple keyword searches using databases including PubMed, CINAHL, PsychINFO, Elsevier ScienceDirect, EBSCO and Web of Science. The keywords included a combination of terms associated with happiness and subjective well-being and each thematic area. Studies were also identified from reference lists of studies obtained through the searches and the World Database of Happiness. Abstracts of studies returned through the searches were reviewed by the first author and included with attention to levels of research evidence and the publication date (i.e. where available meta-analyses and systematic reviews of controlled trials were reported). This review focuses on studies of happiness that relate to human occupation and were considered of interest to occupational science.

Ensuring quality in a narrative style review is challenging. The design of a systematic review prevents bias influencing the search strategy, the inclusion criteria and the quality assessment. The findings of this narrative review have to be interpreted with caution as a systematic search was not completed, articles were reviewed for inclusion by one reviewer, the quality assessment of included articles is unclear and there is much potential for reporting bias. The potential for bias in **paper VI** is substantial. Studies could have been selected for inclusion to support an opinion oriented argument rather than reflecting the available evidence base. These limitations are acknowledged in **paper VI**; furthermore, the aim was not to systematically review evidence on the relationship between happiness and occupation. Rather, this exploratory work has synthesised evidence from positive psychology and through the identification of thematic areas of relevance to occupational science has completed ground work for a systematic review of any of these thematic areas.

Paper VII describes the flow experiences of a sample of people with chronic pain; electronic experience sampling methodology involving the repeated sampling of experiences in their natural contexts was employed. Handheld computers have been used with success in a wide range of clinical research over the past sixteen years (Koop and Mosges 2002). Clients and investigators acceptance of mobile devices are

widely documented (Schrezenmeir et al 1985; Straka et al 1997; McBride et al 1999; Lewis et al 1995; Rabin et al 1996), and some significant research has been completed with people with chronic pain using handheld computers to monitor pain (Lewis et al 1995; Jamison et al 2001). The advantages of electronic surveys over paper diaries have been described (Stone et al 2002), including their ability to rule out 'fake compliance' (Litt et al 1998; Stone et al 2003a). Paper diaries are limited due to participant non-compliance and inaccuracies in data entry (Hyland et al 1993; Stone et al 2002; Stone et al 2003a). Electronic pain diaries have been effective in maximising participant compliance with completing pain intensity ratings (Stone et al 2003b) and the validity of those ratings has been established (Peters et al 2000; Jamison et al 2001). Experience sampling in real time minimises recall bias by enabling the collection of real-time momentary data from participants (Bolger et al 2003; Stone and Shiffman 1994). The nature of data collected is time stamped which has been shown to increase adherence and allow for assessment of adherence (Koop and Mosges 2002). As such the higher reliability and ecological validity of electronic diaries can be assumed (Hektner et al 2007).

At an orientation participants were trained in the use of the palm pilot as the importance of training, to ensure participants fully understand the protocol has been stressed in the literature on diary methods (Reis and Gable 2000). Cited disadvantages to the use of handheld computers for survey research include; the cost implications for researchers and the necessity for researchers to use technology, and some participants have reported the computer screen may be difficult to see (Tiplady et al 2000). Using a handheld computer for data collection allows for the possibility of data loss, instructing participants as to charging the device and providing an on-call support service are procedures cited in the literature that were used in this study to avoid or minimize these problems.

There are a number of limitations to the study reported in **paper IV**. The percentage of missing data is comparable to some studies and exceeds some studies, signal contingent studies tend to have response rates of 50-70% (Christensen et al 2003). Missing data may be explained by the large number of questionnaire items (33), the intrusive nature of the signal contingent sampling method and the fact that there was no compensation paid to participants. ESM is burdensome and creates self-selection bias and selective non-response bias (Scollon et al 2003). In this study analysis was completed at the response level leading to some individuals providing

more data than others. The analysis is limited as multilevel modelling was not used, therefore the nested nature of the data and the unequal responses across participants were not fully accounted for in this analysis.

The study reported in **paper VIII** used Foucauldian DA to describe the discourses in use by people with chronic pain and the implications of these discourses for practice (behaviour). Foucault's writings on the 'technologies of the self' influenced the data analysis in **paper VIII**, in particular the analysis of the relationship between discourse and practice. Alongside identifying discourses Foucault considered the implications of particular discourses for individuals as discourses offer subject positions which have implications for subjectivity, experience and practice (Hall 2001; Willig 2002).

