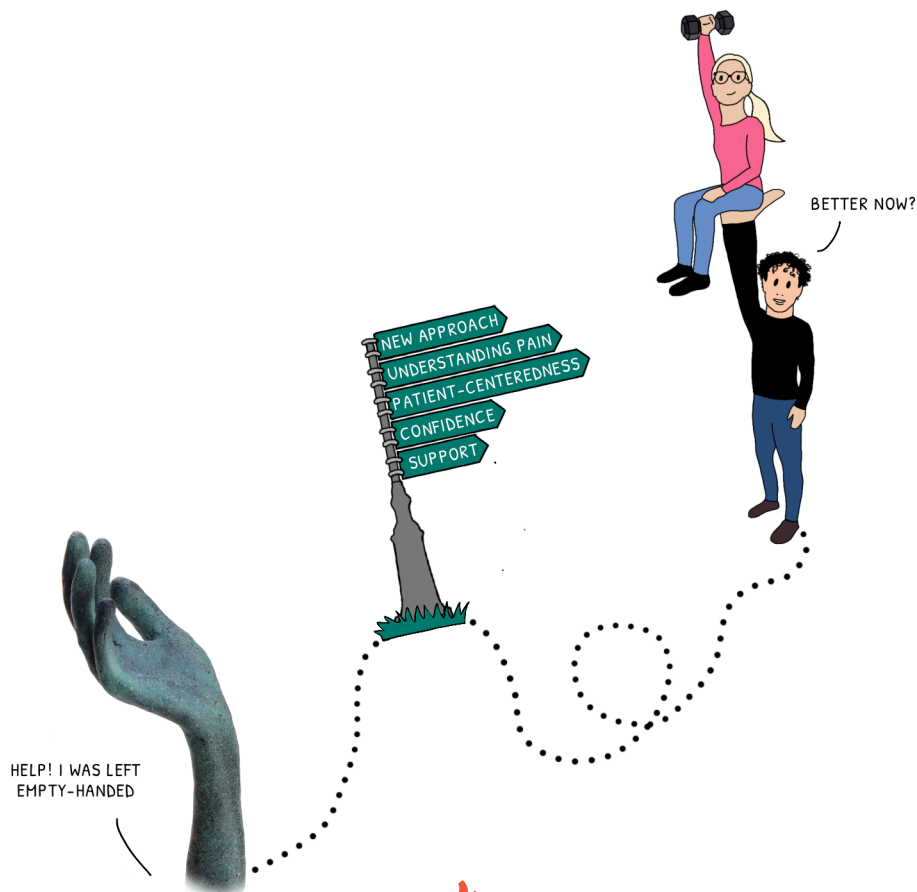


Riikka Holopainen

Exploring the Meaning of the Biopsychosocial Approach in the Management of Musculoskeletal Conditions Patients' and Physiotherapists' Perspective



UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF SPORT AND
HEALTH SCIENCES

JYU DISSERTATIONS 385

Riikka Holopainen

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Biopsychosocial Approach in the
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Patients' and Physiotherapists' Perspective**

Esitetään Jyväskylän yliopiston liikuntatieteellisen tiedekunnan suostumuksella
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“It is no longer enough to know about anatomy and pathology. The biopsychosocial approach opens a whole new perspective on how people behave and cope with illness. It reveals the limitations of our treatment and our professional skills. It exposes us to the difficulties and stress of dealing with emotions. We must accept that patients are not neat packages of mechanics and pathology, but suffering human beings. Professional life may be much simpler if we stick to physical treatment of mechanical problems, but health care demands that we treat human beings.”

- Gordon Waddell

To Rasmus with love.

ABSTRACT

Holopainen, Riikka

Exploring the meaning of the biopsychosocial approach in the management of musculoskeletal conditions. Patients' and physiotherapists' perspective

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Despite an increasing amount of treatments and health care resources being devoted to them, musculoskeletal conditions continue to be the greatest health burden globally. The biopsychosocial approach is starting to be widely accepted in the field of musculoskeletal care and the main guidelines recommend its use, but its implementation in clinical practice is not without challenges.

The aim of this dissertation was to explore the meaning of the biopsychosocial approach in the management of musculoskeletal conditions from the perspectives of patients and physiotherapists. The four scientific articles of this dissertation used qualitative methods. Two of the phenomenographic studies focused on the conceptions of low back pain patients and one on those of physiotherapists, captured through individual semi-structured interviews. In addition, a systematic review and metasynthesis of qualitative studies was conducted which focused on physiotherapists' perceptions of learning and implementing biopsychosocial interventions.

The findings showed that the patients' conceptions of health care encounters and undergoing physiotherapy in the Finnish health care system both before and after the physiotherapists received brief training in Cognitive Functional Therapy varied from non-encounters and being left empty-handed to life-changing and holistic encounters that supported their autonomic agency and self-management of low back pain. The physiotherapists' perceptions of learning and implementing the biopsychosocial approach expanded from recognizing the difference of the new approach to creatively applying their new skills. Five common themes of understanding the meaning of the biopsychosocial approach in the management of musculoskeletal conditions emerged from the patients' and physiotherapists' perceptions: the difference of the new approach, understanding pain, patient-centered care, gaining confidence, and support.

The stepping stones identified in this dissertation can be used to create more meaningful physiotherapy for patients with musculoskeletal conditions and more meaningful training for physiotherapists in order to offer better support in learning and implementing the biopsychosocial approach in clinical practice.

Keywords: biopsychosocial, physiotherapy, low back pain, musculoskeletal, qualitative, phenomenography, metasynthesis

TIIVISTELMÄ (ABSTRACT IN FINNISH)

Holopainen, Riikka

Biopsykososiaalisen lähestymistavan merkitys tuki- ja liikuntaelimestön vaivojen hoidossa. Potilaiden ja fysioterapeuttien näkökulma.

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Tuki- ja liikuntaelimestön (tule) vaivat ovat suurin terveysongelma maailmanlaajuisesti siitä huolimatta, että niiden hoitoon käytettyjen resurssien määrä on kasvanut jatkuvasti. Biopsykososiaalinen (BPS) lähestymistapa on nykyisin jo laajasti hyväksytty tule-vaivojen hoidossa. Uusimmat hoitosuosittelut suosittavat sen käyttöä, mutta sen implementointi kliiniseen työhön on edelleen kesken.

Tämän väitöskirjatutkimuksen tavoitteena oli tarkastella BPS-lähestymistavan merkitystä tule-vaivojen hoidossa potilaiden ja fysioterapeuttien näkökulmasta. Väitöskirja koostuu neljästä osatutkimuksesta, joissa hyödynnettiin laadullisia menetelmiä. Kaksi fenomenografista tutkimusta keskittyi alaselkäkipuisten potilaiden ja yksi fysioterapeuttien käsityksiin. Näiden tutkimusten aineisto hankittiin puolistrukturoitujen yksilöhaastattelujen avulla. Neljäs osatutkimus oli järjestelmällinen kirjallisuuskatsaus ja laadullinen metasynteesi koskien fysioterapeuttien näkemyksiä BPS-interventioiden oppimisesta ja soveltamisesta käytännössä.

Osatutkimusten tulokset osoittivat, että potilaiden käsitykset kohtaamisesta terveydenhuollossa sekä lyhyen kognitiivisfunktionaalisen terapian (CFT) koulutuksen saaneiden fysioterapeuttien toteuttamasta fysioterapiasta vaihtelivat kohtaamattomuudesta ja tyhjän päälle jäämisestä elämän muuttaviin ja kokonaisvaltaisiin kohtaamisiin. Fysioterapeuttien käsitykset laajenivat uuden lähestymistavan erilaisuuden tunnistamisesta kohti sen monipuolista, luovaa soveltamista. Biopsykososiaalisen lähestymistavan ymmärtäminen näyttäytyi viitenä fysioterapeuteille ja potilaille yhteisenä teemana: uuden lähestymistavan erilaisuus, kivun ymmärtäminen, potilaskeskeinen hoito, itseluottamuksen lisääntyminen ja tuen tarve.

Tämän väitöskirjan tuloksista esiin nousseita kriittisiä askelmia voidaan hyödyntää tule-kipuisten kuntoutumista edistävän fysioterapian kehittämisessä sekä kehitettäessä BPS-lähestymistavan oppimista tukevaa koulutusta fysioterapeuteille.

Asiasanat: fysioterapia, biopsykososiaalinen, alaselkäkipu, tuki- ja liikuntaelimestö, laadullinen, fenomenografia, metasynteesi

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FOREWORD

In 2016, Jaro Karppinen persuaded Peter O'Sullivan to come to Finland to lead a workshop for Finnish physiotherapists. Jaro had become interested in the biopsychosocial approach to the management of low back pain (LBP) after seeing Peter use Cognitive Functional Therapy (CFT) to work with LBP patients. CFT stood out to him from other approaches: the first RCT exploring CFT showed a large effect size, unlike the many other biopsychosocial approaches to the management of LBP. After some arm-twisting, Peter said yes. I had become interested in pain physiotherapy and at that time was planning to start my PhD process. I heard about this project in a series of serendipitous encounters. Everything happened fast, and suddenly, in April 2016 I was participating a CFT workshop, had my PhD study plan ready, and later applied for PhD candidacy at the University of Jyväskylä. I had been working as a physiotherapist for almost 10 years and had the feeling that something was missing. During my masters studies, I had become interested in qualitative research. This study gives voice to the patients' stories I have heard at the clinic, expressing their loneliness and how they are not heard or understood in our health care system. At the same time, it highlights my own struggles as a physiotherapist in trying to make sense of patients' pain and my attempts to balance between biomedical and psychological thinking. Therefore, for me it was as important to understand the patient's perspective as it was to understand the physiotherapist's perspective of learning and integrating the biopsychosocial approach into their clinical work to make sense of my own and many of my colleagues' struggles in managing disabling persistent pain. Although CFT was a new approach for me and to most of the workshop participants, the principles behind the biopsychosocial approach have existed for a long time. Through this project, I have had the honor of becoming a member of an international, multi-professional group of clinically oriented researchers with a common goal to develop better, evidence-based, biopsychosocial practice in the management of musculoskeletal conditions.

ACKNOWLEDGEMENTS

I am profoundly grateful for the adventure-filled learning journey on which this dissertation has taken me. It would not have been possible without all the wonderful people who were my guides and walked alongside me on this path.

First of all, I wish to express my gratitude to all the physiotherapists and patients I had the opportunity to interview for this study. You've been my best teachers and I hope that this experience has made me a better clinician, educator and researcher.

I also wish to sincerely thank the examiners of this thesis, Associate Professor Lisa Roberts and Dr. Jenny Setchell, for your valuable feedback that helped me improve the quality of this dissertation. I feel truly honored that Professor David Nicholls accepted the invitation to be my opponent in the public defense of this dissertation.

I could not have been more fortunate in the amazing team of supervisors I was granted. I am deeply grateful to you all for sharing your expertise with me, for your patience, and for your encouraging feedback and support.

Professor Jaro Karppinen, thank you for having faith in me and welcoming me as part of this project. I constantly admire your never-ending curiosity and enthusiasm for developing our field. Thank you for always being there for me when I needed advice and for arranging learning opportunities even outside this project.

Without Professor Peter O'Sullivan this learning journey would not have happened. Peter, you have an extraordinary ability to make people feel heard and respected: thank you for giving me a generous share of this. Thank you also for pushing me to do better when I was tired of polishing my manuscripts. The opportunity to visit and collaborate with your team in Perth was invaluable to me. I am eternally grateful to you for making it possible.

My warmest thanks goes to University lecturers Arja Piirainen and Pirjo Vuoskoski. To you I wish to express my special gratitude for your support when I was struggling during the last months of writing the discussion part of this dissertation. Arja, thank you for helping me in my development towards becoming a qualitative researcher. I truly value your warmth, creativity and patience. Pirjo, I am so happy that such a skilled, enthusiastic and thoughtful person joined my team of supervisors. The way in which you gently but firmly challenged me to better understand the philosophy of science and the significance of rigor in qualitative research was extremely important to me. I also wish to thank Dean Ari Heinonen for helping me, especially at the beginning of my dissertation project, and my external supervisor, Professor Emerita Arja Häkkinen, for your encouraging support.

I feel privileged to have had the chance to work with so many amazing clinicians and researchers during this project, and I want to extend my heartfelt thanks to all the research group members and my co-authors for your collaboration and contribution to this study. I wish to express my deepest gratitude to my partner in crime during this process, Mikko Lausmaa. I've learned so much from

our discussions and from teaching together with you. Thanks also to Professor Steven Linton for guiding me towards learning about pain psychology and validating communication. I'm so grateful for your insightful comments on the manuscripts. Phoebe Simpson, Associate professor Peter Kent, Professor Anne Smith and Dr. Rob Schütze, my deepest thanks go to you for welcoming me so warmly to Australia and for all our wonderful collaboration, which is still ongoing. I also wish to express my gratitude to the other members of "Huplistit", Anna-Sofia Simula and Maija Paukkunen. I'm so glad Jaro introduced me to you - I will always have fond memories of all our adventures and thought-provoking discussions.

I am extremely grateful to all my colleagues at the University of Jyväskylä and the members of HITU (research group for tacit knowledge). It has been a pleasure to get to know you and work with you. I express my warmest thanks to Alice Lehtinen for revising the English language of this dissertation and of the original publications, and to Anne Viljanen for the scientific editing of this dissertation.

I cannot fully express my gratitude to all my friends who have always stood by me. Kirjakerho, the guys from MoveDoc, and all my extremely collegiate colleagues, I will always be indebted to you for providing me with forums for ventilating my thoughts. I wish to thank Dr. Helena Gyldeén for being my role model and supporter, especially at the beginning of my dissertation journey. Anja and Matti Henttinen, I am so grateful to you for evoking my interest in psychology, human behavior and critical thinking. If I hadn't come across you, I probably wouldn't have ended up where I am now.

I also wish to acknowledge the financial support provided by the Signe & Ane Gyllenberg foundation, the University of Jyväskylä, the Finnish Physiotherapy Association, the Finnish Association for the Study of Pain, and the Finnish Orthopedic Manual Therapy Association, for enabling me to concentrate on my research.

I warmly thank my mother and father for your support over the years. And finally, I wish to thank my beloved partner, Markku, for your care and patience - my undertaking a PhD and devoting so much of my time to training required a great deal of flexibility from you. You never complained and always stood firmly by my side. A week after submitting my dissertation for pre-examination, our precious son, my living dissertation, as someone said, was born. Thank you Rasmus, for having brought so much joy to our lives.

Lappeenranta 21.4.2021
Riikka Holopainen

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LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following original publications, which will be referred to by their Roman numerals I-IV.

- I Holopainen R, Piirainen A, Heinonen A, Karppinen J & O'Sullivan P 2018 From "Non-encounters" to autonomic agency. Conceptions of patients with low back pain about their encounters in the health care system. *Musculoskeletal Care* 16 (2), 269-277. DOI: 10.1002/msc.1230
- II Holopainen R, Vuoskoski P, Piirainen A, Karppinen J & O'Sullivan P 2020 Patients' conceptions of undergoing physiotherapy for persistent low back pain delivered in Finnish primary healthcare by physiotherapists who had participated in brief training in Cognitive Functional Therapy. *Disability and Rehabilitation*, epub ahead of print. DOI: 10.1080/09638288.2020.1861116
- III Holopainen R, Piirainen A, Karppinen, J Linton SJ & O'Sullivan P 2020 An adventurous learning journey. Physiotherapists' conceptions of learning and integrating Cognitive Functional Therapy into clinical practice. *Physiotherapy Theory and Practice*, epub ahead of print. DOI: 10.1080/09593985.2020.1753271
- IV Holopainen R, Simpson P, Piirainen A, Karppinen J, Schütze R, Smith A, O'Sullivan P & Kent P 2020 Physiotherapists' perceptions of learning and implementing a biopsychosocial intervention to treat musculoskeletal pain conditions. A systematic review and metasynthesis of qualitative studies. *Pain* 161 (6), 1150-1168. DOI: 10.1097/j.pain.0000000000001809.

The data of this doctoral dissertation consists of transcriptions of interviews of altogether 26 patients and 22 physiotherapists. The project that this thesis is part of was already running by the time Riikka Holopainen joined the team but it did not include qualitative studies. The study design for this thesis was produced by the research group with great support from Steven Linton who was visiting Finland as he led the CFT workshop for the participating physiotherapists together with Peter O'Sullivan. The ethical approval for this project was updated in the summer of 2016 to include the qualitative studies included in this dissertation.

In all her original publications, Riikka Holopainen had the main responsibility for all phases as the first author, but the support from and collaboration with supervisors and other cowriters was important in all phases of this PhD process. The interviews in Studies I, II, and III were planned by the research team and carried out by the first author. The preliminary data analysis in qualitative Studies I and III was carried out by the first author together with Arja Piirainen,

and in Study II with Arja Piirainen and Pirjo Vuoskoski and further discussed with the whole research group. The search strategy for the systematic review was planned together with Peter Kent and Phoebe Simpson and the data analysis was conducted by the first author, cross-checked by Phoebe Simpson, and later discussed and further developed with all the authors. Riikka Holopainen was responsible for the writing process and the submission of the articles.

ABBREVIATIONS

CASP	Critical Appraisal Skills Programme Checklist
CFT	Cognitive functional therapy
CPD	Continuing professional education
ENTREQ	ENhanced Transparency in Reporting the synthEsis of Qualitative research
LBP	Low back pain
MRI	Magnetic resonance imaging
PIP	Psychologically informed physiotherapy / physical therapy
RCT	Randomized controlled trial
SBST	Keele STarT (Subgroups for Targeted Treatment) Back Screening Tool

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1 INTRODUCTION

The biomedical model and dualistic view has traditionally dominated the field of medicine and physiotherapy, and this history is still visible in many current practices that continue to see the patient as an object of treatment, and the mind and the body as separate (Roberts 1994; Nicholls & Gibson 2010). Already in the 1960s, George Engel pointed out the need for a new paradigm for healthcare to replace the biomedical model and this dualistic view (Engel 1977). He saw that the biomedical model failed to include the patient as a person, a human being, that it failed to understand that the main source of information for professionals is the actual patient and that it neglected the importance of a dialogical doctor-patient relationship and understanding the needs of each patient (Engel 1980). Even though Engel's model has been criticized for not being holistic and for examining biological, psychological, and social issues as separate entities, applications of the biopsychosocial model in the pain field are closely related to the holistic view which sees the human being as an active person and a significant, active participant in their own rehabilitation. This approach takes into consideration the biological, psychological, social, cultural, and economic dimensions – it starts by first looking at the whole to make sense of all its parts. This includes the humanistic view which considers the mind and the body not as separate but uses the concept of embodiment (Roberts 1994; Nicholls & Gibson 2010; Wikström-Grotell et al. 2013).

The biopsychosocial approach is becoming widely accepted in the field of musculoskeletal care and the main guidelines recommend its use (Gatchel et al. 2014; Lin et al. 2019). However, despite an increasing amount of treatments and health care resources being devoted to it, musculoskeletal pain remains a problem that current management approaches are unable to solve (Lewis & O'Sullivan 2018) and it seems that the policy-makers are not adequately aware of it and do not take this problem seriously. Global Burden of Disease data indicate that musculoskeletal conditions are a leading cause of health burden (Hay et al. 2017; Vos et al. 2017). Between 1990 and 2016, disability-adjusted life years for musculoskeletal conditions increased by 61.6% (19.6% between 2006 and 2016)

(Briggs et al. 2018). In our health care environment, physiotherapists are common primary care providers for people with musculoskeletal pain conditions and therefore well-positioned to provide biopsychosocial care.