Given its extreme social constructionist positioning Foucauldian analysis is vulnerable to the charge of relativism and 'bottom line' arguments (Edwards et al 1995). These criticisms are tied to the ontological and epistemological position of this type of research. To ensure rigour a number of evaluative criteria for the quality of DA work as described by Taylor (2001) and Crowe (2005) were adhered to throughout the research process. The data analysis process has been explicated in **Paper VIII** and the authors have attempted to provide support for their interpretations by providing rich detail from the transcribed interviews. This is in keeping with the recommendation of Potter (1996) who argued that full transcription with interaction detail is vital in DA, and that excerpts of original material should be provided so the reader can assess the interpretations of the researchers. In the discussion of **Paper VIII** the findings are located in relation to previously published work thus supporting the wider existence of the identified discourses. Throughout the research process the researchers aimed to be reflexive. This reflexivity on the part of the researcher involved recording the values that guided her and an attempt to become aware of her position and the influence this had on her reading of the text, and the influence of the research on the researcher. This process of reflexivity was aided by the maintenance of a reflective diary by the first author (KR) and discussions with supervisors. This strategy is in keeping with calls from Finlay (2002) that a discourse analyst should be cognizant of and explicit about her perspective and position in the analytic process.

A limitation of this work, as with all discourse analytic work, is that the analysis presented is the author's reading of the accounts presented and therefore other readings are possible. The analysis presented in **paper VIII** relies heavily on the

interpretations of the authors, particularly in the naming of discourses. It has been highlighted that critical DA researchers can find what they are looking for in the texts they are analysing (Schegloff 1997). However, subjectivity is acknowledged and embraced in social constructivist research (Patton 2002) and this bias and the possibility of multiple readings are central to critical DA (Smith 2007; Chouliaraki and Fairclough 1999).

Ethical Considerations

Ethical approval for the study described in **paper VII** and **paper VIII** was sought and obtained in one application to the Mid-Western Regional Hospital Research Ethics Committee, Limerick in February 2007. Recruitment for the studies reported in **paper VII and VIII** followed the same procedure and was planned to ensure voluntary participation. The thesis author (K. Robinson) attended an out-patient pain clinic at an Irish Regional Hospital over a number of months (March-June 2007) and distributed a Patient Information Leaflet detailing fully what the purpose of the study was, what participation involved, how to participate, how to withdraw, what the benefits and risks were and how to make a complaint about the process. Attached to the Patient Information leaflet was an 'Expression of Interest' form, which interested participant's returned to a secure box at the clinic. Following this interested participants were met at their next clinic appointment and the Patient Information Leaflet discussed and inclusion and exclusion criteria were checked. Following this if participants met the inclusion and exclusion criteria and agreed to take part a Patient Consent Form was discussed and signed. Confidentiality of all responses was stated in the Patient Information Leaflet.

Ethical approval was sought and obtained for the in-depth interviews reported in **paper IV** and the in-depth interviews reported as part of the PAR process in **paper III** in two separate applications to the Education and Health Science (EHS) Faculty Research Ethics Committee, University of Limerick in August 2009 and January 2011. The participants in both papers include the thesis author (KR) and eight occupational therapists working with people with chronic pain in Ireland. The group generated the research question, design and method together through collaboration and in keeping with PAR methodologically, the group members are both the researchers and participants of this study. Therefore both ethics applications were prepared by the whole group membership. Following ethical approval at stage one and

five an independent researcher contacted participants individually by e-mail inviting them to take part in the study. Following this if the individual agreed to take part a Participant Informed Consent Form was completed prior to the digitally recorded interview at the participants' workplace.

For papers **III**, **IV**, **VII**, and **VIII** following collection of the data all identifying information was removed. Data was stored in a secure locked cabinet in the researcher's office and electronic data was stored on a password protected computer, only the researcher had access to the data with identifying information. Following completion of the studies the data will be stored in this secure location for five years and then destroyed. No identifying information is reported about any participant in this thesis or any publication arising from the research. Minimal identifying information is reported about participants in **papers III, IV, and VIII**, pseudonyms have been used and the content of direct quotes has been carefully reviewed to ensure participants are not recognisable.

Conclusion

Implications for Occupational Therapy Practice

The overall aim of this thesis was to explore the relationship between occupation and chronic pain, augment the evidence available to occupational therapists working with people with chronic pain and to develop occupational therapy services for people with chronic pain in Ireland in line with the best available research evidence. The ultimate aim of this thesis, and of occupational therapy services for people with chronic pain, is to improve the situation and experiences of individuals with chronic pain and their families. Occupational therapy aims to enact changes for individuals through the use of occupation to support participation in daily life contexts (AOTA 2008).