Patient-centered care is one key aspect of the biopsychosocial approach, and in recent years, research of topics such as therapeutic alliance and communication have lent support to the importance of this view. The patients' perspective is also receiving growing research attention and the number of qualitative studies is increasing (Toye et al. 2017a). Even though the biopsychosocial model is now widely accepted for understanding and managing pain (Pincus et al. 2013; Gatchel et al. 2014; Lin et al. 2019), its implementation in clinical practice is still a challenge. The increasing amount of research on the management of musculoskeletal conditions is giving us new insights, but its implementation in education and practice is slow. Physiotherapists still predominantly receive biomedically orientated training with little emphasis on the modern understanding of pain and the role of psychosocial factors (Foster & Delitto 2011; Ehrström et al. 2018). Similarly, patients' beliefs about pain seem to be mainly biomedical (Bunzli et al. 2013; Darlow 2016; Setchell et al. 2017). Physiotherapists and other health care professionals still struggle to deal with psychosocial factors or feel insufficiently trained (Alexanders et al. 2015; Synnott et al. 2015; Driver et al. 2017). However, many continuing education programs continue to focus on techniques and quick fixes, rather than a broader understanding of pain and clinical reasoning within the biopsychosocial framework.

Thomas Kuhn, an American philosopher of science, stated in his influential book "The Structure of Scientific Revolutions", that science does not progress through the linear accumulation of new knowledge, but through periodic revolutions. Paradigms change when a large number of anomalies cannot be explained by the current paradigm (Kuhn 1996). This kind of evidence on the management of musculoskeletal conditions was starting to arrive already by the time Engel introduced the biopsychosocial model, but it took a lot more time and more anomalies until these findings were taken seriously and our profession started to see the need for a change towards the biopsychosocial approach. It has been claimed that it takes 17 years to translate new evidence into practice (Morris et al. 2011). In the late 1980s, the efficacy of physiotherapy interventions was questioned in Finland, health care was seen as being partially based on outdated knowledge, and research evidence was not systematically applied in practice (Talvitie 1991). This exact same discussion is going on today. Already in the 1990s, for example, Alaranta et al. (1994) studied the effect of biopsychosocial rehabilitation on the management of low back pain (LBP) in Finland. In 1995, Harding and Williams (1995) wrote about applying psychology to enhance physiotherapy outcomes documenting most of the aspects that are relevant to the current understanding of the biopsychosocial approach in the management of musculoskeletal conditions. This was 25 years ago!

A growing number of studies have been conducted in the field of physiotherapy on the implementation of new knowledge into clinical practice. Although certain aspects seem to help physiotherapists change their practice, such

as collegial support and longer training interventions, the best way to train physiotherapists remains unknown (Mesner et al. 2016; Berube et al. 2018). A growing amount of research is also exploring physiotherapists' perspective, and multiple theories are attempting to make sense of this process. This is a newly emerging area in physiotherapy; a clear, agreed framework and approach has been lacking and the effect sizes of psychologically informed physiotherapy trials are mostly small.

The aim of this dissertation was to explore the meaning of the biopsychosocial approach in the management of musculoskeletal conditions from the perspectives of patients and physiotherapists.

2 THEORETICAL PERSPECTIVES ON EXPLORING THE MEANING OF THE BIOPSYCHOSOCIAL APPROACH IN THE MANAGEMENT OF MUSCULOSKELETAL CONDITIONS

This section presents the key theoretical concepts related to the main themes of this dissertation. It begins with the biopsychosocial model and its physiotherapy-related applications. This is followed by a brief overview of the characteristics and historical perspectives of musculoskeletal conditions, and of the current challenges of as well as the biopsychosocially oriented applications for their management. Finally, the focus shifts to transforming expertise—first in general terms and then in relation to physiotherapists' experiences of this process of moving toward applying biopsychosocially oriented interventions in practice.

2.1 Biopsychosocial model and beyond

The stage was set for the biomedical pain theories in the 17th century when Descartes argued that the mind and body are distinct. From this it was later derived that tissue damage is directly related and proportional to pain (Duncan 2000). Since then, the idea of dualism has continued to affect the treatment of musculoskeletal conditions, which have been seen from a biomedical perspective. Within the field of physiotherapy, musculoskeletal pain was thought to be caused by structural and biomechanical dysfunctions and was treated with manual therapy and corrective exercises. The patient was seen as a passive object of the treatment (Gatchel et al. 2007).

Already in the 1960s, George Engel aimed to broaden clinicians' views and introduced the biopsychosocial model as an alternative to the biomedical model which dominated the understanding in the mid-20th century and criticized the dualistic idea of the mind and body being separate. The biopsychosocial model suggests that considering only biological factors (e.g. physiological pathology,

neurophysiology) is not enough to be able to understand a person's medical condition: Social (e.g. social interactions, socio-economic, and cultural factors) and psychological (e.g. thoughts, emotions and beliefs) factors also need to be taken into consideration (Engel 1977). Later Gordon Waddell (1987) emphasized that it is not possible to evaluate pain without first creating an understanding of the individual who is exposed to nociception.

In 1965, Melzack and Wall presented the gate control theory of pain (Melzack & Wall 1965), which proposed that the brain, emotions, and cognitive evaluation played an active role in pain modulation and that pain and tissue damage had a multidimensional and variable relationship (Gatchel et al. 2007). This model stimulated an increase in pain research and built the basis for an official definition of pain. Fordyce's work on behavioral pain management interventions further highlighted the need for a biopsychosocial understanding of pain management (Gatchel et al. 2014). In 1990, Melzack published the neuromatrix theory, which assumes that pain is a multidimensional experience, that activates the sensory, affective, and cognitive brain areas (Melzack 1990). A few years later, Kendall et al. (1997) introduced the yellow flags framework, aiming to identify psychological risk factors for prolonged disability and work loss. The idea of LBP management was revolutionized as understanding of psychosocial factors increased, and LBP became recognized as an illness instead of a biological disease (Waddell 1987). However, in practice, its implementation is still in progress.

The biopsychosocial model, although originally not a pain model, can be seen as an umbrella framework for pain and is now considered the clinical standard of care (Gatchel et al. 2007). It can be viewed as both a philosophy underpinning clinical care and as an approach to clinical practice (Borrell-Carrió et al. 2004). It is a way of understanding how multiple biological, psychological, and social factors affect a person's condition and their subjective experience and suffering, and therefore stresses that a person's pain experience and associated disability is not necessarily a sign of pathology or tissue damage. Patient-centered care can be considered the practical application of the multidimensional illness model (Langendoen 2004). It means care that is delivered in the humanistic framework and that applies science while respecting the patient as a whole person and taking into account, for example, their values, beliefs, cultural context, fears, worries, and hopes (Miles & Mezzich 2011). Patient-centeredness is a vague concept, and different definitions and models have been proposed for it. This potentially causes confusion, and care must be taken to make sure one understands what is meant by the term on each occasion (Pluut 2016).

The original biopsychosocial model (or more accurately, its applications in the pain field) has been criticized for neglecting the experience of the person, but in practice, the biopsychosocial approach is a way in which to understand a person's subjective experience as a critical factor in finding an explanation for their pain, delivering care, and affecting treatment outcomes. The model has also been criticized because it is poorly defined and therefore often used in a way that creates artificial boundaries between the biological, social, and psychological dimensions, causing it to be applied in a fragmented manner (Stilwell & Harman 2019).

Clinicians often still view pain without a clear, demonstrable physical cause with suspicion, which results in patients being stigmatized (Synnott et al. 2015). We must remember, that the original biopsychosocial model was not a pain model; Gatchel et al. (2007) described it in the context of pain management. The mature organism model of Louis Gifford further helped physiotherapists towards a broader biological and psychosocial understanding of pain and disability. He proposed that pain should be seen as one component of a stress response and that it has an adaptive purpose to motivate the organism to change behavior in order to survive and enhance recovery (Gifford 1998).

Recently, Stilwell and Harman (2019) introduced an enactive approach to pain that is built on previous models and attempts to address their flaws. This model stresses that all pain is always real, and that the pain experience involves multiple factors and their interactions with a person's environment. It defines pain as follows: *"If there is credible information suggesting the person is in danger or under threat, pain is experienced"* (Stilwell & Harman 2019). A good example of the blurring of the lines between central and peripheral mechanisms as well as the biological, social, environmental, and the psychological factors is the growing awareness of the immune system's role in persistent pain. Psychosocial factors are now understood to have physiological links. Our emotions and thoughts, as well as our interactions with our environment, are linked to chemical reactions in the neuroimmune system. However, the exact mechanisms remain unknown. (Denk et al. 2014; McMahon et al. 2015; Hore & Denk 2019). This knowledge has the potential to help us understand the biopsychosocial approach as it was originally intended and see biological, psychological and social dimensions as interconnected and inseparable rather than fragmented, and create better interventions for managing musculoskeletal pain.

2.2 Musculoskeletal conditions

In recent decades, our understanding of pain and its etiology, assessment and treatment has advanced significantly. Despite this, Global Burden of Disease data indicate that musculoskeletal conditions are still among the greatest causes of years lived with disability (Hay et al. 2017; Vos et al. 2017). Disability-adjusted life years for musculoskeletal conditions increased by 61,6% between 1990 and 2016 (Briggs et al. 2018), indicating that this burden is a challenge for health care systems, a problem that current management approaches have not been able to solve (Lewis & O'Sullivan 2018). One contributor to this burden, which is becoming increasingly recognized, is the poor quality of health care, which still reflects biomedical thinking in the management of musculoskeletal conditions (Buchbinder et al. 2018). However, most of the overall increase in the global burden of LBP is due to aging and population growth (Hartvigsen et al. 2018).

Most cases of non-traumatic musculoskeletal pain have no pathoanatomical diagnosis that alone explains the individual's pain experience and disability (Lewis & O'Sullivan 2018). Musculoskeletal pain is influenced by multiple factors,

including genetics, psychological, social, biophysical and lifestyle factors as well as comorbidities (Hartvigsen et al. 2018). Psychological factors are considered important risk factors for disability and for worse management outcomes (Nicholas et al. 2011). It has been suggested that the management of persistent musculoskeletal pain should not focus on providing a cure but instead on creating a management plan to give the person ways to control the condition and limit its impact on their wellbeing (Lewis & O'Sullivan 2018). Musculoskeletal pain conditions in different body areas share similar mechanisms, prognostic factors, and clinical courses (Henschke et al. 2012; Babatunde et al. 2017). Therefore, the management principles should also be quite similar (Caneiro et al. 2019a; Lin et al. 2019).

LBP is the most common musculoskeletal condition. Almost everybody experiences LBP during their lifetime. In Finland, 44% of men and 48% of women reported LBP during the previous 30 days (Koponen et al. 2019). LBP can be defined as pain, muscle tension or stiffness that is localized below the costal margin of the back and above the inferior gluteal folds. It is commonly accompanied by pain in one or both legs (Hartvigsen et al. 2018). Approximately 90% of LBP can be classified as non-specific, meaning that it cannot be attributed to a clear structural cause or known specific pathology (Koes et al. 2006; Maher et al. 2017). Even though the prognosis is good, and most LBP episodes improve substantially within six weeks, many report continuing or fluctuating pain symptoms after three months and even a year. Recurrences are common, and 20–30% of LBP patients end up with ongoing pain and disability (Itz et al. 2013; Kongsted et al. 2016). Furthermore, those who have radiating leg pain appear to have greater disability, a poorer quality of life and more pain than those with LBP alone (Konstantinou et al. 2013). LBP needs to be understood as a long-lasting condition, the course of which varies (Dunn et al. 2006; Dunn et al. 2013).

Multiple factors predict persistent LBP, as in other musculoskeletal conditions, but how these mechanisms act in the process of the development of disabling LBP is not well understood. However, the effects of sleep disturbance and stress, for example, have been connected to low grade inflammation (Nijs et al. 2016). Therefore, LBP also needs to be seen as a multidimensional condition that affects many domains of the patient's life.

A growing body of qualitative research is now focusing on the perspective of the people with musculoskeletal pain conditions, and on their experiences living with and managing pain (Toye et al. 2017a). However, patients' perceptions of the management of LBP have not been explored in Finnish health care settings. Patients' beliefs about LBP are mostly biomedical and they usually see the causes of LBP as anatomical/biomechanical (Bunzli et al. 2013; Bunzli et al. 2016; Setchell et al. 2017). Patients with LBP often describe their bodies as broken machines that need to be fixed, and see LBP as permanent, complex and very negative (Setchell et al. 2017). These negative beliefs seem to come from unhelpful diagnostic labels provided by health care professionals, highlighting the need for education to make their LBP beliefs more positive (Setchell et al. 2017). There is

evidence that shifting these beliefs towards a biopsychosocial perspective can restore hope and promote positive treatment outcomes (Toye & Barker 2012; Bunzli et al. 2016). This change may require strong therapeutic alliance, development of body awareness and experiencing control over pain (Bunzli et al. 2016).

LBP patients' expectations regarding their care have been widely investigated, but most studies have been conducted in western countries. They expect tests and investigations, clear diagnoses, adequate explanations and reassurance, management of symptoms, shared decision-making and information about the benefits and risks of treatment as well as support services. It should be remembered that such expectations vary widely between individuals (Hopayian & Notley 2014; Kamper et al. 2018; Lim et al. 2019). They also value good communication, professionals' confidence, friendliness, listening, encouragement, positive non-verbal communication, and holistic and individualized care (O'Keeffe et al. 2016; Chou et al. 2018).

In 2006, based on a survey of chronic pain in Europe, only 27% of people with persistent pain in Finland were satisfied with the effect of the treatment they received. This was among the lowest ratings in European countries. Only 16% of respondents in Finland had seen a pain management specialist even though their average pain duration was 9.6 years and 37% of them reported severe pain (Breivik et al. 2006). This indicates a need to create better care and treatment pathways for people with persistent pain and to deepen the understanding of the patient perspectives behind these figures and the possible challenges for the Finnish health care system.

The treatment pathways for musculoskeletal conditions vary considerably in different health care districts in Finland. Musculoskeletal conditions are managed in primary health care; secondary health care is only consulted when needed and is based on locally varying criteria. Finnish public health care only provides a limited number of physiotherapist appointments. Occupational health care usually covers 1 to 3 appointments with an occupational physiotherapist. In public health care, the number of appointments provided depends on the health care district. In some regional districts, the physiotherapists decide on the number of appointments needed by each patient, but in other districts, the maximum number of appointments is limited to 3 to 5 per condition/year. Often, individual physiotherapy appointments are followed by group-based rehabilitation. This means that regional practices vary greatly and often lack flexibility in arranging care for people who need differing amounts of support.

2.3 Towards a biopsychosocial approach in physiotherapy management of musculoskeletal conditions

Despite the advances in pain theories in the 1970s and early 1980s, bedrest together with heat, cold, traction and aspirin were the treatments of choice for acute LBP (Wood 1979; Reuler 1985). However, already at that time it was known that

the most important part of managing LBP was reassuring the patient that it is a common problem and that it is usually self-limited, its prognosis is good and that the patient should be active and take responsibility for their rehabilitation (Wood 1979; Reuler 1985). In the mid 1990s the usefulness of bed rest started to be questioned as new studies showed that staying active was superior to bed rest or the extension exercises that were popular at that time (Malmivaara et al. 1995).

Already in the 1980s behavioral treatments were seen as promising in the management of persistent pain, but they were not delivered in a very person-centered way, as demonstrated in a study by Wood (1979). Their intervention included a graded increase in physical activity with a strict daily schedule. A detailed diary of activities and rest was kept. Patients were encouraged to act as if they were healthy and if they complained about pain, the staff ignored them. Gradual drug withdrawal was also part of the program and vocational counseling was given. The families were taught to encourage patients to be active and to discourage them from acting like sick people. The program was not successful in returning patients to work but did result in patients being easier for their families to live with.

The late 1980s and early 1990s saw a great interest in back schools (Hurri 1989) and combined physical and psychosocial training programs in the management of LBP, also in Finland, but the research interest in these approaches seemed to decrease later. Multiple studies were conducted in Finland (Estlander et al. 1991; Mellin et al. 1993; Alaranta et al. 1994) that combined multiprofessional physical and psychosocial training delivered in an inpatient rehabilitation center. These programs included cardiovascular exercise, strength training, relaxation exercises and stretching, as well as cognitive behavioral disability management group sessions and, for example, in the study by Estlander et al. (1991), also back school education and socio-economic counseling. Rather than pain reduction being the primary goal, this intervention aimed to increase the functioning of the patients. The program's target was to improve physical functions and work-related skills, to overcome fear of pain and increase self-efficacy (Estlander et al. 1991). These intervention programs produced statistically significant differences in pain and disability outcomes as well as physical measures, but were not able to affect psychological variables, employment, sick leaves or disability pensions. The authors believed that lack of inpatient setting's clear focus on work context explained these results (Alaranta et al. 1994). According to the authors of the Finnish studies of that time, after these projects, the trends in research changed. The focus in Finland shifted toward, for example, magnetic resonance imaging (MRI) studies as a result of developing technology, as well as towards core strength training approaches and trying to identify those who faked their pain using Waddell's tests. It should be mentioned here that this was not the original purpose of Waddell's Sign: The tests were meant to help identify those who are likely to have a poor prognosis after LBP surgery (Waddell et al. 1980). At this time, care was delivered multi-professionally, but the use of physiotherapist-delivered, psychologically informed interventions seems to have grown in popu-

larity over the last two decades. The number of studies exploring these interventions has particularly grown in the last 10 years (Coronado et al. 2020; Simpson et al. in press).

In her doctoral thesis in the early 1990s Talvitie described a development process of physiotherapy practices that aimed towards patients' activity and self-motivation. She called for change in physiotherapy practice towards more patient-centered, active care instead of seeing patients as "moving parts" and passive recipients of treatment. In the process, she challenged professionals to reflect on their own work practices, to utilize research in their practices, and active collaboration in developing them. Major challenges were observed in changing professional practices (Talvitie 1991).

Although the current definition of pain recognizes it as a subjective experience, affected by much more than just tissue damage, many still continue to seek quick fixes for persistent pain. Despite the advances in modern medicine manifesting in a growing number of MRI scans, injections and surgeries, the burden of musculoskeletal conditions has been growing and it seems that current practices have not been able to solve this problem (Stilwell & Harman 2019; Lewis et al. 2020). Paradoxically, medicalization seems to have played its part in increasing pain and disability worldwide, as the increased use of potentially unsafe and inefficient treatments has wasted limited resources and caused harm to patients. An example of this is the opioid epidemic (Buchbinder et al. 2018).

Most clinical practice guidelines now recommend that the focus of managing musculoskeletal conditions should move toward a biopsychosocial approach, because it is now widely accepted that musculoskeletal conditions are biopsychosocial pain conditions, and are influenced by multiple factors that a purely biomechanical approach cannot adequately address (Pincus et al. 2013; Lin et al. 2019). Because of the good prognosis for most people with acute LBP, little or no formal care is needed for most LBP patients. However, those who need more help often fail to receive adequate care (Traeger et al. 2019). Current health care systems in many countries do not provide the necessary access and resources to deliver effective care and support guideline-recommended physical and psychological therapies for people with persistent LBP (Traeger et al. 2019). To enable better targeted care, those who are at risk of prolonged pain and disability need to be identified early. Effective screening tools are available for this, such as Keele STarT Back Screening Tool (Hill et al. 2008) and the Örebro musculoskeletal pain screening questionnaire (Linton et al. 2011). Guideline-recommended active biopsychosocial management of LBP includes initial non-pharmacological treatment: education supporting self-management and resumption of normal activities, exercise and for those with persistent symptoms, psychological programs (Foster et al. 2018).

The biopsychosocial approach, or biopsychosocially oriented clinical practice, can be seen as the practical application of the biopsychosocial model (Borrell-Carrió et al. 2004). The terminology describing biopsychosocially oriented interventions has been used inconsistently and a clear definition is yet to be estab-

lished. Another term describing biopsychosocially oriented interventions, introduced later in the context of physiotherapy, is psychologically informed physical therapy (PIP), described by Main and George (2011) as a conduit between traditional biomedically-based, physical impairment-focused physical therapy practice and cognitive-behavioral approaches developed originally to treat psychological conditions. The goal of PIP interventions is secondary prevention of disability through better understanding of patient's pain, tailored interventions, and methods for enhancing adherence to treatment (Keefe et al. 2018). Instead of focusing on psychopathology and mental illness, it focuses on the normal psychology of peoples' expectations, beliefs, coping strategies, and emotional responses (Main 2020). Although some of these interventions, delivered by physiotherapists, show promise in the management of musculoskeletal pain conditions (Silva Guerrero et al. 2018; van Erp et al. 2019; Coronado et al. 2020), their effect sizes generally remain small. In a review by Silva Guerrero et al. (2018), studies that have had a large effect size have tended to use individually tailored interventions and address patients' maladaptive cognitions using cognitive techniques aiming to modify maladaptive behaviors and increase activity by using behavioral strategies.

The role of psychosocial factors in musculoskeletal conditions has been studied widely in recent years, and their role in the maintenance of symptoms and disability has gained a great deal of attention. This increased understanding has motivated some physiotherapists to adopt a more biopsychosocial approach in their work with patients with musculoskeletal conditions, and assessment of psychosocial factors is recommended along with the assessment of the physical factors that have traditionally been the main focus of physiotherapy practice (Singla et al. 2014). According to these studies, it is important to understand a person's problems, concerns, expectations and emotional and social issues that arise during the appointment (Foster & Delitto 2011). A single practitioner such as a physiotherapist delivering more than one treatment type may be potentially advantageous, because this enables the integration of treatment components, better accessibility and reduced costs (Hoffman et al. 2007; Nielsen et al. 2014). The biopsychosocial approaches or psychologically informed interventions described in the literature have utilized different elements such as cognitive behavioral techniques, stress management, relaxation, hypnosis, mindfulness, acceptance and commitment therapy, coping skills training, problem-solving, graded activity and motivational interviewing in combination with more traditional physiotherapy techniques (Main & George 2011; Archer et al. 2018; Coronado et al. 2020; Simpson et al. in press).

Health care professionals, including physiotherapists, often use the biopsychosocial model dualistically and prioritize biomedical findings. Only when no biomedical diagnosis can be found do they turn to psychosocial explanations. This highlights the need for training health care professionals to adopt a non-dualistic biopsychosocial approach to help them better support patients with persistent pain (Toye et al. 2017b).

2.3.1 Cognitive functional therapy

Cognitive functional therapy (CFT) is an example of a biopsychosocial intervention or PIP approach (O'Sullivan et al. 2018). It is a physiotherapist-led cognitive and behavioral intervention that integrates evidence-based theory and practice and uses a biopsychosocial clinical reasoning framework. It explores, identifies and manages cognitive, emotional, social, physical, and lifestyle barriers to recovery (Synnott et al. 2016; O'Sullivan et al. 2018). It aims to individualize the self-management of persistent LBP once serious and specific pathology has been excluded (Vibe Fersum et al. 2013; O'Sullivan et al. 2018;), helping people make sense of their pain from a biopsychosocial perspective, build self-efficacy, and overcome barriers on the journey towards their valued goals, as well as to adopt a healthy lifestyle (O'Sullivan et al. 2018). CFT has been developed over a number of years through the interplay between new understanding arising from research and clinical practice. It is not a fixed method, but an ever-evolving approach based on current evidence.

A recent systematic review demonstrated that physiotherapist-led, psychologically informed LBP treatments yielded small effect sizes, with the exception of one RCT that used a CFT intervention (Silva Guerrero et al. 2018). This first RCT, which was conducted in Norway on patients with chronic LBP (n=121), demonstrated clinically and statistically superior and sustained effects on pain and disability (12-month standardized effect sizes from 0.7 to 0.9) in comparison to guideline-recommended manual therapy and exercise. The odds of the patients being completely satisfied with treatment were over three times higher in the CFT group at three months and five times higher at 12 months (Vibe Fersum et al. 2013). The sustained effect on disability, but not pain, was maintained in three-year follow-up (Vibe Fersum et al. 2019). More recently, O'Keeffe et al. (2019) compared CFT with a group-based exercise and education program for individuals with chronic LBP (n=206). In this study, CFT reduced disability significantly more than the group intervention at 6 and 12 months, but no group differences in pain were observed (O'Keeffe et al. 2019). A larger RCT (RESTORE trial) comparing CFT to usual care is currently underway in Australia (Kent et al. 2019). In addition, multiple case-control and cross-sectional studies, as well as qualitative studies exploring physiotherapists' and patients' perspectives on CFT, have already been conducted with positive results and many projects are ongoing. However, the feasibility of CFT has not been tested in the Finnish health care system.

2.3.2 Biopsychosocial approach to care from perspective of people with pain

A number of qualitative studies have investigated the perspective of people with musculoskeletal conditions concerning living with pain, and their expectations and experiences of pain management (Hopayian & Notley 2014; Toye et al. 2017a; Lim et al. 2019). However, only a few previous studies have focused on their views on PIP or the biopsychosocial approach. Wilson et al. explored the experiences of people with chronic pain of treatment and a therapeutic PIP process,

which was part of a group residential pain rehabilitation program (Wilson et al. 2017). Only those who had gained from the treatment were chosen to participate in this study. Wilson et al. (2017) reported that patients with chronic pain who had benefited from PIP perceived it as strikingly different from traditional physiotherapy. They felt that the professional was working with them individually, as a whole person, and paying attention to their thoughts, emotions and their whole body, not just the painful area, which they saw as surprising but important. They also experienced their physiotherapists as fellow human beings who cared for them, not just professionals, in contrast with their previous experiences of remote and impersonal clinical interactions. Although these factors increased their adherence to treatment, they also reported challenges within the process, such as discrepancies between expectations of the management and the contents of PIP, strong and not always pleasant emotional experiences elicited by exercise, as well as distress that arose from their growing awareness of the impact that pain has had on their lives (Wilson et al. 2017).

One previous study has explored the experiences of people with persistent LBP participating in CFT (Bunzli et al. 2016). Bunzli et al. (2016) reported that for patients who underwent a CFT intervention, changing pain beliefs to a more biopsychosocial perspective and achieving independence were important for achieving a successful outcome. A strong therapeutic alliance, development of body awareness and the experience of control over pain were considered important precursors for changing beliefs. To achieve independence, problem-solving skills, enhanced self-efficacy, decreased fear of pain and improved stress coping were considered imperative. Those who did not respond to treatment continued to feel defined by their pain and maintained a biomedical perspective.

In a study by Kamper et al. (2018) 60% of the participants who had persistent LBP wanted to discuss problems in their life during physiotherapy. However, some of them interpreted questions about their psychosocial circumstances as the professional doubting the physical basis for their pain (Kamper et al. 2018). This points to the need for the biopsychosocial perspective in the management of LBP and the importance of communication skills so that people with LBP do not feel misunderstood.

As studies examining the perspective of people in pain on biopsychosocially oriented care are scarce, it is important to gain more knowledge whether this kind of approach is acceptable to people with LBP and how they understand biopsychosocially oriented care. Because previous studies have focused more on the change, it is important to more deeply understand the LBP patients' conceptions undergoing biopsychosocially oriented physiotherapy—in the context of this study, physiotherapy delivered by physiotherapists who have received brief CFT training. Furthermore, it is important to understand the perceptions of all participants, not only those who benefit from the treatment.

2.4 Transforming expertise

Even though the biopsychosocial model is not new, its implementation in clinical practice has been slow, and physiotherapists report a lack of understanding of biopsychosocial interventions and training in them (Alexanders et al. 2015). The understanding of pain from a biopsychosocial perspective is still new for many professionals and the applications of the biopsychosocial approach in physiotherapy require a change in the practice behaviors of professionals. Transforming expertise is a learning process during which professionals create new understandings and change their earlier habits related to different situations in their practice (Mezirow 1991; Tynjälä 2008; Piirainen & Viitanen 2010).

The physiotherapy process can be examined as a learning process, a pedagogical relationship in which one of the goals is to help the patient make sense of their pain and learn effective strategies to take charge of their situation (Piirainen 2006).

To understand this process, three of the studies of this dissertation were conducted using the phenomenographic approach, which was originally developed in the context of education. The theory of learning behind phenomenography defines learning as an expansion of awareness, as a transition from one way of understanding a phenomenon to another, which in phenomenographic studies can be seen in the hierarchical structure of the categories of description. The results of phenomenographic studies can be used to inform educational design by helping educators guide learners' attention in aspects that help them achieve more complex understanding of the phenomenon (Marton & Booth 1997). This theory was later named the variation theory of learning, as it grew out of phenomenography (Marton & Morris 2002; Marton et al. 2004; Marton 2015). Therefore, phenomenography and variation theory research are intertwined approaches that share a common theoretical framework as well as ontological and epistemological assumptions (Åkerlind 2018). Somewhat confusingly, the term "variation theory" is used to refer to both the "variation theory of learning" and the strand of empirical research of "variation theory research". Variation theory research is pedagogically focused and measures outcomes of experiments in which students are exposed to variation in phenomena that are derived from results from phenomenographic investigations. An example of a research question of variation theory research is *"How are students' learning outcomes influenced by exposure to different patterns of variation in the critical aspects of disciplinary phenomena?"* (Åkerlind 2018).

Marton & Booth (1997, 206-210) describe how learning proceeds from poorly integrated and undifferentiated understanding towards increased differentiation and integration. To be able to learn, the learner needs to have some idea of what they are learning about. They also state that people are different and do and learn things in differing ways; therefore if some people can be judged to be doing something better than others, they must have learned to do it better than some others or been better at learning to do it. Based on variation theory, transition from one way of understanding a phenomenon to another means that the

features that are noticed and focused on simultaneously change (Marton 1986). To help people learn better, we must determine what it takes to learn something. Therefore the results of phenomenographic studies can be utilized in developing pedagogical practices (Marton & Booth 1997).

Other learning theories that are important for knowledge translation are, for example, transformational learning and constructivism. Constructivist learning assumes that knowledge is constructed by individuals by linking concepts from new knowledge to previous experiences. The process includes actively making decisions on how to incorporate new knowledge into practice. Combining constructivist and transformative perspectives help us understand how new knowledge is constructed in professional practice (Daley & Cervero 2016). Transformational learning expands our understanding of constructing knowledge by defining learning as a process that changes the way people see themselves and their world. It can occur gradually or as a result of a sudden powerful experience followed by a critical reflective process and re-evaluation of the previous assumptions people have made regarding themselves and their worlds (Clark 1993; Daley & Cervero 2016). This means that knowledge is created from repeated interpretations in light of new experiences (Mezirow 1991), as people realize something is not consistent with what they have previously held to be true. The transformational learning journey is seldom a linear process, as it can be individual, but not independent; fluid and cumulative. Personal, contextual factors such as readiness for change are also important in the transformational learning experience (Taylor 2008).

The amount of new information and understanding in the field of physiotherapy has been rapidly growing especially during the last decade, and many physiotherapists struggle to keep up to date with this knowledge. Continuing professional development (CPD) plays a central role in this process and the ultimate goal of CPD is to improve health care and deliver better patient care (Nolan et al. 1995; Perry 1995). A recent review concluded that physiotherapists do not follow evidence-based guidelines in the management of musculoskeletal conditions very well. On average, 54% of physiotherapists chose recommended treatments and 43% used not-recommended treatments. The growing number of guidelines, systematic reviews and clinical trials guide physiotherapy practice, but applying this evidence in practice seems challenging (Zadro et al. 2019). Furthermore, what is worrying is that the use of recommended treatments has not changed since 1990, even though the availability of information has increased. The authors conclude that this may be due to challenges of keeping up to date with evidence when the amount of new knowledge is increasing so rapidly. Other possible reasons for this may be not seeing value in research and the increased availability of information that may expose physiotherapists to treatments of unknown value. New strategies for shifting practice towards recommended care are needed (Zadro & Ferreira 2020).

Interventions targeting knowledge translation have resulted in changes in physiotherapists' beliefs, attitudes, skills and awareness of guidelines, but no consistent changes in clinical practice and patient outcomes have been reported

(Berube et al. 2018). Studies that have demonstrated changes in practice have tended to use self-reported measures, and one study in a review by Berube et al. (2018) showed no change and used patient records as a measure (Shenoy 2013).

A variety of implementation methods have been studied that have attempted to change health care professionals' practice, such as printed educational materials, workshops, audits and feedback, the use of local opinion leaders and so on. None of these methods seem to be highly effective, showing only small improvements in professional practice (5-6%) (Forsetlund et al. 2009). Therefore, multifaceted implementation interventions have been tested. However, the latest research shows mixed results and some reviews have reported that multifaceted interventions do not seem to be any more effective than other simpler ones (Squires et al. 2014; Suman et al. 2015), whereas other research has reported increased changes in practice when multifaceted interventions are used in comparison to passive interventions (Menon et al. 2009; Ostelo et al. 2010). Mesner et al. (2016) suggest that the success of implementation interventions might be determined by the frequency and duration of the interventions. Berube et al. (2018) report that studies with positive patient outcomes have tended to use face-to-face workshops of longer duration and have included case studies and practical tools that allow the practice of the new skills in clinics and receiving feedback from trainers.

It has also been suggested that successful implementation of new knowledge takes place at the individual, group and organizational level (Zidarov et al. 2013), requiring complex changes in clinical routines, collaboration among disciplines and changes in the organization of care or even in cultural beliefs and attitudes (Grol et al. 2007). Despite this, most interventions to improve health care are targeted toward the skills and knowledge of individual professionals (Grimshaw et al. 2004). However, the training itself is usually not individualized, even though physiotherapists come from different backgrounds and have different beliefs, knowledge, skills and capacities to learn. Therefore, they experience learning transitions in very different ways (Simpson et al. in press).

Implementation studies have identified that when change happens in practice, it also occurs at the level of the whole work community and collective action is needed (May & Finch 2009), whereas changing an individual's beliefs and competences does not seem to be sufficient to bring about changes in clinical behaviors. If physiotherapists feel lonely in the process of change, they easily regress back to their old ways of working (Piirainen & Viitanen 2010). Therapist drift is a known phenomenon and is described in psychotherapy literature (Waller 2009) highlighting that clinicians do not always deliver therapy according to its principles, despite having undergone training. It is also suggested that it might even be unrealistic to expect one single physiotherapist to be able to change outcomes among patients with complex problems, and that this requires collective action and a broader change at the organizational level (Overmeer et al. 2011).

Almost 30 years ago, it was proposed that individual difference in performance largely reflected the amount of deliberate practice, specifically targeted engagement in structured activities (Ericsson et al. 1993). This view gained a great

deal of attention and many are familiar with the famous 10000 hour rule of learning presented by, for example, Malcolm Gladwell (2008, 38-76) in his book *Outliers*. The importance of deliberate practice was later questioned and the understanding of other factors that influence the learning process has grown. Macnamara et al. (2014) concluded in their review that much of the variance in learning outcomes, especially in the fields of education and professional learning, in which deliberate practice is much harder to define than in, for example, chess playing is explained by factors other than deliberate practice such as previous knowledge and skills and learning abilities. For example, Roberts (2013) noticed in her quality improvement study, that strategies to motivate professionals to change their practice were not very successful, whereas system-level changes resulted in improvements.

2.5 Expanding physiotherapists' awareness towards biopsychosocial approach

Physiotherapists have traditionally received biomedical training (Foster & Delitto 2011; Pincus et al. 2013), but recently there has been a shift towards more biopsychosocially oriented training (Main & George 2011). However, physiotherapists still seem to be more comfortable considering LBP a mechanical issue (Synnott et al. 2015). Although physiotherapists recognize the value of biopsychosocial interventions and some use them in practice (Alexanders et al. 2015; Driver et al. 2017), they only partially recognize psychosocial challenges, and stigmatize patients who display these factors (Synnott et al. 2015). Singla et al. (2015) found in their study that physiotherapists' understanding of the role of psychosocial factors was poor and that they did not know how to assess them. Most participants acknowledged the biopsychosocial model but their practice did not reflect this. Physiotherapists frequently lack confidence in this approach and do not feel adequately trained to deliver these interventions (Alexanders et al. 2015; Synnott et al. 2015; Driver et al. 2017). Driver et al. (2017) report several barriers to adopting these interventions in physiotherapy practice, such as lack of knowledge, time constraints, and traditional expectations of the physiotherapist's role. They recommend further research to address how to overcome these barriers and effectively employ psychological techniques in clinical practice.

Using the biopsychosocial approach in interviews is recommended (Oostendorp et al. 2015; Kamper et al. 2018), but most physiotherapists mainly cover the somatic dimensions of the patient's situation during interviews. In a study by Oostendorp et al. (2015), manual physical therapists concentrated mostly on biological issues and did not sufficiently explore the psychological and social dimensions of chronic pain. In a study by Hiller et al. (2015), physiotherapists in private practice also mainly focused on the physical aspects of the patient's concerns. Health care professionals often change the subject when topics arise that are uncomfortable for them. Avoiding these topics may easily result in

patients feeling invalidated, that their feelings or experiences are not taken seriously or as true, normal or important. This kind of “look away” approach typically inhibits any further emotional revelations, may increase negative affect, and communicates invalidation (Zachariae et al. 2003; Linton 2005; Linton 2015). Many studies of patients’ perspectives tell of this happening in practice (Toye et al. 2017a).

Even though the biopsychosocial model already highlighted the importance of patient-centered practice and the multidimensional nature of illnesses in the late 1960s (Engel 1977) and a great deal of work has been done to create applications of this model in the management of musculoskeletal conditions (Gatchel et al. 2007; Main & George 2011), the content of these interventions and how professionals are trained in them varies greatly (Simpson et al. in press). Some of these interventions have added minor components of cognitive-behavioral approaches to usual physiotherapy practice and others have created highly integrated models of biopsychosocial care taking the biopsychosocial contributions to a person’s pain experience widely into consideration (Simpson et al. in press).

Recently, many large trials have used biopsychosocial physiotherapy interventions and physiotherapists have received training in these. The training has typically included 2 to 4 days of training in cognitive behavioral techniques by a psychologist (in some studies, only one day or half a day and the longest training interventions have been 150 hours) (Archer et al. 2018).

As in other training intervention studies, training in biopsychosocial approaches often involves a change in the physiotherapists’ attitudes and beliefs. However, changes in practice behaviors and patient outcomes seem to be more difficult to achieve and the implementation of new evidence-based methods and guidelines has been challenging (Overmeer et al. 2011; Hsu et al. 2018; Lawford et al. 2018; Fritz et al. 2019). For example, Stevenson et al. (2006) found that physiotherapists’ management of LBP remained relatively unchanged after an evidence-based education program (5 hours). In contrast, a training intervention for physiotherapist-led training in pain coping skills resulted in excellent physiotherapist adherence and patient outcomes. However, it was very time intensive, with each participant spending up to 150 hours in training and supervision (Bryant et al. 2014; Bennell et al. 2016). This might not be feasible for wider implementation or, alternatively, may require recognition that long training might be required and therefore needs to be accommodated. Furthermore, despite the promising results, the participating physiotherapists had concerns about their scope of practice and were not confident about delivering the cognitive aspects of the program (Nielsen et al. 2014).

It has also been suggested that the factors behind the modest effect sizes of biopsychosocial physiotherapy interventions may be inadequate training and poor treatment fidelity (Kelly et al. 2018). Although a range of theories, developed within the social and behavioral sciences, explain behavior change, there is still a lack of understanding of how successful interventions work, that is, which behavior change processes are responsible for the change (Michie et al. 2005).

Subsequently, the optimal process of training physiotherapists in a way that leads to changes in clinical practices and patient outcomes remains unclear (Foster & Delitto 2011). Therefore, it seems to be important to understand the human learning process better to be able to create better ways to help physiotherapists update their knowledge and skills.

Previous systematic reviews (Alexanders et al. 2015; Synnott et al. 2015; Driver et al. 2017) have explored physiotherapists' views of psychological interventions in general, but have not related them to training interventions. Therefore, it is important to understand whether receiving training and implementing these interventions in clinical practice leads to a reduction in the challenges reported by previous reviews.