A number of implications for the practice of occupational therapists with people with chronic pain have been identified throughout the papers comprising this thesis. These implications are mainly concerned with practicing within the professional domain, and practicing in a manner that reflects occupational therapy philosophy and the best available evidence. These recommendations have implications for the profession of occupational therapy in terms of establishing a unique and efficacious role for the profession within a multidisciplinary healthcare context. However, the most significant implications of these recommendations are in ensuring that the best possible service is received by individuals with chronic pain.

It is recommended that occupational therapists should continue to become skilled in the use of occupation and fluent in the language of occupation. This will be the foundation for the development of evidence to demonstrate the efficacy of occupation-based interventions for people with chronic pain.

In using occupation with people with chronic pain flow theory should be used in designing occupation-based interventions for people with chronic pain. Emerson's principles on how to apply flow theory in occupational therapy practice could be usefully applied to achieve this (1998).

Being cognisant of the potentially high rates of apathy and low challenge experiences among people with chronic pain occupational therapists should use interventions that enable people with chronic pain to participate in challenging occupations, particularly productive occupations. This would help translate what is known about the benefits of work for health and well-being and successful vocational rehabilitation to occupational therapy practice with people with chronic pain.

The multiplicity of factors influencing the occupations of people with chronic pain should be recognised by occupational therapists. These factors include the role of culturally dominant discourses in determining what people with chronic pain can and can't do.

It is recommended that therapists realise the humanistic client-centred vision of occupational therapy through valuing the narratives of clients with chronic pain and communicating trust and belief in an individual's pain. Furthermore, in light of what is known about the experiences of people with chronic pain occupational therapists should exercise caution in the application of psychosocial understanding of chronic pain.

In order to practice in a manner that reflects the best available evidence we recommend that occupational therapists should develop expertise in the judicious use of evidence to support practice in keeping with professional domain. The integration of evidence to support the use of occupation for health and well-being benefits from occupational science into occupational therapy practice will support this.

Occupational therapists should seek out opportunities to learn with others, share tacit knowledge and to develop communities of practice to aid the translation of knowledge to practice.

Occupational therapy practitioners and researchers should work in partnership for the mutual benefit of both as academic-practice partnerships and participatory approaches to research may be effective means of addressing the barriers to the translation of evidence to practice.

Implications for Future Research

Further empirical research, particularly randomised controlled trials, of occupation-based interventions for people with chronic pain is required. These trials require definition of the core strategies used by occupational therapist to enable occupational performance for people with chronic pain. A large scale multi-national Delphi survey of occupational therapists would be useful to define occupational therapy interventions with people with chronic pain and validate the findings reported in **paper IV**.

Replication of the study reported in **paper VII** on the pain-flow relationship and related variables with the use of multilevel modelling for data analysis is required to validate and extend the findings of **paper VII**. Further exploration of the boredom and apathy experiences of people with chronic pain highlighted in **paper VII** is warranted. Occupational therapy and occupational science researchers should forge links with researchers of the emotional modulation of pain (neuro-imaging and other experimental pain researchers). Collaborations of this nature could lead to advances for both groups in understanding how occupation modulates pain experiences.

In taking the findings of **paper VIII** further, exploration of the discourses shaping occupational therapy practice with people with chronic pain would be of value.

Further research on team working within chronic pain rehabilitation services is also warranted, including the outcomes of inter-professional and collaborative practice and knowledge of MDT members of occupational therapy.

Future research to validate the findings of the PAR study reported in **paper III** and to determine the outcomes of this process over time and for clients and other stakeholders would be of value. Research on strategies for successful knowledge translation in occupational therapy is urgently required to develop the quality and efficacy of services received by people with chronic pain.

To achieve these research recommendations occupational therapy practitioners and researchers in chronic pain should establish international alliances to determine research priorities and to obtain research funding.

Concluding Statement

The overall research aim was to explore the relationship between occupation and chronic pain, augment the evidence available to occupational therapists working with people with chronic pain and to develop occupational therapy services for people with chronic pain in Ireland. The common threads throughout the papers that comprise this thesis are a critical analysis of current occupational therapy services for people with chronic pain, generation of evidence to inform occupational therapy practice with people with chronic pain and development of occupational therapy services for people with chronic pain in line with the available evidence and the professional philosophy.