Three previous studies (O'Sullivan et al. 2013; Synnott et al. 2016; Cowell et al. 2018) have explored physiotherapists' perceptions of learning and implementing CFT. They found that after CFT training, physiotherapists reported feeling more confident in their capacity and skills to manage the biopsychosocial dimensions of non-specific persistent LBP. This included increased confidence in identifying patients' psychosocial factors and modifying their unhelpful beliefs, understanding the importance of therapeutic alliance and listening skills, and increased focus on everyday functional movements. However, the effects of these changes on patient outcomes are not known. The physiotherapists in the Synnott et al. (2016) and Cowell et al. (2018) studies had undergone intensive CFT training, which included clinical supervision, and the trainers deemed the physiotherapists in the Synnott et al. (2016) study competent in delivering CFT. The twelve physiotherapists in the study by O'Sullivan et al. (2013) were asked about their experiences after participating in a three-day CFT workshop each year for three years, but without clinical supervision. As the study included physiotherapists who had changed their beliefs to a greater extent than average, some of whom had previous knowledge of CFT, these findings may not represent the perspective of other physiotherapists who attended the CFT workshops and reported less change in their pain beliefs.

This section has presented the key concepts and theoretical perspectives that need to be understood to reach the aim of this dissertation—to explore the meaning of the biopsychosocial approach for the management of musculoskeletal conditions from the perspectives of patients and physiotherapists. Many questions remain unanswered in relation to the position of the biopsychosocial approach in the field of physiotherapy, the management of musculoskeletal conditions, and professionals delivering better care to people in pain. This dissertation attempts to shed light on these phenomena and help create more meaningful physiotherapy for people with musculoskeletal conditions and more meaningful training for physiotherapists, by answering the research questions that are presented next.

3 AIMS OF THE STUDY

The purpose of this dissertation was to explore the meaning of the biopsychosocial approach in the management of musculoskeletal conditions from the perspectives of patients and physiotherapists.

The research questions were as follows:

What are the conceptions of patients with LBP of their encounters in the healthcare system in Finland? (Study I)

What are the conceptions of patients with persistent LBP of undergoing physiotherapy delivered in Finnish primary healthcare by physiotherapists who had participated in brief training in Cognitive Functional Therapy? (Study II)

What are physiotherapists' conceptions of learning the principles of CFT and integrating it into clinical practice? (Study III)

What are physiotherapists' perceptions of learning and implementing biopsychosocial interventions to treat musculoskeletal pain conditions? (Study IV)

4 METHODOLOGY

4.1 Study design

This dissertation is part of a wider research project conducted in the context of Finnish primary health care. The broader study design combines the qualitative and quantitative approaches with a feasibility study exploring the implementation of the CFT approach and training of physiotherapists. We invited primary healthcare (public health care and occupational healthcare) study sites from across Finland by contacting the physical and rehabilitation medicine specialists of the hospital districts or the persons in charge of treating musculoskeletal problems in occupational health care. The participating physiotherapists were recruited from the selected units by the persons in charge, and the researchers did not influence this selection.

To explore the meaning of the biopsychosocial approach in the management of musculoskeletal conditions and to answer the research questions, a qualitative approach was chosen for this dissertation. This thesis consists of four studies, three qualitative empirical studies and one systematic review and metasynthesis of the qualitative studies. The data collection and reporting of the quantitative aspects and the feasibility study were the scope of another PhD study. These two PhD studies ask different types of questions and provide different kinds of answers, and therefore complement each other. Finally, together, they build a comprehensive picture. As CFT had not previously been used in a Finnish health care setting, it was important to understand the perspective of the patients and physiotherapists; meaning that qualitative studies were needed. Qualitative research methods enable the exploration of the complexity of human behavior and enable a deeper understanding of the phenomena under research. In the field of physiotherapy, qualitative studies can help physiotherapists reflect on their beliefs, understand why certain treatments seem to work, and gain an understanding of patients' perspectives (Johnson & Waterfield 2004).

The research questions in Studies I, II and III were explored using phenomenographic methodology, and the principles of systematic review and thematic synthesis were followed to answer the research question in Study IV. Phenomenography was chosen for the empirical studies of this dissertation because, in contrast to other qualitative methods, it is well suited to capturing the range of the participants' conceptions, which I see as important when attempting to understand a complex phenomenon. Phenomenography is a data-driven approach, which aims to understand the variation in the research participants' conceptions of the phenomenon in question (Marton & Booth 1997; Åkerlind 2005; Åkerlind 2008a; Åkerlind 2018).

A systematic review and qualitative metasynthesis was conducted in addition to the phenomenographic studies, as I was interested in understanding whether there was a difference between learning and implementing various psychologically informed physiotherapy interventions and placing our own research in a broader context. The original plan was to include Study III in the review, but due to its long review process I had to leave it out. Qualitative metasynthesis brings together primary qualitative research findings and examines them with a new question. It is seen as a necessary method for capturing the increasing volume of qualitative research (Sandelowski & Barroso 2007; Levack 2012; Lachal et al. 2017).

The following sections describe the principles of the phenomenographic approach, systematic review and metasynthesis that were used in the original studies of this dissertation. After this I present the contents of the CFT training of the physiotherapists who participated in this project. This is followed by a description of the characteristics of the participants of this study and the data collection and analysis methods.

4.2 Phenomenography (Studies I, II and III)

Phenomenography is a qualitative methodological approach that seeks to identify and describe conceptions and qualitatively different ways of understanding a given phenomenon, enabling us to discover a hierarchical structure of the phenomenon by categorizing the themes emerging from the data (Marton & Booth 1997; Åkerlind 2005; Åkerlind 2008a).

Marton (1994) described phenomenography as follows: "*Phenomenography is the empirical study of the limited number of qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced, conceptualized, understood, perceived, and apprehended*". Later he stated: "[Phenomenography] (...) is a research specialization concerned with qualitative differences in how we see the world and how it shows itself to us" (Marton 2015, 106).

Phenomenography emerged in the field of educational research in the late 1970s in Sweden, as a reaction against the dominant positivistic, behavioristic and quantitative research tradition (Svensson 1997). It developed in research that concentrated on student learning (Marton & Säljö 1976) and its epistemology and

ontology were clarified during the 1990s (Marton 1981; Marton 1986). Despite its name, phenomenography is not an application of phenomenology, although these terms contain "phenomenon", which means "to make manifest" or "to bring to light". The suffix graph in phenomenography refers to aiming to describe the different ways in which a group of people understand a phenomenon (Marton 1981), whereas the suffix logos of phenomenology aims to clarify the structure and meaning of a phenomenon (Giorgi 1999). However, Marton (1995) stated that "*The simultaneous awareness of all the critical aspects comes close to the phenomenological essence...*". Phenomenography can be philosophically placed between phenomenology and hermeneutics. Both phenomenology and phenomenography focus on human experience and awareness and explore them through people's descriptions of the phenomena, but phenomenography is less interested in individual experience and emphasizes collective meaning. They have different underlying ontologies and analysis outcomes (Barnard et al. 1999; Stenfors-Hayes et al. 2013).

Phenomenography is an empirical research tradition and is not derived or deducted from a system of philosophical assumptions or thesis. This means that ideas about the nature of reality and the nature of knowledge first emerged as phenomenography developed. What came first were more specific assumptions and ideas related to empirical research (Svensson 1997).

Phenomenography builds on a non-dualistic ontology and assumes that the world is not constructed by the learner, but is constituted in differing ways as internal relations between the world and the persons experiencing it. Therefore reality cannot be explored as it is, but it can be described through the experiences of people and the meanings given to these experiences (Marton & Booth 1997, 122). Knowledge is assumed to be relational, a product of a thinking process, involving a continual interrelationship between thought, experience and a phenomenon; and to be dependent on the world, which is external to the individual (Svensson 1997). It is stressed that only a collective experience is enough to describe a phenomenon (Marton & Booth 1997, 124).

Phenomenographic studies aim to elucidate the second-order perspective, which means exploring the world as experienced by people and focusing on the interactions between the person who experiences the phenomenon and the phenomenon itself. In contrast, the first-order perspective would mean a more positivist approach investigating the world as it truly is (Marton 1986; Marton & Booth 1997, 117-121). Thus, the aim is not to describe things as they are, but to characterize how things appear to people (Marton 1986). Marton linked this idea to what Kant described as distinction between a thing in itself (a noumenon) and a thing as it appears (or phenomenon). Research has traditionally adopted an observational or "noumenal" approach, but phenomenography adopts an experiential or "phenomenal" approach (Marton & Svensson 1979).

Therefore, phenomenography is interested in exploring the variation in the ways in which people perceive different phenomena (Marton & Booth 1997). As it is a data-driven approach, the categories of description and themes arise from the data (Åkerlind 2005). Individuals are seen as bearers of the different ways of

experiencing a phenomenon and as bearers of fragments of differing ways of experiencing that phenomenon (Marton & Booth 1997, 124).

Conceptions can be seen as abstractions from reality and they include a person's experiences and have a broader and deeper meaning than opinions. Conceptions can be seen as an understanding of a certain phenomenon and they are thought to make up the unit of analysis in phenomenography and form a hierarchical structure (Marton & Booth 1997; Åkerlind 2005; Åkerlind 2008a). Conceptions are subject to change and they arise from our beliefs, expectations, experiences and social imperatives (Barnard et al. 1999).

Themes of variation point to key aspects that delineate the different **categories of description**. Themes of variation emerge from an iterative process of reading and looking for structure and meaning in quotes from transcripts and represent the central meaning of conceptions (Åkerlind 2005).

The categories of description are the researcher's abstractions of the different ways of understanding which have been identified from the data (Larsson & Holmström 2007). They illustrate variation in the conceptions of the interviewees, represent the expanding awareness of the phenomenon in question, have a structural and logical relation to each other, and form a hierarchical whole (Marton & Booth 1997, 124-128; Marton & Pong 2005; Åkerlind 2005). They describe the conceptions of the interviewees on a collective level instead of describing different types of individuals (Marton & Pong 2005; Åkerlind 2005; Åkerlind 2018). Different people experience the same phenomena differently because experience is always partial and the collective experience can be seen as a description of the phenomenon (Marton & Booth 1997, 124-128; Åkerlind 2008a). The categories of description can be inclusive, meaning that the categories higher in the hierarchy can be considered more complex than the lower ones (Åkerlind 2008a). Marton & Booth (1997) stress that in forming these categories, number of expressions is not important; what matters is that the categories of description cover the variation that rises from the data.

Critical aspects help constitute the logical relationship and differences between the categories. They are critical in regard to moving from less complex understanding to a more developed or a complex one (Åkerlind 2018). This illustrates the later progressions of the phenomenographic approach, which are related to variation theory. This identification of internal and structural relationships among the categories is a feature not often included in other qualitative methods (Marton & Pong 2005; Stenfors-Hayes et al. 2013; Åkerlind 2018).

The outcome space of phenomenographic research is the sum of all the categories of description that illustrate the range across which a phenomenon is understood by the participants (Marton & Booth 1997, 136; Åkerlind 2005). The outcome space has been described by Marton (1986) as an empirical map of the *"qualitative different ways in which people experience, conceptualize, perceive and understand various aspects of and phenomena in the world around them"*. The assumption that structural relationships exist between different ways of experiencing, is one of the key epistemological assumptions of phenomenography (Marton & Booth 1997).

In phenomenography, the dataset consists of different kinds of materials that are transformed in written form. The traditional data collection method of phenomenography is interviewing (Marton & Booth 1997, 129-132). These interviews are usually semi-structured meaning that open-ended questions are used to allow the respondents to focus on the dimensions on which they wish to focus and elaborate (Marton 1986). The principles of qualitative interviewing introduced by Kvale and Brinkman (2009) can be applied in a phenomenographic interview. In phenomenographic research the interviewer attempts to hold back their own prejudices and give their full focus on how the phenomenon in question is understood by the interviewee (Sandbergh 1997). However, as when conducting any kind of research, it is impossible to completely put one's own perspective aside: the researcher's experience and knowledge will always affect the interview situation (Marton 1994).

4.3 Systematic review and metasynthesis

Qualitative syntheses are relatively new in the field of physiotherapy and only one metasynthesis had been conducted before 2011 (Lachal et al. 2017). Since then, a number of qualitative syntheses have been published (e.g. Bunzli et al. 2013; O'Keeffe et al. 2016), and they are recognized as necessary tools to capture the increasing volume of qualitative research (Sandelowski & Barroso 2007; Levack 2012; Lachal et al. 2017). Synthesizing a qualitative research base is important for facilitating effective and appropriate health care (Thomas & Harden 2008) and for achieving the goal of evidence-based practice (Sandelowski & Barroso 2007, 4).

Qualitative synthesis refers to a collection of different methods that systematically review and bring together primary qualitative research findings and examine them with a new question. Subsequent findings can prompt new understandings of clinical practice, identify research gaps, and contribute to developing new clinically-oriented theories and implementation interventions in healthcare (Sandelowski & Barroso 2007, 18). A wide range of qualitative synthesis methods have many similarities but also different features (Barnett-Page & Thomas 2009). The most-commonly used methods of qualitative synthesis include meta-ethnography (Noblit & Hare 1988), metasynthesis (Sandelowski & Barroso 2007) and meta-study (Paterson et al. 2001). The process of qualitative synthesis includes a systematic approach in data collection and analysis. The data analysis process needs to go beyond the findings of individual studies and requires interpretation; a simple narrative review is not enough (Lachal et al. 2017).

We decided to conduct this metasynthesis on the basis of the principles described by Sandelowski et al. (1997, 2007) since it has already previously been used in our field (O'Keeffe et al. 2016). This included a systematic search strategy, a critical appraisal of the included studies, and classifying and synthesizing the findings (Sandelowski & Barroso 2007, 22).

4.4 Training of the physiotherapists

Three of the original studies are somewhat connected to the training of the physiotherapists and therefore I next present the contents of the training. In Study I, patients with LBP who had undergone physiotherapy delivered by the physiotherapists participating in the feasibility study before they participated in training were interviewed to understand their conceptions of their encounters in the Finnish health care system. In Study II, the participating patients had undergone physiotherapy delivered by the physiotherapists participating in the feasibility study after they had had the training, and Study III explored the physiotherapists' conceptions of participating in this training and implementing CFT in clinical practice.

To date, the training of physiotherapists to deliver CFT in clinical trials has been intensive (Vibe Fersum et al. 2013; Synnott et al. 2016;) and has included direct supervision and feedback in order to achieve competency. However, this intense approach may be a barrier to broad implementation across the profession. It is not known whether less intensive approaches are effective in training physiotherapists in CFT in a non-native English-speaking country. To keep the training in line with the usual delivery of continuing education courses, in April 2016, we conducted a training intervention that consisted of a four-day workshop and in January 2017, a two-day booster session in which twelve of the physiotherapists were able to participate. We also provided a web-based platform offering optional individual learning tasks (e.g. reporting of patient cases, reflecting on one's own learning and the opportunity to discuss this with others) and additional materials (recent research articles, videos etc.). The training had no direct clinical supervision of the physiotherapists or assessment of their competency to deliver CFT.

The aim of the training was to: 1. present a multi-dimensional framework for understanding the biopsychosocial nature of LBP, 2. provide training in communication skills for exploring the cognitive, emotional and behavioral aspects of LBP, and 3. develop an understanding of how to deliver CFT to patients with persistent LBP (O'Sullivan et al. 2018). It consisted of lectures, group discussions and patient demonstrations in line with previous studies, to enhance learning (Main et al. 2012; O'Sullivan et al. 2013; O'Sullivan et al. 2018). More detailed content of the initial workshop is presented in Table 1 and the CFT approach is described in further detail in O'Sullivan et al. (2018). The booster session included four patient demonstrations that we used to deepen the physiotherapists' knowledge of the application of CFT (Table 2). The workshops were delivered by physiotherapists Peter O'Sullivan (initial workshop) and Kasper Ussing (booster workshop), who also delivered the CFT part of the training; and clinical psychologist Steven J. Linton, who delivered the communication and psychosocial part of the training in the initial workshop.

TABLE 1 Content of initial four-day workshop

1h 45min	Overview of evidence of management of low back pain (LBP), multidimensional framework for understanding and exploring the biopsychosocial nature of LBP, beliefs and attitudes (Lecture)
2h 45min	Physical, psychosocial and lifestyle risk factors (Lecture), utilization of screening tools to identify psychosocial risk factors
1h 30min	Interview and examination
1h 30 min	Communication training
7h	Management planning, interventions (including management of fear avoidance behavior, mal-adaptive movement patterns, pain behaviors, graded activity, graded exposure), problem solving, complex cases (Lecture + group discussions, practicing the use of clinical reasoning form)
1h 30 min	Case studies
7h	Patient demonstrations (4 patients with 2 follow-up visits)

TABLE 2 Content of two-day booster session

1h 30min	Questions and answers session, discussion on participants' difficulties / obstacles and successes in integrating cognitive functional therapy into clinical practice
2h	Management of low-risk patients, movement patterns, challenging beliefs (lecture, group discussion)
7h 30min	Patient demonstrations (4 patients) with discussion and practice of the use of the clinical reasoning form

4.5 Data collection and participants

This section describes the data collection methods and participants of each study (Table 3). More details can be found in the original manuscripts. I collected the data of the original studies of this dissertation between 2016 and 2019, using semi-structured interviews of physiotherapists and patients. I also personally transcribed the audio-recorded interviews. I chose verbatim transcription because it does not allow interpretation or restatement (Sin 2010). The participants of the empirical studies were the physiotherapists who participated in the feasibility study and their patients.

In phenomenographic interviews, interaction between the interviewer and the interviewees is essential. To minimize the influence of my preconceptions on the interviews, I paid attention to the expressions that the interviewees used,

tried not to make assumptions about their meanings, and asked follow-up questions. I also avoided introducing new terms and asking leading questions. I ensured that the interviewees had time and space to talk and reflect on their experiences and tried to listen attentively without showing agreement or disagreement with what they said.

TABLE 3 Data collection and analysis methods

	Data collection time	Data collection method and number of participants	Analysis method
Study I: LBP patients' conceptions of their encounters with HCPs	2016	Semi-structured recall interviews n=17	Phenomenography
Study II: LBP patients' conceptions of undergoing physiotherapy	2018-2019	Semi-structured recall interviews n=9	Phenomenography
Study III: Physiotherapists' conceptions of learning and implementing CFT	2018 (after the booster session)	Semi-structured interviews n=22	Phenomenography
Study IV: Systematic review physiotherapists' perceptions	2019	Systematic review and metasynthesis n=113	Thematic synthesis

CFT=cognitive functional therapy, HCP=health care professional, LBP=low back pain

4.5.1 Study I

Study I was a phenomenographic study that aimed to explore LBP patients' conceptions of their encounters in the health care system in Finland. The participants of this study were volunteers who were consulting primary or occupational health care due to chronic or recurrent LBP and were categorized as high risk by the Keele STarT (Subgroups for Targeted Treatment) Back Screening Tool (SBST) (Hill et al. 2008), indicating high levels of psychological risk factors. They had been invited to participate in the study by their treating physiotherapists prior to the physiotherapists' training and I contacted them by telephone regarding their willingness to participate in the interview. In all, 17 of 23 patients (five men and 12 women) across Finland agreed to participate. They were all Finnish speaking, with a mean age of 46 years (range 20–69 years). Detailed information on the patients' gender, age and duration of interview is presented in the original publication.

I collected the data in autumn 2016. The interviews were conducted in Finnish and were open recall. The recall interview, a form of data-prompted interview,

involves playing interviewees audio or audiovisual recordings of their own behavior and discussing different aspects of these recorded interactions. Recall interviews bring the interviewees a step closer to the situation in which the researcher is interested and can prompt rich narratives and allow the interviewee to reflect on the recorded situation. Videos can be used to aid interviewees' memories and to gain insights into their thoughts, beliefs and emotions related to the recorded situation (Dempsey 2010; Kwasnicka et al. 2015). In the case of this study, this meant watching a video sequence of a physiotherapy situation in which they were involved. They were then invited to reflect on the videoed event (Dempsey 2010; Kwasnicka et al. 2015). The videos of the patients' initial physiotherapy consultation that had been recorded earlier during this project were used. Although the primary aim was to interview the patients about their conceptions of their initial physiotherapy consultation for their LBP, the recall video prompted them to recollect many other experiences and insights into their health care journey that they wanted to discuss. They were first asked to explore their views on their encounters with health care professionals in general, and after this, the final part of the interview consisted of watching the video. The interview started with the question, "Tell me about who you are, how you ended up in the current situation?", and continued dialogically (e.g. around their clinical journey, their experiences of examination, explanations and treatment, and therapeutic alliance). The interviews lasted from 43 to 89 min (mean 63 min). I transcribed the interviews verbatim, and the quotes used in the study were translated into English by a professional translator.

4.5.2 Study II

Study II explored the conceptions of patients with persistent LBP of undergoing physiotherapy delivered in Finnish primary health care by physiotherapists who had received brief training in CFT. The dataset of this phenomenographic study consisted of transcripts of nine semi-structured interviews of patients with persistent LBP who underwent physiotherapy delivered by physiotherapists who had participated in brief CFT training (see 4.4 for description of the training). Eighteen physiotherapists who underwent the training provided a video of a consultation between 3 and 16 months (mean 5 months) after the training was completed. Because this study conducted no competency checks of the physiotherapists, we did not know whether the consultations were delivered according to CFT principles. Therefore, for the purposes of this study we needed to identify participants who had experiences of physiotherapy during which psychosocial and lifestyle factors were discussed. I watched the videos and identified 12 clinical encounters in which these factors were explored with the patient in at least two areas. These included beliefs about the reasons for pain, pain-related fear, anxiety, mood, stress, how pain affected aspects of their lives such as social and work participation, physical activity, social support, treatment expectations, and the patients' values and goals. The 12 patients on these videos were then contacted and invited to participate in the study. Nine of them agreed, one declined because of mental health issues and two could not be reached. Two of the interviewees were men and seven were

women. The mean age of the interviewees was 52 (range: 31–72 years). All the participants were medium/high risk according to one or both of the Start Back Tool (Hill et al. 2008) and the short form of Örebro musculoskeletal pain screening questionnaire (Linton et al. 2011), indicating that psychosocial components were included in their pain presentation. All had persistent pain: pain duration was 24–36 weeks for two interviewees whereas the rest reported having pain for more than one year. They lived in the area of four different healthcare districts in Finland (South Karelia, Tampere, Oulu and Päijät-Häme). All the participants had previous experiences of physiotherapy. During the course of this study, the participants had attended one or more individual physiotherapy sessions and many had also participated in group physiotherapy. Pseudonyms are used to protect the participants' anonymity.

I collected the interview data using semi-structured recall interviews utilizing the participants' previously videotaped initial physiotherapy sessions, on average 1.5 years later. This delay was due to problems in receiving videos from all the physiotherapists and delays in other parts of the larger research project. An interview schedule was followed but rather than being prescriptive, it was more of a guide for the interview and did not dictate its exact course. The questions were adapted flexibly to the specific context during the interview. The participants were first encouraged to talk about their experiences of the particular physiotherapy encounter and subsequent appointments if they had had more than one, and afterwards they watched the parts of the videotaped physiotherapy sessions during which psychosocial and lifestyle factors were discussed, to encourage recall of the situation. The duration of the interviews was on average 48 minutes (range 28–69 min, total 7 h 39 min). Seven of the interviews were conducted in person in a place chosen by the interviewees and two using a video conference application due to the tight schedules of the participants. During one interview, the partner of the interviewee was present, according to her wish. Informed consent was obtained from the participants before their interviews. I, who was previously unknown to the participants, conducted the interviews in Finnish. The interviews were audio-recorded and I transcribed them verbatim (Åkerlind 2008a; Brinkmann 2013). The quotations used in the original study have been translated into English by a professional translator. The resulting data consisted of 134 pages (font = Times New Roman 12, spacing = 1.5). The transcriptions served as the raw data for the analysis and were not sent to the participants for checking (Åkerlind 2005).

4.5.3 Study III

Study III was conducted using the phenomenographic approach and aimed to explore physiotherapists' conceptions of learning the principles of CFT and integrating them into clinical practice. Twenty-two of the 23 physiotherapists who participated in the initial CFT training workshop agreed to participate in this study. One physiotherapist dropped out of the project after the initial workshop because she changed jobs.

I emailed all the physiotherapists and all 22 agreed to participate in the interviews. They were from all over Finland and worked in both public outpatient clinics (14) and occupational (8) health care units. Three of them were men and 19 women, with a mean age of 47 years (33–61). They had an average of 20 (9–31) years of clinical experience after graduation. Detailed information on the participants' gender, age, work experience, health care setting, and amount of CFT training is presented in the original publication.

I, who was not involved in planning and delivering the workshops, collected the data in the spring of 2017 after the end of the training intervention. I was present during the workshops to understand the process of the training but was otherwise unknown to the participants. The semi-structured interviews took place at the physiotherapists' workplaces according to their wishes. They were conducted in Finnish and only the interviewer and the interviewee were present. The quotations were later translated into English by a professional translator. The interviews began by asking: "Tell me about your process of learning CFT and implementing it in clinical practice" and "How do you see CFT now – what does it mean to you?" and continued dialogically according to the interviewees' answers. The interview guide (presented in the original publication) was pilot tested by a member of the research group who was not involved in this study but had undergone CFT training. The interviews lasted 62 minutes on average (47–81) and were audio-recorded. I transcribed the interviews verbatim (clean, word-to-word) (Åkerlind 2008a; Brinkmann 2013). The resulting data consisted of 368 pages (font =Times New Roman 12, spacing = 1.5). Participant validation of the transcripts/findings was not carried out (Åkerlind 2005).

4.5.4 Study IV

Study IV, a systematic review and metasynthesis of qualitative studies, explored physiotherapists' perceptions of learning and implementing biopsychosocial interventions to treat musculoskeletal pain conditions. The study was registered in the PROSPERO database (registration number: CRD42019127895, submitted for registration on 8 March 2019). The report of this review followed the guidelines of the ENhanced Transparency in Reporting the synthEsis of Qualitative research (ENTREQ) (Tong et al. 2012). We conducted a metasynthesis based on the principles described by Sandelowski and Barroso (2007), as these have been used in our field previously (O'Keeffe et al. 2016) and this approach is suitable for synthesizing data from studies that have used a variety of methodologies (Barnett-Page & Thomas 2009). Our process of conducting a metasynthesis included a systematic search strategy, a critical appraisal of the included studies, and classifying and synthesizing the findings (Sandelowski & Barroso 2007, 22).

Studies were included if they used qualitative methods for both data collection and analysis; were written in English; were peer-reviewed; included physiotherapists who had undergone training with a biopsychosocial approach and had started implementing it in practice to treat musculoskeletal conditions; and explored learning and implementing biopsychosocial interventions that inclusively target both physical and psychosocial factors, underpinned by an active

physiotherapy intervention. The same criteria were used for the mixed method studies, but they were only included if the qualitative data were analyzed separately and only this component was included in our analysis.

Two independent researchers searched the following electronic databases: MEDLINE, EMBASE, CINAHL, ERIC, PsycInfo, SportDiscus and Sociological abstracts (from inception to March 2019). In addition, I manually searched the reference lists of the identified studies. The comprehensive set of search strategies included both thesaurus terms and free-text terms, as recommended by Lachal et al. (2017), to maximize both sensitivity and specificity (Shaw et al. 2004; Lachal et al. 2017). We developed the strategy with support from a university librarian and adapted it to the search language and syntax of individual databases. Our search strategy used four groups of keywords: qualitative research methodologies, physiotherapists as the treating health care professionals, related to training or learning, and biopsychosocial or musculoskeletal pain as the condition of interest. To optimize the sensitivity and specificity of the search, two individual searches were combined because adding keywords related to the term biopsychosocial excessively restricted the sensitivity of the initial search.

All the results of the database searches were entered into bibliographic management software (EndNote X8, Thomson Reuters, New York, NY) to remove duplicates and screen the studies. I and the second author of the original paper (PS) independently screened titles and abstracts and performed a full-text review to identify which studies met our inclusion criteria. Disagreements relating to the inclusion/exclusion of studies were resolved through discussion.

I chose the Critical Appraisal Skills Programme checklist (CASP) for qualitative studies (2013) due to its extensive use in other qualitative systematic reviews in the field of physiotherapy (Synnott et al. 2015; O'Keeffe et al. 2016; Elvén & Dean 2017) and because it addresses most of the principles and assumptions underpinning qualitative research. I and the second author of the original paper (PS) independently appraised the included studies, and disagreements were resolved through discussion or by consulting a third reviewer. Articles were not rated numerically or excluded on the basis of the CASP criteria because no clear guidelines for excluding qualitative studies from synthesis have been developed or tested and some of the criteria are not relevant to all methodological approaches (Thomas & Harden 2008; Levack 2012). I conducted a sensitivity analysis showing the contribution of each of the included studies to each of the sub-themes (Thomas & Harden 2008).

A data extraction form was created on the basis of previous studies in the field, and the same information was extracted from each included paper: a description of the study population, year of publication, country, study setting, sample size, gender, age, years of experience as a physiotherapist, previous training, description of the training intervention, target population of the intervention, methods of data collection, methodological approach, aims of the study, and fulfillment of trustworthiness criteria.

4.6 Data analysis

4.6.1 Phenomenographic studies (I-III)

All three empirical studies of this dissertation followed the principles of phenomenographic analysis as described by Åkerlind (2005; 2008a, 2018). I chose a phenomenographic approach as I was interested in how the conceptions of the participants of these studies varied.

I was primarily responsible for all phases of the analysis process. As I am a physiotherapist, and during my PhD process also started applying ideas of CFT in clinical practice, it was important to be aware that my preconceptions may also influence the analysis process. As human beings, we cannot escape the fact that we are always intentionally related to the research object (Sandbergh 1997). To minimize the influence of my preconceptions on the interpretation of the conceptions of the participants, the first phases were carried out by two (Studies I and II) or three researchers (Study III). The other researchers asked questions and so I had to explain the reasons for my way of categorizing the participants' conceptions. They also asked me to show them the original quotations on which the meaning units and later theme variations were based. These discussions occurred multiple times during the research process and the emerging meanings and structures were revised in an iterative shared process. Becoming aware of how my own interpretations influence the research process can be seen more as a strength of the process than as a threat to reliable results (Sin 2010). After translating the quotations and preparing a first draft of the findings in English, all the authors participated in the process. The process did not proceed linearly, but the phases were worked on in an iterative manner (Åkerlind 2005; Åkerlind 2008a).

1. The process started by listening to the audio-recorded interviews multiple times and continued with repeated reading of the transcribed data. A Microsoft Word (Microsoft Corp, Redmond, Washington, USA) document was used for the initial coding of the data and during the analysis process.

2. Phenomenographic analysis views the data as one set rather than individual transcripts in phenomenographic analysis. Each transcript was viewed both in the context of the individual script and in the context of all transcripts and the boundaries separating individuals are abandoned (Åkerlind 2005).

3. All quotes extracted from the transcripts that were relevant to the research question made up the data pool of phenomenographic analysis. Any content of the interviews that concerned other themes not relevant to this research was abandoned. Meaning units were identified and grouped after comparing and contrasting them to identify similarities and differences. Different meanings were grouped together in terms of what they were meanings of. I also drew mind maps of the meaningful units and sorted the statements into piles and arranged them

to aid the analysis process. The different meanings were captured in terms of categories of description.

4. Identifying themes of variation determined the relations and hierarchies between the categories of description. As the variation of themes within the categories emerged, they were compared in an iterative process, confirming or contradicting the emerging structure of meanings and relationships with respect to the data. We constantly evaluated the consistency between the original data and our findings to minimize the influence of our own interpretations. This continued until a consistent set of categories was agreed on, and the core meanings of the categories were labelled, leading to no further refinements.

5. Finally, the categories were described on a more abstract level and critical aspects enabling transition between the categories were clarified. The critical aspects allowed the logical relations between the categories to be made explicit. The quotes were used in the manuscripts to illustrate each theme variation of the categories (Marton 1986). Quotes were selected and carefully examined to ensure that the intended meanings of the interviewees were conveyed and that they clarified the reported conceptions.

4.6.2 Thematic synthesis (Study IV)

For data analysis we followed the process of thematic synthesis described by Thomas & Harden (2008). The first step of the process was to extract the data from the included studies and read this data several times to become familiar with the topics. Data from the results or findings sections of manuscripts, including descriptions of findings and quotations, were extracted and transferred onto a Microsoft Excel spreadsheet (Microsoft Corp, Redmond, Washington, USA) for qualitative metasynthesis. One study (Kelly et al. 2018) had additional quotations as an appendix and we included these in the analysis. The original themes were not used in our analysis, but instead, the quoted participant statements and descriptions of findings were used to formulate new themes from the data of all the included studies.

We only used data that considered the physiotherapists' perceptions during and after the training; the views that were collected before the training were not extracted from the studies that had interviewed physiotherapists at multiple time points. Subsequently, line-by-line coding was performed and each sentence was assigned one or multiple codes to describe the content of this finding. I conducted the initial coding of the data, after which it was cross-checked by the second author of the original study (PS). The derived codes were compared and contrasted to find similarities and differences and grouped where appropriate. The grouped codes were analyzed to find patterns and overlap, to form a set of themes capturing the content of all the findings and to describe and illuminate the physiotherapists' experiences of learning and integrating biopsychosocial interventions into their clinical work.

All the stages were completed simultaneously in an iterative manner rather than sequentially (Sandelowski & Barroso 2007). All the authors of the original study reviewed, discussed and critiqued the groupings, to ensure the homogeneity of the codes and that the findings were consistent with the primary data. The quotations from the original studies enhanced the reliability of this process.

5 RESULTS

Next, I present the main results of the four articles of this dissertation. The two first studies focused on the patients' perspective. The first explored LBP patients' conceptions of their encounters in health care and the second one LBP patients' conceptions of undergoing physiotherapy delivered by physiotherapists who had participated in brief CFT training. The third study focused on the physiotherapists' perspective. The conceptions of the physiotherapists who participated this project of learning and integrating CFT into their clinical practice were explored. Finally, findings from previous studies exploring physiotherapists' perceptions of learning and implementing the biopsychosocial approach were synthesized. The results are presented in more detail in the original articles I-IV.

5.1 Study I

In the first study, the research question focused on patients' conceptions of their encounters with health care professionals. The descriptive categories of conceptions that patients with LBP had of their clinical journey in the health care system were formulated by a variation of themes. These themes were: convincing care, lifestyle change, participation, reciprocity, and ethicality of encounters (Table 4), and the themes varied in four categories: "non-encounters", seeking support, empowering co-operation and autonomic agency. The patients talked about the various health care professionals they had encountered on their clinical journey. Some conceptions specifically concerned physiotherapy, and in these cases the term physiotherapist is used instead of health care professional.

TABLE 4 Themes, variation of themes and descriptive categories of phenomenon of encounters in health care system

Themes / variation of themes	Categories of description			
	Category I “Non-encoun- ters”	Category II Seeking support	Category III Empowering cooperation	Category IV Autonomic agency
1. Convincing care	Uncertainty	Convincing interview and examination	Convincing explanations	Restoration of hope
2. Lifestyle change	Identifying the effects of LBP	Identifying the need for support	Reinventing self	New way of living
3. Participation	Inability to participate	Need for instruction	Active participation	Own responsibility
4. Reciprocity	Expert-driven	Different languages	Creating an alliance	Client-driven
5. Ethicality of encounters	Depersonalized care	Presence	Reliability	Caring physiotherapy

LBP= low back pain

The study identified a range of clinical encounters across health care, mostly with doctors and physiotherapists, but also with acupuncturists, massage therapists, etc. These encounters were meaningful to the patients, both in negative and positive ways. In the first, narrowest category, the patients were searching for help to determine what was wrong with them, but their expectations were not met in the health care system, and even though encounters took place, the connection was not built and “non-encounters” occurred. To develop the clinical journey of patients with LBP toward autonomic agency, the critical aspects between the categories can be taken into consideration (Figure 1). The first critical aspect, the step from the first to the second category, may be critical for rehabilitation to actually begin. It was essential that the health care professionals were present and that they tried to understand the patient’s needs, even though it was sometimes hard to find a common language. It was also important that the patient started to understand their own situation.

The next critical aspects appeared between the second and third categories. To progress in the conceptions between the second and third category toward a more meaningful care experience, a patient-centered approach and a strong therapeutic alliance were necessary. The responsibility for rehabilitation started to shift slowly from the professional to the patient and the patient was an active participant in their own rehabilitation. Finally, the critical differences between the third and fourth category were that the patients gained agency over their own lives and shifted from patients to individuals who were in charge of and understood their own responsibility in the rehabilitation. LBP no longer dominated their lives, but it was important that they were able to contact the professional, if needed.

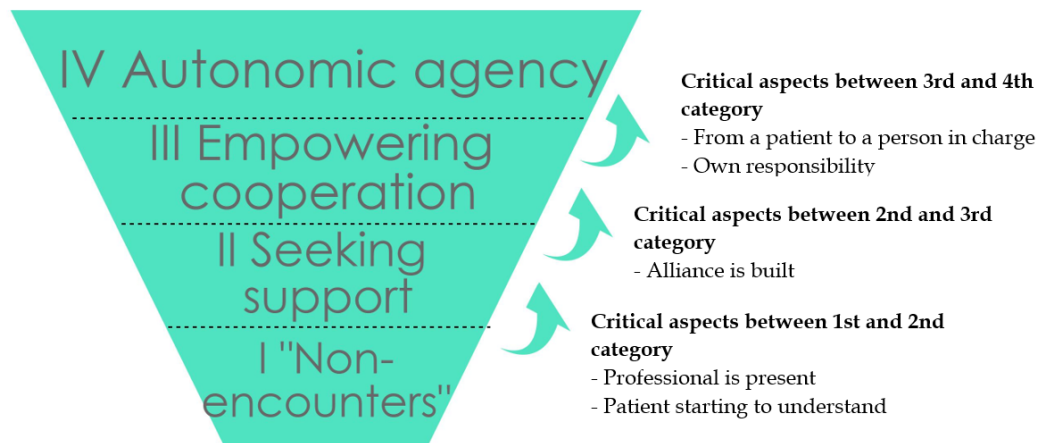


FIGURE 1 Hierarchy of descriptive categories of encounters in health care system, and critical aspects enabling the transitions between categories.

5.2 Study II

The aim of the second study was to explore the conceptions of patients with persistent LBP who had undergone physiotherapy delivered in Finnish primary health care by physiotherapists who had participated in brief CFT training.

The phenomenon of undergoing physiotherapy delivered in Finnish primary health care by physiotherapists who had participated in brief CFT training, as perceived and conceptualized by patients with persistent LBP, was captured by four hierarchical categories of description: I) Hung out to dry; II) Being stuck; III) Making sense and taking control; and IV) Holistic approach to care and living.

The categories were hierarchically structured, and the lower categories represented more developed conceptions. The categories varied on the basis of six themes: 1) Life course continuum; 2) Expectations versus experience; 3) Physiotherapist as a person; 4) Safety net; 5) Pain beliefs, and 6) Self-management (Table 5, Figure 2).

TABLE 5 Themes of variation and categories of description of undergoing physiotherapy delivered in Finnish healthcare system by physiotherapists who had participated in brief cognitive functional therapy training

Themes of variation	Categories of description			
	Category I Hung out to dry	Category II Being stuck	Category III Making sense and taking control	Category IV Holistic approach to care and living
Life course continuum	Left empty-handed	Living in the shadow of pain	Supported to take charge	Physiotherapy as a turning point
Expectations versus experience	-	Disappointment in physiotherapy	Astonishment with physiotherapy	Physiotherapy as treatment of body and soul
Physiotherapist as a person	-	Timid physiotherapist	Multidimensional knowledge of the physiotherapist	Wonderful, caring physiotherapist
Safety net	Dependence on others	Lack of social support and understanding	Valuable support net	-
Pain beliefs	Seeing the body as broken and incurable	Seeing pain as a mystery	Importance of being reassured	Seeing a human as something holistic
Self-management	Lack of support/difficulties with self-management	Trying hard without success	Supported to continue	Seeing self-management as crucial

A number of key aspects that were important in moving from the conceptions of one category to the next were identified. These aspects can be seen as important for a positive experience and perceived outcome of physiotherapy, and as leading toward conceptions in the broadest category, a holistic approach to care and living, and may be considered when aiming to deliver better care for people with persistent LBP. The critical aspects (Figure 2) observed between Categories I and II that made a difference between these categories and led to the expressions of “being hung out to dry” and “being stuck” in the process were patients’ perceptions of diminished suffering, trying to make sense of pain, and their own efforts to make it work. Common to these aspects was patients’ being active in their own rehabilitation, although this did not yet lead to better wellbeing. However, if there were positive changes, the participants did not understand the reasons behind them, and social support was still lacking.