In conclusion, the practice of occupational therapists with people with chronic pain appears to reflect the theory-practice gap that has been identified across the profession. A lack of evidence to guide occupation-based practice with people with chronic pain was identified. It appears occupational therapists may be under-using relevant evidence to occupation-based practice whilst relying on inappropriate evidence to guide practice. The practice of Irish occupational therapists reflects the identified theory-practice gap; however, their descriptions of enabling participation in activities, holism and client centeredness were identified as broadly in line with the professional domain. Occupational therapy services for people with chronic pain are influenced by multiple factors, including the biopsychosocial model of health, the nature of occupational therapy philosophy and the social construction of people with chronic pain.

In support of the central tenet of occupational therapy, a review of happiness research found that various occupations and dimensions of occupational performance were identified as related to human happiness, including work, volunteering, personal goals, relationships and the experience of flow. A study of the flow experiences of people with chronic pain found that pain was lower in flow than in other measured states, however this difference was not significant, and that flow is an optimal experience for this group.

The experience of people with chronic pain was explored from a social constructionist perspective and three dominant discourses were identified in their accounts; a moral discourse, a discourse of pain as personal tragedy and a biomedical discourse. These discourses are identified as having profound effects for the occupations of people with chronic pain.

A PAR process undertaken with an all-Island group of occupational therapists found that PAR offered an effective framework to achieve changes in occupational therapy services for people with chronic pain across Ireland and for evidence to be translated to practice through a participatory self-initiated change process.

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Appendix A. Author contribution to papers comprising the thesis

Paper number	Paper	Contribution of K.R. to the paper
I.	Robinson, K., Kennedy, N. and Harmon, D. (2011). Is Occupational Therapy Adequately Meeting the Needs of People With Chronic Pain? <i>The American Journal Of Occupational Therapy</i> , 65(1), 106-113.	<ul style="list-style-type: none"> • Paper conception and design (with supervisors N.K. and D.H.) • Review of literature • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with supervisors N.K. and D.H.) • Final preparation and editing of manuscript
II.	Robinson, K., Kennedy, N. and Harmon, D. (2011). Review of occupational therapy for people with chronic pain. <i>Australian Occupational Therapy Journal</i> , 58(2), 74-81.	<ul style="list-style-type: none"> • Paper conception and design (with supervisors N.K. and D.H.) • Review of literature • Data analysis • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with supervisors N.K. and D.H.) • Final preparation and editing of manuscript
III.	Robinson, K., Kennedy, N. and Harmon, D. Developing Occupational Therapy Services for People with Chronic Pain through Participatory Action Research: An all-Ireland Study.	<ul style="list-style-type: none"> • Study conception and design (with supervisors N.K. and D.H. and study participants) • Data collection and analysis (with study participants) • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with supervisors N.K. and D.H.) • Final preparation and editing of manuscript
IV	Robinson, K., Kelley, V., Kennedy, N., Harmon, D., Qualitative description of occupational therapy practice with people with chronic pain in Ireland.	<ul style="list-style-type: none"> • Study conception and design (with supervisors N.K. and D.H. and study participants) • Data analysis • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with

		supervisors N.K. and D.H. and co-author V.K.)
		<ul style="list-style-type: none"> • Final preparation and editing of manuscript
V	Brennan, B., Corcoran, O., Irudayaraj B., Kearney, S.A., Kelley, V., Lyons, E., Magee, L., Robinson, K., & Vine, S., Vocational Rehabilitation for people with Musculoskeletal Disorders. <i>Submitted to the Irish Journal of Occupational Therapy.</i>	<ul style="list-style-type: none"> • Study conception and design (with study participants/co-authors) • Review of documentary data with co-authors • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with co-authors) • Final preparation and editing of manuscript
VI.	Robinson, K., Kennedy, N. and Harmon, D. Happiness: A Review of Evidence of Relevance to Occupational Science. <i>Journal of Occupational Science</i> , 19(2), 150-164.	<ul style="list-style-type: none"> • Study conception and design • Data collection and analysis • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with supervisors N.K. and D.H.) • Final preparation and editing of manuscript
VII.	Robinson, K., Kennedy, N. and Harmon, D. The flow experiences of people with chronic pain. <i>OTJR: Occupation, Participation & Health</i> , 32(1), 1-9.	<ul style="list-style-type: none"> • Study conception and design (with supervisors N.K. and D.H.) • Data collection and analysis • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with supervisors N.K. and D.H.) • Final preparation and editing of manuscript
VIII.	Robinson, K., Kennedy, N. and Harmon, D. Discourses used to construct the experience of chronic pain.	<ul style="list-style-type: none"> • Study conception and design (with supervisors N.K. and D.H.) • Data collection and analysis • Drafting of manuscript • Critical revisions of manuscript for important intellectual content (with supervisors N.K. and D.H.) • Final preparation and editing of manuscript