The conceptions of undergoing physiotherapy evolved further between Categories II and III. The critical aspects between these categories that led the participants becoming “unstuck” and toward making sense and taking control of

one's own situation were wider support from the physiotherapist, family, workplace or friends, and positive experiences of physiotherapy – when disappointment turned into being positively surprised. Reassurance and the wide-ranging knowledge of the physiotherapist were important for this shift.

Finally, the critical aspects enabling the transition from Categories III to IV toward a holistic approach to care and living were collaboration with the valued physiotherapist, who was described as wonderful and caring, and multidimensional understanding of pain and more broadly, humans as being holistic. Appreciation of one's own efforts in, for example, self-management was also important. For some, physiotherapy became a turning point in their lives toward better overall wellbeing. These aspects may be seen as further enablers of positive conceptions, perceived outcomes of physiotherapy, and enablers of a holistic approach to care and living from the patients' point of view.

The barriers and enablers of positively meaningful experiences of physiotherapy, identified from the reports varied greatly. Some were related to individual aspects such as patients' pain beliefs and expectations. Other barriers and enablers were related to the care team, such as physiotherapists' qualities, and levels of social support and flexibility at their workplaces. Aspects related to the larger system and environmental level, such as discontinuation of care and financial insecurity, were also reported by patients to play a large role.

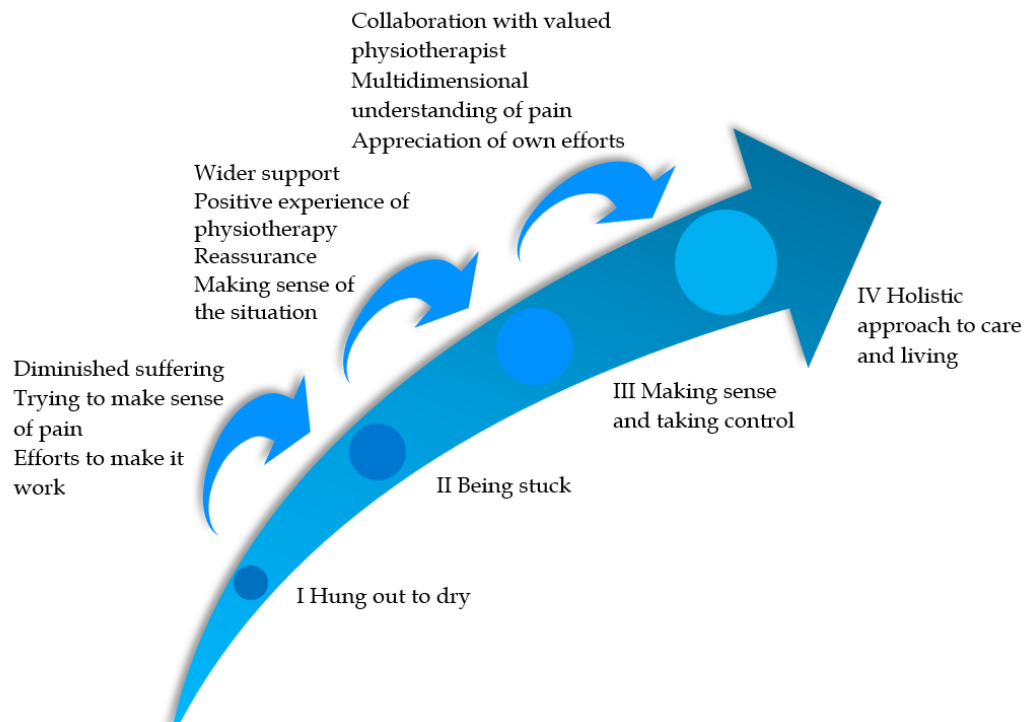


FIGURE 2 Critical aspects enabling the transitions between categories of patients' conceptions of undergoing physiotherapy delivered in Finnish primary health care by physiotherapists who had participated in brief cognitive functional therapy training.

5.3 Study III

The third research question focused on the phenomenon of learning and integrating CFT into clinical practice, as reported by the physiotherapists. This phenomenon was captured by five hierarchical categories of description: I) Recognizing the difference of the new approach; II) Toward integrating the new approach; III) Waking up to explore; IV) Commitment to the new approach; and V) Expanding the application of the new approach. These categories were hierarchically structured, and the latter categories represent more developed conceptions of learning and integration of the CFT approach than the former categories. They varied based on four themes: 1) Membership of work community; 2) Learning journey; 3) Transition to new working methods; and 4) Professional role as a physiotherapist (Table 6, Figure 3).

TABLE 6 Themes of variation and categories of description of phenomenon of learning and integrating cognitive functional therapy into clinical practice

Themes of variation	Categories of description				
	Category I Recognizing the difference of the new approach	Category II Toward integrating the new approach	Category III Waking up to explore	Category IV Commitment to the new approach	Category V Expanding application of the new approach
Membership of work community	Loneliness in work community	Organizational traditions as barriers	Desire for common language	Supportive work community	Importance of multidisciplinary
Learning journey	Resistance	Personal challenges during the journey	Being shaken	Becoming convinced	Continuous adventurous journey
Transition to new working methods	Insecurity	Combining old and new approach	Critical reflection on one's own work	Better equipped to help	Permission for creativity
Professional role as a physiotherapist	Looking at patients in a different way	Changing attitudes and language	Stepping outside one's comfort zone	Closer to the patients	Renewed professional identity

The main finding of this phenomenographic study is that physiotherapists' conceptions of learning and integrating CFT into clinical practice vary greatly. The results show that a number of factors influenced the physiotherapists' learning journey.

We identified a number of key aspects (Figure 3) that changed between the categories, which can be considered essential for the learning journey towards adopting CFT and which can be considered when planning support for physiotherapists during this process. The first critical aspect that changed between Categories I and II, was the ability to overcome resistance and to change one's views. This included accepting new ideas and implementing parts of the new approach alongside old ways of working. The conceptions of learning and integrating CFT into clinical practice evolved further between Categories II and III, and the critical aspects that changed between these categories arose from the experience of being shaken, the ability to critically reflect on one's own ways of thinking and working. This meant also stepping outside one's comfort zone to further explore the possibilities of the new approach. The critical aspects that helped the learning journey continue further from Category III to IV were support from the work community and gaining confidence in one's own skills through experiential learning, which led to becoming convinced of the new approach. Finally, the critical steps from Category IV to V that led towards expanding the application of the new approach were multidisciplinary collaboration, the use of one's creativity at work, and understanding the importance of continuous learning. Learning did not stop after the training intervention ended; it became an ongoing journey.

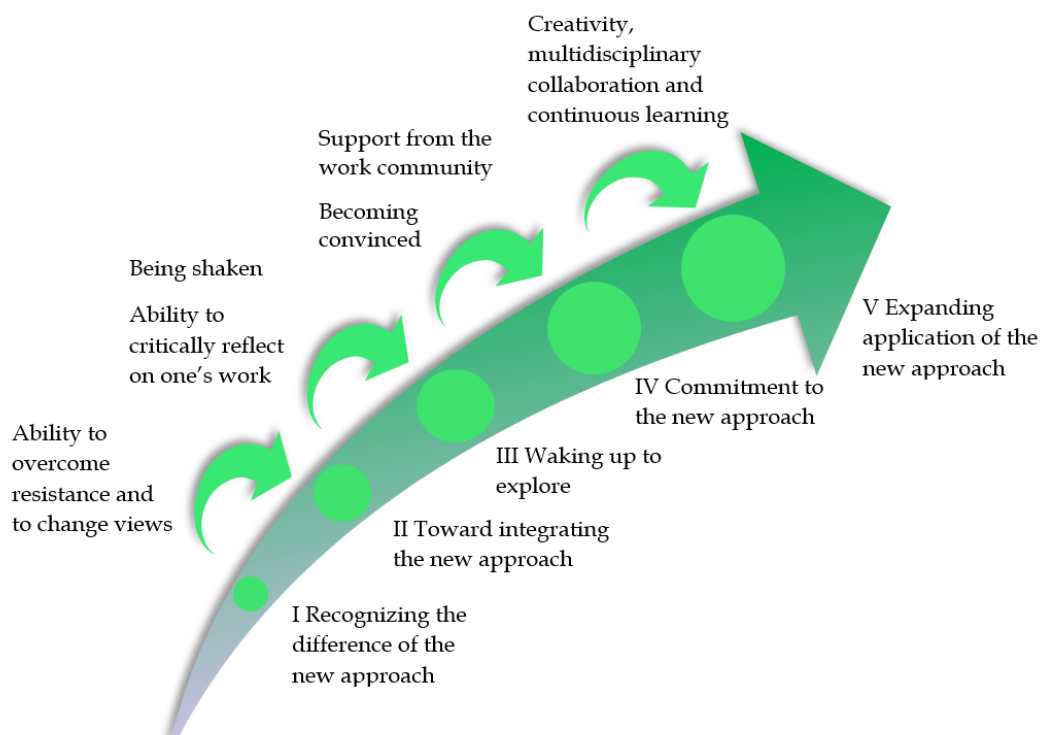


FIGURE 3 Critical aspects enabling transitions from one category to next towards more complete perceived learning and integration of cognitive functional therapy into clinical practice.

5.4 Study IV

The aim of the fourth study was to perform a systematic review and metasyntesis of qualitative studies that have explored physiotherapists' perceptions of learning and implementing a physiotherapist-led biopsychosocial intervention to treat musculoskeletal pain conditions. A flow chart detailing the selection of studies for analysis in this review is presented in Figure 4. We found 3563 articles in the databases. After removing 1150 duplicates, we screened 2413 studies for titles and abstracts and removed 2390. Twenty-four studies were included for full text screening and twelve were excluded after this phase because they did not fulfill the inclusion criteria. Twelve papers fulfilled all the inclusion criteria and were included in the review (O'Sullivan et al. 2013; Nessen et al. 2014; Nielsen et al. 2014; Sanders et al. 2014; Barker et al. 2016; Kuss et al. 2016; Synnott et al. 2016; Cowell et al. 2018; Hsu et al. 2018; Kelly et al. 2018; Lawford et al. 2018; Richmond et al. 2018).

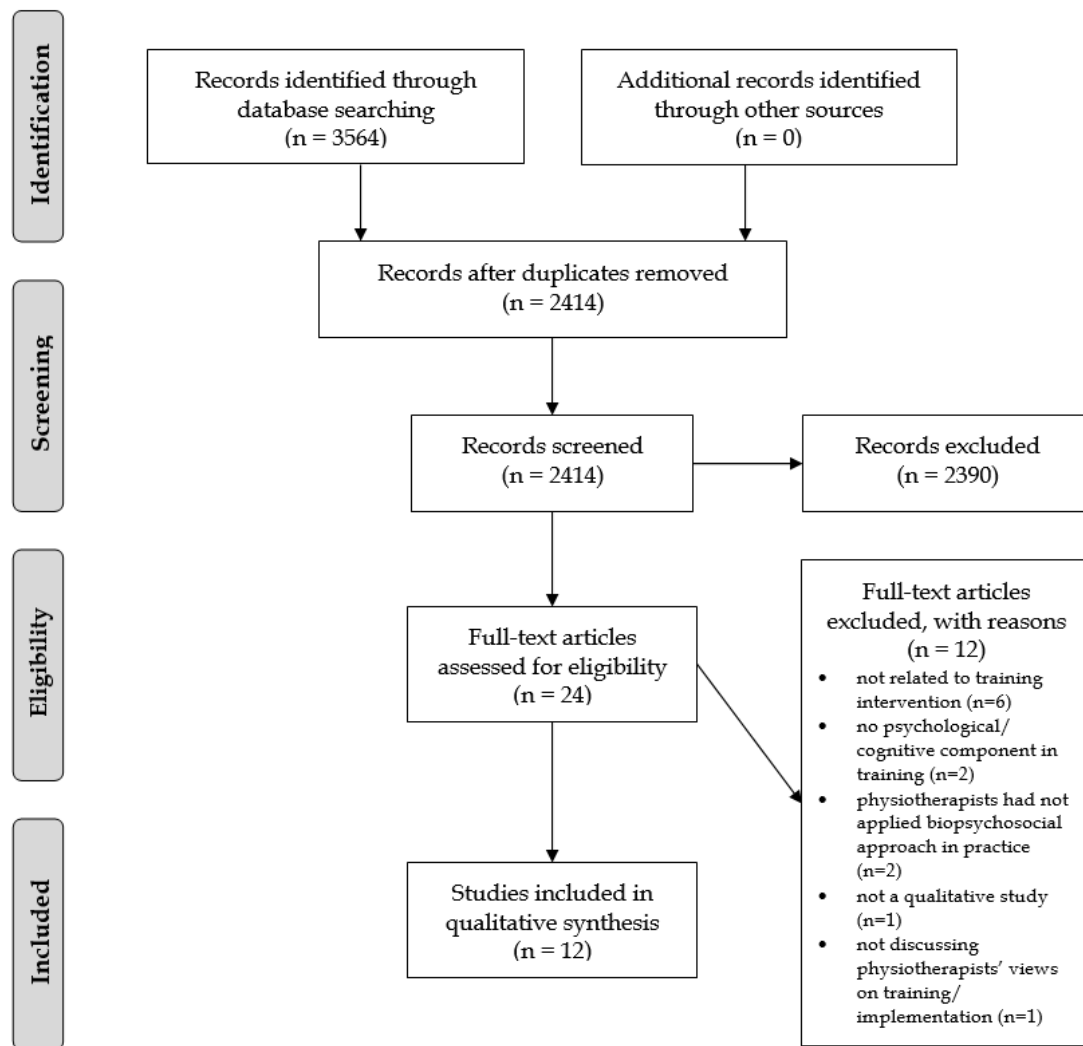


FIGURE 4 Prisma flow diagram.

A summary of the included studies is presented in Table 7. The twelve selected articles were published between 2013 and 2019. All of them were conducted in western countries (Australia, Belgium, Denmark, Germany, Ireland, Sweden, UK, and US), in private and public primary health care and hospital settings. A total of 113 physiotherapist participants were collectively involved in the included studies. Most participants had extensive work experience, although not all the studies reported this. In nine of the studies the physiotherapists were trained to deliver treatment as part of an RCT or implementation study. Three of the studies used a mixed method design, one was an action research study and others were purely qualitative. Ten studies collected the data using semi-structured interviews (face-to-face or phone/videoconference), one study used email questions and one co-operative inquiry included focus groups, reflective sessions and reflective diaries. One study (Nielsen et al. 2014) interviewed physiotherapists at four time points after the training, two studies interviewed physiotherapists before and after the training (Sanders et al. 2014; Lawford et al. 2018), and only the results from the interviews after the training were included in our analysis. Other studies had interviewed physiotherapists only once after the training period. Seven of the studies had analyzed their data using thematic analysis (Morse & Field 1995; Braun & Clarke 2006; Thomas 2006). Other analysis methods or additions to thematic analysis were content analysis (Graneheim & Lundman 2004; Mayring 2004) framework analysis (Ritchie et al. 2003), interpretive descriptive analysis (Thorne et al. 1997) and constant comparison (Strauss & Corbin 1998; Bazeley 2013; Charmaz 2014). Our own study (Study III) was conducted before this metasynthesis, but unfortunately, it could not be included in the review because it was not yet published, due to a long delay in the review process.

The interventions in which physiotherapists were trained varied considerably among the included studies. Some were individualized, others group based. Most were delivered face-to-face, with one exception which used telephone consultations. Some of the interventions targeted the management of musculoskeletal pain, others focused more on lifestyle change. Most of the interventions focused on the management of LBP. Other studies targeted the management of knee osteoarthritis, chronic pain, rheumatoid arthritis and whiplash-associated disorders. In one study, the training of the physiotherapist targeted the management of acute pain; in four studies chronic pain; but the others did not specify the duration of pain. The training interventions were based on: cognitive behavioral principles, Acceptance and Commitment Therapy, Stress Inoculation Training, person-centered practice, behavioral change techniques, graded activity, CFT, and the STarT Back approach. The duration of the training varied between 10 and 150 hours. One study used online training, two studies had only workshops, and nine had additional mentoring and support. Despite these differences, many common themes were identified.

TABLE 7 Data extraction

Study	No. participants	Previous training in biopsychosocial approach	Study aims	Setting	Methodology	Data source	Target population	Main themes
Barker et al. 2016	7	All had undergone extensive post-qualification training in psychological therapeutic techniques	To implement and evaluate a programme of introducing acceptance and commitment therapy into a physiotherapy-led chronic pain rehabilitation programme using Action Research	UK, specialist musculoskeletal hospital	Emancipatory Action Research, process of constant comparison	Focus groups, reflective sessions and reflective diaries.	People with chronic pain	1. Understanding pain as an embodied experience 2. Reconstructing 'acceptance' 3. Value-based goals a profound motivation for positive change 4. It's quite a long way from physiotherapy
Cowell et al. 2018	10	3 had undergone 6 days, and 1 had 12 days, of previous cognitive functional therapy workshops	To understand the impact of a formal training programme in cognitive functional therapy on 10 physiotherapists, including novices with no prior exposure to the concept	UK, primary care	Thematic analysis, constant comparative method	Semi-structured interviews	People with non-specific chronic low back pain	1. A challenging learning journey 2. Enhanced confidence – "Making the hard stuff easier" 3. Change in professional practice 4. Enhanced comprehension, by physiotherapist and patient 5. "This seems great, but there are obstacles to applying this ..."
Hsu et al. 2018	7	NR	To summarize learnings from a process evaluation of the MATCH trial's implementation of an adaptation of the STarT Back risk-stratified care model	US-based health care delivery system	Mixed method: Thematic analysis	Semi-structured interviews with physiotherapists who underwent training to provide care for high risk patients	People with back pain (pain duration not reported)	1. Staff Engagement and Training Reactions 2. Uptake of the Stratified Care Model and Related Resources 3. Workflow Integration 4. Perspectives on Impact on Care

Kelly et al. 2018	11	2 of 11 had previously training in acceptance and commitment therapy and cognitive behavioral therapy	To investigate physiotherapists' experiences of delivering stress inoculation training in conjunction with exercise to individuals with acute whip-lash-associated disorders as part of the randomized controlled trial, and their perceptions of using this approach in routine practice	Australia, private/public	Thematic analysis, A multi-staged inductive approach was used	Semi-structured interviews	People with acute whip-lash-associated disorders (WAD)	1. Perceived value 2. Capacity to deliver 3. Adaptation and implementation
Kuss et al. 2016	2	No previous training in graded activity	To test the acceptability and feasibility (qualitative methods), of graded activity program	Germany, primary care	A mixed method design, structured content analysis	Semi-structured interviews	Older adults with chronic low back pain	No themes identified
Lawford et al. 2018	8	3 had participated workshops on behavior change	To explore physiotherapists' experiences with, and the impacts of, a training program in a methodology that operationalises person-centred practice to support exercise adherence in people with knee osteoarthritis	Australia, mostly private setting	Thematic analysis	Semi-structured interviews	People with knee osteoarthritis (pain duration not reported)	Training experience: 1. Learning a new language 2. Challenging conceptions of practice 3. Putting it into practice Post training: 1. Defining personcentred care 2. Sharing responsibilities 3. Changed conceptions of role

Nessen et al. 2014	12	10 of 12 had previous training in behavioral medicine	To explore the experiences of physiotherapists using behavioral change techniques to coach people with rheumatoid arthritis to health-enhancing physical activity	Sweden, public gyms	Content analysis	Semi-structured interviews	People with rheumatoid arthritis (pain duration not reported)	1. Challenges in the coaching role 2. Growing into the coaching role 3. Coach education and support
Nielsen et al. 2014	8	NR	To investigate physiotherapists' experiences and perspectives of a cognitive-behavioral-informed training and intervention process	Australia, primary care	Framework analysis	Semi-structured telephone interviews	Adults with painful knee osteoarthritis (pain duration not reported)	1. Training 2. Experience of delivering the pain coping skills training program 3. Impact on clinical practice 4. Perspectives on pain coping skills training and physical therapist practice
O'Sullivan et al. 2013	12	NR	To examine whether educational, biopsychosocial workshops improve the low back pain beliefs of physiotherapists. In addition, the study aimed to identify which low back pain beliefs are modified, which factors facilitate these changes, and to compare low back pain beliefs between countries.	Ireland	Mixed method, Thematic analysis	E-mail interview	People with low back pain (pain duration not reported)	Mediators of change: 1. Presentation of convincing scientific evidence 2. Live patient demonstrations 3. Video case reports. Self-reported changes in clinical practice 1. Increased confidence in the ability to identify unhelpful beliefs during the subjective interview 2. Increased confidence in the ability to modify maladaptive beliefs and psychosocial factors 3. Increased focus on everyday functional movements as rehabilitation.

Richmond et al. 2018	11	8 had prior experience in a cognitive behavioral approach	To describe physiotherapists' experiences of implementing a cognitive behavioural approach for managing low back pain after completing an extensive online training course (iBeST), and (ii) to identify how iBeST could be enhanced to support long-term implementation before scale up for widespread use.	UK, NHS departments	Inductive thematic analysis	Semi-structured interviews	People with low back pain (pain duration not reported)	1. Anxieties about using a cognitive behavioral approach 2. Experiences of implementing a cognitive behavioral approach 3. Sustainability for future implementation of a cognitive behavioral approach
Sanders et al. 2014	20	NR	To report findings from qualitative interviews with physiotherapists to demonstrate why even minor changes to clinical work resulting from the introduction of new interventions, are often difficult to implement.	UK, primary care	Thematic analysis, constant comparative method	Qualitative interviews with physiotherapists who underwent training to provide care for high risk patients	People with back pain (pain duration not reported)	1. "incoherence in back pain care" 2. "soft disruption" 3. "hard disruption"
Synnott et al. 2016	13	NR	To explore physiotherapists' perspectives on treating the biopsychosocial dimensions of chronic low back pain after receiving intensive cognitive functional therapy training	Belgium, Australia, Denmark, Ireland,	Interpretive descriptive analysis	Semi-structured telephone and skype interviews	People with chronic low back pain	1. Self-reported changes in understanding and attitudes 2. Self-reported changes in professional practice 3. Scope of practice 4. Increased confidence and satisfaction

NR= not reported

The analysis process resulted in a total of 45 initial codes, which were reduced and organized into 4 themes and 16 subthemes, as presented in Table 8. Four key themes that describe the phenomenon of learning and implementing a biopsychosocial intervention in the management of musculoskeletal conditions emerged from the thematic synthesis: 1. changed understanding and practice, 2. professional benefits, 3. clinical challenges, and 4. learning requirements. The results of this study indicate that even though the physiotherapists reported many positive changes towards using the biopsychosocial approach as well as professional benefits as a result of the training, current training approaches seem to be insufficient for helping all physiotherapists gain confidence in delivering a biopsychosocial intervention. Many physiotherapists seemed to be struggling to deal with psychosocial issues and have concerns about professional boundaries. This study provides insights into the individual clinical challenges that physiotherapists may experience when trying to change their practice behaviors.

TABLE 8 Overview of themes and subthemes

Themes	Subthemes
1. Changed understanding and practice	Biopsychosocial understanding and application
	Person-centered care
	Enhanced therapeutic alliance and communication
	Wider application of new skills
2. Professional benefits	Increased confidence as a result of new skills
	Effective practice
	Increased job satisfaction
3. Clinical challenges	Discomfort when dealing with psychosocial factors
	Consideration of professional role
	Resistance/questioning the new approach
	Overwhelmed by amount of new information
	Difficulty changing practices
	Patients' beliefs and expectations
	Time constraints
4. Learning requirements	Structured learning, diverse learning methods during workshops
	Ongoing process, support

6 DISCUSSION

This section begins with a brief overview of the key findings of the original studies. It then discusses theoretical considerations of meaningful physiotherapy in the management of musculoskeletal conditions and transformative learning process of the physiotherapists and presents the clinical and educational implications of the results of this dissertation. Methodological reflections and ethical issues are presented, and finally challenges for future research are outlined.

6.1 A brief overview of the key findings

The aim of this dissertation was to explore the meaning of the biopsychosocial approach in the management of musculoskeletal conditions, from the perspectives of patients and physiotherapists. To reach this aim, three phenomenographic studies and a systematic review and metasynthesis of qualitative studies were conducted. The findings of each original paper contribute to the overall understanding of this phenomenon. In the following section, first the main results of each study are summarized. Table 9 presents a summary of the categories of the phenomenographic studies and main themes of the metasynthesis. These results are then further elaborated from three perspectives of this dissertation. What is meaningful in physiotherapy, healthcare encounters and learning and implementing a new therapeutic approach into practice in the management of musculoskeletal conditions, is viewed from three perspectives included in this dissertation: patients (studies I and II), physiotherapists (study III) and research literature (study IV).

The first study explored LBP patients' conceptions of their encounters in the Finnish health care system. The patients' conceptions varied greatly, from negative experiences that the interviewees described as "non-encounters" to lifechanging encounters with healthcare professionals that supported patients' autonomic agency. The critical aspects that led towards autonomic agency were professionals 'being present' and patients starting to understand their LBP, a

strong therapeutic alliance and active participation of the patient, and the patient being in charge and taking responsibility while knowing that help is available if required.

The purpose of the second study was to explore the conceptions of LBP patients who had undergone physiotherapy delivered in Finnish primary healthcare by physiotherapists who had participated in brief CFT training. Although the participants accepted biopsychosocially oriented physiotherapy well, restricted access to care within the health care system and a lack of social support led some of them to feel they had been left alone to suffer with their pain. The aspects that may be related to positive conceptions of participating in physiotherapy and positive perceived outcomes included positive experiences of physiotherapy and good collaboration with the physiotherapist, wider social support outside of physiotherapy, a better understanding of the multidimensional nature of pain, and the acquisition of self-management skills.

The third study aimed to explore physiotherapists' conceptions of learning and integrating CFT into clinical practice in Finnish primary health care. The participants' responses to the training varied greatly, suggesting that for some, the training was insufficient to support adequate changes in their practice behavior, whereas for others, the training was a life-changing experience. The critical aspects that supported the transitions between the categories that can be seen as enablers of the integration of CFT into clinical practice were the physiotherapists' ability to overcome resistance and change their views, being shaken, and the ability to critically reflect on their work, support from the work community and becoming convinced, creativity, multidisciplinary collaboration, and continuous learning.

The aim of the systematic review and metasynthesis of qualitative studies was to explore the physiotherapists' perceptions of learning and implementing a biopsychosocial intervention to treat musculoskeletal pain conditions. The results of this study indicate that although the physiotherapists reported a shift toward more biopsychosocial and person-centered approaches, the training interventions according to themselves did not help them feel sufficiently confident in delivering all the aspects of the approaches. Adequate training, as suggested based on the results may include individualized mentoring related to psychosocial factors, and discussion of role boundaries, patient expectations, and organizational factors such as time constraints and referral pathways.

TABLE 9 Summary of results of Studies I-IV

Studies	Categories of description				
I From "Non-encounters" to autonomic agency. Conceptions of patients with LBP about their encounters in the health care system	"Non-encounters"	Seeking support	Empowering cooperation	Autonomic agency	
II Patients' conceptions of undergoing physiotherapy for persistent LBP delivered in Finnish primary health care by physiotherapists who had participated in brief training in CFT	Hung out to dry	Being stuck	Making sense and taking control	Holistic approach to care and living	
III Physiotherapists' conceptions of learning and integrating CFT into clinical practice	Recognizing the difference of the new approach	Towards integrating the new approach	Waking up to explore	Commitment to the new approach	Expanding application of the new approach
	Themes				
IV Physiotherapists' perceptions of learning and implementing a BPS intervention to treat musculoskeletal pain conditions. A systematic review and metasynthesis of qualitative studies	Changed understanding and practice	Professional benefits	Clinical challenges	Learning requirements	

LBP= low back pain, CFT= cognitive functional therapy, BPS = biopsychosocial

The following discusses the phenomenon of meaningful physiotherapy in the management of musculoskeletal conditions from the perspectives of the three

empirical studies (perspectives of patients and physiotherapists) and the metasynthesis of qualitative research literature (physiotherapists' perspective).

Patients' perspective. Study I and II shed light on what is meaningful physiotherapy in the management of LBP from the patient's perspective. Four common themes emerge from the critical aspects of these studies: therapeutic alliance and patient-centered care; creating a common multidimensional understanding of pain; active participation and adequate support.

The participants highlighted the significance of a good therapeutic alliance and patient-centered care, that the professional was present and that they felt heard and understood; many of them had negative experiences of encounters in health care. They also saw creating a common multidimensional understanding of pain with their physiotherapist as an important part of meaningful physiotherapy. The patients reported that the physiotherapist plays an important role in helping make sense of their pain through reassurance, convincing interview and examination as well as convincing explanations in understandable language. This enabled the patients to see themselves and their pain more holistically and create trust in their bodies. Being active participants in therapy and thereby gaining confidence was also perceived as part of meaningful physiotherapy, enabling them to shift from a patient to a person in charge. The participants also highlighted the importance of understanding their own responsibility and appreciating their own rehabilitation efforts. They reported that meaningful physiotherapy included adequate support, that could come from a caring physiotherapist, partner, workplace or friends. Continuation of care is also important for patients not to feel left alone. Even though patients could gain independence in managing their situation, they wished for help to be available when needed.

Physiotherapists' perspective. Study III explored physiotherapists' conceptions of learning and implementing CFT in clinical practice and identified critical aspects of the phenomenon, which can be seen as components of meaningful CFT training, and lead towards more meaningful physiotherapy for patients with musculoskeletal conditions. The results of this study suggest that meaningful CFT training includes adequate support during the process when the physiotherapists attempt to make sense of the biopsychosocial approach to care, and implement it into practice, which includes a great deal of new things to digest for most physiotherapists. Furthermore, meaningful training facilitates the change towards biopsychosocial understanding of pain whilst taking into account the possible resistance that occurs when the previous beliefs of the physiotherapists are challenged.

This study also suggests that physiotherapists need support to change their professional role from a fixer towards an enabler of patients' own realizations, and to build skills for creating a strong therapeutic alliance and communication skills. The physiotherapists highlighted the value of support from their work community as well as flexible organizational processes, but many reported the lack of these presenting barriers to learning. Flexible processes and support enabled them to work in a way that supported their new skills, which could be considered when planning meaningful training interventions for physiotherapists. From the physiotherapists' perspective, for the training to be meaningful,

special focus should be given to learning skills for assessing and dealing with the psychosocial aspects of patient's pain presentation, as several physiotherapists reported lack of confidence in this area even after the training. Change in practice may also require a longer training process and ongoing support to implement new skills in practice and to be able to gain confidence and use creativity in one's work. However, the competency of the physiotherapists and treatment fidelity have not yet been evaluated, and are the focus of future studies, which are the responsibility of another PhD study.

Literature perspective. The perspective of physiotherapists who had participated in training in different biopsychosocial interventions in the management of musculoskeletal pain conditions was explored through a systematic review and metasynthesis of qualitative studies (Study IV). What physiotherapists saw as meaningful in training was that it resulted in changes in their understanding and practice through supporting their biopsychosocial understanding, person-centered care, therapeutic alliance and communication and ability to apply these skills more widely. Based on the results of the studies included in the metasynthesis, meaningful training would result in increased confidence as a result of new skills, more effective practice and increased job satisfaction. The training would also support them when they face challenges during the process, such as discomfort when dealing with psychosocial factors, consideration of the professional role, resistance towards the new approach, difficulty in changing practices, patients' negative beliefs and expectations as well as time constraints. The results of the studies included in the metasynthesis show, that meaningful training could be achieved by arranging an ongoing, long-term learning process and support and use of diverse learning methods during the training.

All of these three perspectives of this dissertation further illuminated the phenomenon of meaningful physiotherapy in the management of musculoskeletal conditions. The following chapter, in discussion with the literature, theoretically considers expanding awareness of what is meaningful in the management of musculoskeletal conditions from the patient and physiotherapist perspectives.

6.2 Theoretical considerations of the phenomenon

The findings of the three empirical studies (I, II and III) of this dissertation form a broad picture of what is meaningful in the management of musculoskeletal conditions from patient and physiotherapist perspectives. The findings also reflect a process of expanding awareness, as described in the theoretical framework of the phenomenographic approach that defines learning as transition from one way of understanding a phenomenon to another (Marton & Booth 1997; Marton et al. 2004; Marton 2015). The process of expanding awareness and a transformation are needed when applying new approaches in practice, for example, when aiming toward a better understanding of the meaning of the biopsychosocial approach.

In the context of physiotherapy, changing attitudes and beliefs and learning theoretical knowledge is not enough; a change on the level of clinical practice is

needed to reach the aim of continuing professional development – better care for patients and better clinical outcomes (Nolan et al. 1995; Perry 1995). Learning theories vary greatly, but the idea of the transformational learning theory seems to fit well with the process through which the physiotherapists in particular go through when they are familiarized with the biopsychosocial approach. The transformational learning process seems to take place as the participants attempt to make sense of the new approach through creating new knowledge and skills by critical reflection and constant reevaluation of their knowledge (Mezirow 1991; Clark 1993; Daley & Cervero 2016).

However, it is not only the physiotherapists, who need a change in their understanding, when being introduced to new therapeutic approaches. There seemed to be many commonalities between the patient and physiotherapist perspectives, in what they go through when familiarizing themselves with the biopsychosocial approach and attempting to make sense of it. Five common themes of the phenomenon can be identified, from the physiotherapists' and patients' accounts in the empirical studies of this dissertation. These can be seen as essential components of expanding awareness towards a better understanding of the meaning of the biopsychosocial approach in the management of musculoskeletal conditions: a) Difference of the new approach; b) Understanding of pain; c) Patient-centered care; d) Gaining confidence and e) Support (Figure 5).

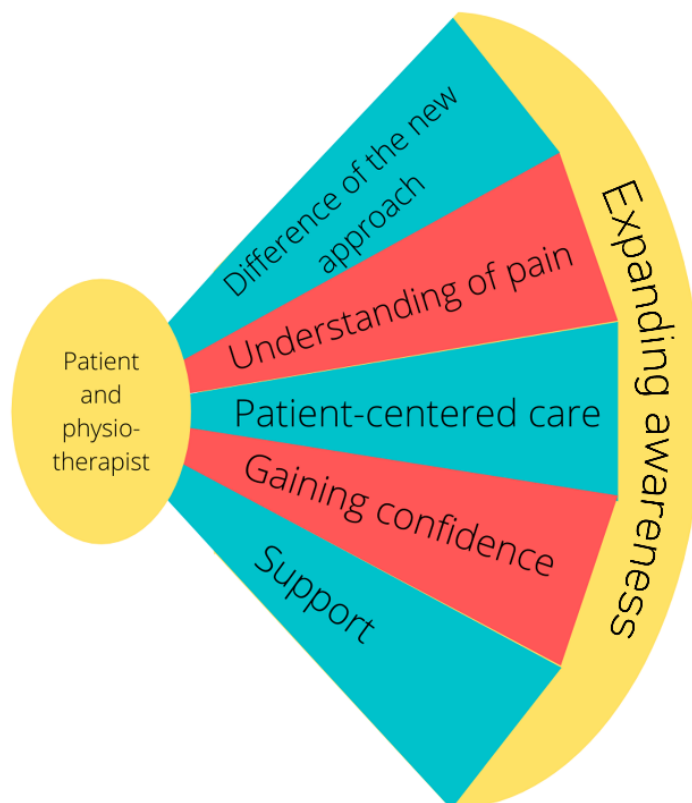


FIGURE 5 Themes of expanding awareness towards a better understanding of the meaning of the biopsychosocial approach from the patient and physiotherapist perspectives.

In the following section, these themes are discussed and compared to findings from previous literature (Study IV of this dissertation and other relevant studies in the field). All the themes are shared between patients and physiotherapists, but some of them are more strongly presented by physiotherapists and others by patients. In the description of the themes, what was common to patient and physiotherapist perspectives is described first, followed by what was meaningful specifically from the patient perspective and then from the physiotherapist perspective. Finally, examples from the studies included in the metasynthesis are given.

6.2.1 Difference of the new approach

Both the patients and physiotherapists reported that the biopsychosocial approach was strikingly different from their previous understandings of physiotherapy and the management of musculoskeletal conditions that many studies have described as being biomedically focused. Becoming familiar with the biopsychosocial approach seems to have been a learning journey for both physiotherapists and patients, which in some cases seems to have been a life-changing experience. However, for others, the journey had stopped due to various reasons.

At the beginning, some of the patients (Study II) expressed disappointment with physiotherapy because it was not what they expected. However, in the end many reported being positively surprised by the new approach and they saw physiotherapy as a treatment of body and soul, not just the treatment of a painful back. A previous study that explored patients' perceptions of undergoing PIP found that patients experienced it as uniquely different from non-psychologically informed physiotherapy approaches because it focused on working with the patient's whole experience, not just with the painful body part (Wilson et al. 2017).

The physiotherapists described their CFT learning journey in various ways. Most reported considerable resistance towards the new approach in the beginning since it was very different to their previous ways of working and as their previous beliefs were questioned, many described the process as being shaken or being "hit over the head". The themes considering physiotherapists, which are unique to our study in comparison to previous studies exploring physiotherapists' perceptions of learning and implementing the biopsychosocial approach in the management of musculoskeletal conditions, were resistance towards the training style and the new presented knowledge during the initial workshops. Almost all (11/12) of the studies in our metasynthesis discuss the theme of resistance and questioning the new approach, but none of them focused on the physiotherapists' perceptions during the workshops. For example Richmond et al. (2018) reported that the participants of their study saw the cognitive behavioral approach as very different from their previous practice which caused difficulties for some of the participants (Richmond et al. 2018) and some physiotherapists struggled to understand how the principles and techniques related to the new approach could be applied in their consultations (Lawford et al. 2018). Three studies also reported that the participants felt overwhelmed by the amount of

new information related to the new approach (Nessen et al. 2014; Cowell et al. 2018; Lawford et al. 2018).

6.2.2 Understanding of pain

Expanding the awareness towards the biopsychosocial understanding of pain and the management of musculoskeletal conditions required changing beliefs about pain as described by both physiotherapists and patients. All of the three empirical studies (I-III) of this dissertation describe the expanding awareness and transformational learning process of the physiotherapists and patients towards understanding pain as a biopsychosocial experience. Many patients (Studies I and II) reported seeing pain as a mystery, being uncertain about the cause of the pain and seeing their body as broken and incurable. Many negative beliefs about pain were expressed. For some of the patients, undergoing physiotherapy seems to have led to multidimensional understanding of pain and to seeing the human as something holistic. In a previous study by Bunzli et al. (2016) changing beliefs towards biopsychosocial is reported as one key determinant of positive treatment outcomes. Creating a common understanding and language around pain seems to be important for patients to feel heard and understood (Study I). Furthermore, patients reported that reassurance, convincing explanations and empowering cooperation with their physiotherapists were important for helping them make sense of their situation. In Study II patients described the multidimensional knowledge of the physiotherapist as being important in helping them broaden their understanding. Physiotherapy was described as a turning point in the lives of some patients (Studies I and II).

Some of the physiotherapists (Study III) reported that as a result of the training, they started looking at their patients differently, with broader awareness, and that their attitudes and language that they used became more biopsychosocial. Physiotherapists (Study III) also identified that it was problematic that professionals offered different explanations of pain to their patients and hoped for a common language to be used by all health care professionals. Physiotherapists in most (9/12) of the studies in our metasynthesis also reported perceived changes towards biopsychosocial understanding of pain. For example, Synnott et al. (2016) reported that many physiotherapists who participated in CFT training stated that previously, the biomedical approach had dominated their practice and the training improved their understanding of the multidimensional nature of pain.

The physiotherapists (Study III) reported themselves trying to make sense of what the biopsychosocial approach meant to their work. They stated that they needed to step outside their comfort zones and slowly became convinced that the new approach was useful. This was reported to require critical reflection on their own work, and some reported a renewed professional identity, assuming the role of a coach and enabler of patients' own realizations instead of trying to fix things for the patient. The patients' negative beliefs about pain and expectations of physiotherapy were seen as barriers to using the biopsychosocial approach and

more than half (7/12) of the studies included in the metasynthesis reported similar findings. However, some of the physiotherapists who had participated in CFT training reported that the training had increased their ability to identify and challenge patients' beliefs and thoughts (O'Sullivan et al. 2013; Synnott et al. 2016; Cowell et al. 2018). Most studies (9/12) in our metasynthesis reported that physiotherapists reconsidered their professional role as a result of the training, which was not always easy. Physiotherapists in a study by Barker et al. (2016) reported that they found it challenging to become more of a coach instead of giving advice. Based on the results of the metasynthesis (Study IV), this indicates, that understanding what it means to work within a biopsychosocial framework may require a change in what it means to be a physiotherapist. If the care is to be more patient-centered, it means that professionals may need to see patients as active participants of rehabilitation and as experts in their own situation. If the role of the patient shifts, this also means a change in role of the physiotherapists. The professional boundaries, maybe even the definition of physiotherapy, at least what it means to current physiotherapists as well as the public understanding of what happens in physiotherapy, may need to be broadened to take into consideration the patient's whole life situation to create more meaningful physiotherapy.

6.2.3 Patient-centered care

Patient-centered care and especially one important component of it, creating a strong therapeutic alliance were described as important by both the patients and the physiotherapists in all the three empirical studies (I-III). Both aspects have been highlighted as essential components of the biopsychosocial approach and a positive therapeutic alliance is known to have positive influences on patient outcomes (Ferreira et al. 2013). Bunzli et al. (2016) also reported that patients with positive CFT outcomes were more likely to report a strong therapeutic alliance with their physiotherapists. The importance of therapeutic alliance was also emphasized by participants of a study by Wilson et al. (2017). Many patients (Study I) reported having negative encounters in health care, "non-encounters" in which the professional was physically but not mentally present, and the care was perceived as depersonalized. The patients felt like they spoke a different language to the professionals and that the care was expert driven. There were almost no such reports concerning the physiotherapists in Study II, in which the physiotherapists had received training in communication. We conducted another study outside this dissertation, which evaluated physiotherapists' validating and invalidating communication using the same videos as those used in the qualitative studies, which were recorded before and after the training. The results show that the communication was more validating in the videos recorded after the training (Holopainen et al. submitted).

In studies I and II, the patients reported empowering encounters with professionals were reported that led the patients out of the vicious cycle of pain. The patients said it was important that the professional was present, reliable and caring. To summarize, the results of the Studies I and II suggest that care for patients with persistent LBP may benefit from being patient-centered and adaptive to

their pain beliefs, expectations of treatment, levels of self-efficacy, functional limitations, and social circumstances.

The physiotherapists (Study III) reported that they felt they were closer to their patients as a result of the training, which indicates an expanding awareness of the importance of therapeutic alliance. Most (10/12) studies in our metasynthesis reported physiotherapists gaining new understanding of the importance of patient-centered care and, for example, Lawford et al. (2018) reported that the therapists noticed that they should be less prescriptive in their practice. In most (9/12) studies, the physiotherapists reported an enhanced therapeutic alliance and communication as a result of the training. Therapeutic alliance and good communication were seen as essential prerequisites for addressing cognitive, psychological and social factors and as encouraging patients to take a more active role in their rehabilitation (Nielsen et al. 2014; Sanders et al. 2014; Synnott et al. 2016; Cowell et al. 2018; Lawford et al. 2018). This may help avoid “non-encounters” in healthcare and create more meaningful encounters that could lead towards the autonomic agency of patients. However, several studies included in the metasynthesis reported time constraints as barriers to delivering patient-centered biopsychosocial care to patients.

6.2.4 Gaining confidence

The patients and physiotherapists described the importance of gaining confidence for using new knowledge and skills in practice. As reported in Studies I and II, several patients perceived a lack of support for self-management and felt unable to participate in their own rehabilitation despite trying hard to do so. On the other hand, through positive encounters with professionals, some of them felt they changed from the role of a patient to that of a person in charge of the situation, thus understanding their own responsibility in rehabilitation and appreciating their own efforts. Moreover, they felt empowered to find a new way of living.

Our qualitative findings from the patients’ perspective are in line with the results of Bunzli et al. (2016), in which achieving independence was related to positive CFT outcomes. Furthermore, these findings resonate with the results of recent quantitative studies that have explored the mediators of therapeutic outcomes in the management of LBP. A recent RCT showed that the main mediator of reduction in disability among patients with chronic disabling LBP undergoing CFT, was increased self-efficacy, however, more research of the mediating factors is needed to confirm these results (O’Neill et al. 2020). Furthermore, Caneiro et al. (2019b) identified that reduced fear and pain and increased pain control were mediators of pain and disability reduction and observed individual variation in this. A replicated case series study by Wernli et al. (2020) reported that the changes in pain or activity limitation were often, but not always associated with changes in movement behaviors related to the lower back becoming less protective. In cases in which these relationships were observed, the clinical improvement was mostly related to the range of movement and velocity during bending

and lifting tasks, reduced EMG activity of the lumbar muscles in maximum flexion and increases in posterior pelvic tilt in sitting and standing, which might indicate increased confidence in moving one's body (Wernli et al. 2020). It should be recognized that other factors outside the scope of these studies may also result in increased confidence in movement.

Many of the physiotherapists (Study III) reported previous frustration in working with patients with persistent pain. Despite participating in CFT training, some reported insecurity in working within the biopsychosocial framework, especially insecurity and discomfort when dealing with psychosocial factors. This finding is similar to the results of many (7/12) of the studies in our metasynthesis as well as those of previous studies that have explored physiotherapists' perceptions of the use of psychosocial interventions (Alexanders et al. 2015; Driver et al. 2017). This could mean, for example, fear of opening a "can of worms" or "Pandora's Box", when asking open questions and discussing patients' values (Barker et al. 2016; Richmond et al. 2018). However, other physiotherapists (Study III) reported increased confidence in their own skills as a result of the training. They felt they were better able to help their patients and that they now had permission to be creative in their work, to use their skills more broadly. This meant continuous learning that did not stop after the workshops.

The findings of our metasynthesis were similar to the findings of our empirical study (Study III) as in almost all (11/12) of the included studies the physiotherapists reported increased confidence in managing patients with pain and more effective practice as a result of new skills. For example, Sanders et al. (2014) reported, that the training and mentoring program was perceived to equip physiotherapists with new skills and confidence to manage even patients who had complex health problems. Similarly, Kelly et al. (2018) reported that physiotherapists who had participated in training felt that their patient outcomes had improved as a result of their new skills in facilitating patient recovery. Some physiotherapists in our empirical study (Study III), as well as a few previous studies reported increased job satisfaction as a result of learning and integrating the biopsychosocial approach in their clinical practice (Sanders et al. 2014; Barker et al. 2016; Synnott et al. 2016).

6.2.5 Support

Both the physiotherapists and patients highlighted the importance of support while attempting to make sense of the biopsychosocial approach and gaining confidence. The participants of Study II seemed to accept the biopsychosocial approach in physiotherapy, but the outcomes reported by the patients were not favorable for everybody. The results of Studies I and II indicate that many patients perceived that our health care system does not work optimally, and leaves patients stuck in the vicious cycle of pain. On the other hand, some reported that sometimes even one meaningful encounter helped the patients out of the vicious cycle of pain. Some patients (Study II) reported being hung out to dry, left empty-handed by the health care system and having no continuation of care, social sup-

port or understanding from their families and friends, and being financially dependent on others. Also patients in Study I reported a need for more support. On the other hand, others reported having a valuable support net as important in being able to live well despite pain. Collaboration with the caring physiotherapist was also reported as being an important support.

Arranging only workshop-based training for physiotherapists may not be enough support for physiotherapists to adequately help their patients. It has been suggested that healthcare systems should provide flexibility and ongoing support for people with disabling pain problems, in line with the care that patients with other chronic health disorders receive (Lewis & O'Sullivan 2018). For example, the loneliness and lack of social support experienced by patients may be important factors which could be modifiable, and financial concerns seem to play a significant role in the suffering of some patients with LBP, as seen in the results of Study II. These are themes that most training interventions for physiotherapists do not seem to cover (Simpson et al. in press) and that the physiotherapists (Studies III and IV) did not bring up.

The physiotherapists (Study III) also reported that they need support during their process of learning and implementing CFT in their clinical work. We can see that the learning and implementation of this approach without adequate support is challenging (Study III). Some physiotherapists (Study III) reported feeling lonely in their work communities as there were no other professionals who understood CFT. Personal challenges were also described by the physiotherapists, such as lack of English skills as the training was arranged in English, and other issues going on in their lives that prevented them from concentrating fully on learning. Simultaneously others reported that supportive work community and collaboration with other professionals were important enablers of learning. In three of the studies of our metasynthesis, difficulties in changing practice habits were reported (Kelly et al. 2018; Lawford et al. 2018; Richmond et al. 2018). Formal training was seen as not being enough; instead ongoing learning process and support were reported as important by physiotherapists in most (9/12) of the studies. For example, Nielsen et al. (2014) reported that the physiotherapists saw weekly group meetings as essential as they provided interpersonal support and helped them deliver the intervention and solve the problems they faced.

6.2.6 Transformational learning process of physiotherapists

Based on the results of this dissertation, a change towards more meaningful, biopsychosocially oriented physiotherapy requires transformative learning of the physiotherapists towards a better understanding of the meaning of the biopsychosocial approach in the management of musculoskeletal conditions. Expanding the awareness of the physiotherapists allows them to work as supporters in the process their patients go through as they attempt to make sense of their pain in the biopsychosocial framework and coach them towards achieving autonomic agency in the management of their situation. The critical aspects from the results of Study III can be seen as stepping stones towards the expanding awareness of the physiotherapists. The first stepping stone, building on the first critical aspect

identified in Study III, the ability to overcome resistance and change one's views, can be seen as a prerequisite for getting started with the learning and transforming one's expertise. Secondly, being shaken during the process can be seen as the driver of transformation together with critical reflection of one's practice. Becoming convinced of the new approach can be seen as the third stepping stone of this transformative learning process, and a prerequisite of one's commitment to the new approach. Support from one's work community is a significant enabler of this process. The fourth and final stepping stone towards expanding awareness is understanding the value creativity and engagement in continuous learning. Creativity is required for transformation and to move away from the old routines. (Figure 6)

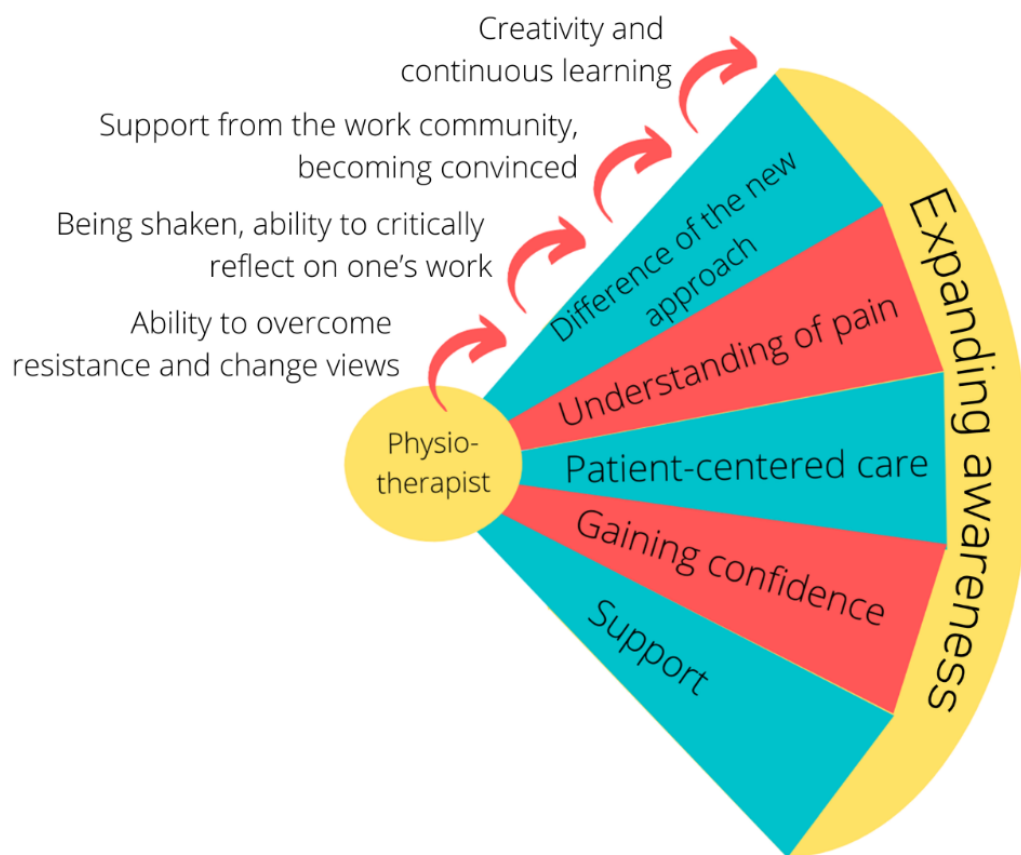


FIGURE 6 Stepping stones for expanding the physiotherapist's awareness towards a better understanding of the meaning of the biopsychosocial approach.

Finally, it is notable that very different biopsychosocially oriented approaches and training interventions seem to have resulted in many commonalities in the perceptions of physiotherapists, as can be observed in the results of the metasynthesis (Study IV). Hence, we can ask whether the challenges faced by the physiotherapists (Studies III and IV) were specifically related to the biopsychosocial approach itself, or whether they were related to a wider context of learning. If we conducted similar studies among physiotherapists, for example, learning manual

therapy skills, would the results differ? Does the issue concern the actual approach or is it more about the common themes related to learning and understanding new approaches, and applying them to practice, in the context of physiotherapy in general? The training interventions used in the studies were different, but the perceived challenges and positive aspects reported by the physiotherapists seemed to vary, not so much among the different studies but among the different individuals. Could this also be explained by the differences between individual learners and their preferred learning styles, needs and availability of support, and other individual and contextual factors rather than by the efficacy of a training intervention, that was not individualized?

6.3 Clinical and educational implications

One underlying aim of this research project, and the goal of the wider CFT research team, is to further improve these interventions and the training of physiotherapists, and to understand whether the pursued interventions are feasible for clinical practice in different health care systems. Therefore, the results of this dissertation are important, as they help us understand how physiotherapists and patients perceive this approach. These results, combined with previous knowledge from the literature, lead to a number of suggestions when working toward more meaningful physiotherapy practice. Practical suggestions are given that may be considered when working with patients with musculoskeletal conditions and guiding them towards the advisable new understanding and approach. Simultaneously, suggestions are made to expand the awareness of the professionals to see the world through their patients' eyes and provide meaningful, patient-centered and biopsychosocially oriented care that could be one component in tackling the barriers to recovery that patients face. These themes could also be considered in planning the content of biopsychosocial training interventions for physiotherapists. As the results of our studies resonate with the ideas of systems-based practice and systems thinking in health care (Plack et al. 2018), Table 10 describes these recommendations and divides them into aspects that we identified from the critical aspects from Studies I and II, which are related to individual, care team and health care and social support systems (Ferlie & Shortell 2001).

Table 11 in turn summarizes the challenges faced by physiotherapists when learning and implementing biopsychosocial interventions, based on the results of Studies III and IV of this dissertation and presents suggestions for educators to create meaningful training interventions for physiotherapists that would be optimal in facilitating the learning and implementation of biopsychosocial interventions to practice. The educators may need to expand their awareness and see the perspective of their trainees, and to take the individual and contextual factors as well as possible barriers to learning into consideration when planning future training.

The idea included in the concept of 'patient-centered care' could be applied to training of professionals to create 'physiotherapist-centered training' where the backgrounds, preferences and amount of support needed by each participant

would be taken into consideration and the training individualized in some parts, for example via mentoring (Nielsen et al. 2014; Kent et al. 2019). The critical aspects identified in Study III as well as barriers and enablers of learning identified in Study IV could be utilized in planning future training programs. Training physiotherapists until competency could be one solution. If we consider adult learning from the phenomenographic point of view and as a transformational learning process where the awareness is gradually broadened, physiotherapists could be seen as active participants in the planning phase of the intervention. This might require flexibility in the training to adjust it according to their learning needs and the local healthcare system. The managers and clinical leads may also be seen as integral parts in supporting the learning process and in collaboration with the physiotherapists so that they would be included in the decision-making in the organization when for example treatment pathways are created. Furthermore, one aim of the training could be creation of learning communities where the participants of the training could support each other.

TABLE 10 Challenges faced by patients and suggestions for health care professionals /health care systems for dealing with these challenges for creating more meaningful management of musculoskeletal conditions

	Challenges faced by patients	Suggestions for professionals for creating meaningful encounters in health care and caring for patients with musculoskeletal conditions
Individual	<ul style="list-style-type: none"> - Negative pain beliefs, insecurity about the cause of pain, pain seen as a mystery, body seen as broken and incurable - Negative/unrealistic expectations of physiotherapy - No strategy for managing pain - No success in self-management, inability to participate in own rehabilitation 	<ul style="list-style-type: none"> - Help patient make sense of pain within biopsychosocial framework - Create common language among professionals around musculoskeletal conditions to avoid mixed messages to patients - Use effective reassurance (both cognitive and emotional) throughout initial discussion, examination and education - Consider and discuss patients' expectations - Teach effective self-management skills – build a routine, build self-efficacy and give credit for patient's own efforts. Assume the role of a coach and help patients become aware of their bodies and build confidence in them again - Find out the patients' valued goals – build the physiotherapy intervention towards those goals - Give instructions for home exercises in written /digital form according to the wishes of the patient - Allow patients to be in contact if questions arise
Care team	<ul style="list-style-type: none"> - Lack of social support from friends and family - Lack of support from employer (work modification not possible), - Expert-driven practice - Lack of trust in physiotherapist - “Non-encounters” – not being heard and understood, depersonalized care - Lack of time – interruptions and feeling that professionals are in a hurry 	<ul style="list-style-type: none"> - Discuss the importance of support from friends and family, help patients find other support networks if these are lacking (e.g. groups, peer support) - Include employer/supervisor, help them understand pain and the importance of flexibility and understanding at the workplace to enable continuation of working despite pain - Take responsibility for caring for your patient, ensure continuation of care, but support their autonomic agency, help them back into the driver's seat - Enhance communication skills, use validating communication and ensure the patient's experience of feeling understood and heard. Use language your patient understands, avoid nocebo language - Create a calm, hurry-free environment and atmosphere, be present
Healthcare and social support systems	<ul style="list-style-type: none"> - Discontinuation of care when independence is not achieved, - Lack of follow-up and support - Worries about financial situation and being financially dependent on others 	<ul style="list-style-type: none"> - Plan continuation of care and support (e.g. individual physiotherapy booster sessions or participation in group meetings) according to patients' needs ->After physiotherapy /group, ensure a smooth transition to, for example, groups lead by physical exercise instructors - Financial security – need for a change in national policy, but before that changes, consider consulting a social worker to help the patient with paperwork etc.

TABLE 11 Challenges faced by physiotherapists in learning and implementing biopsychosocial interventions and suggestions for overcoming these challenges in future training programs and clinical practice

Challenges in learning/ implementation perceived by physiotherapists	Factors that may enhance the adoption of a biopsychosocial approach in the management of musculoskeletal conditions
<p>The biopsychosocial approach is very different from traditional physiotherapy – it does not fit one’s professional identity/ work in own context – creating a mix and match approach. It requires a paradigm shift – from fixer to a coach</p>	<ul style="list-style-type: none"> - Updating undergraduate physiotherapy training, including critical thinking and reflection skills - Discussion within the physiotherapy profession about the professional role of the physiotherapist - Discussion on known barriers to learning and implementation e.g. professional identity and role boundaries during the training, clear guidelines regarding when to refer to a psychologist and other co-care - Validation of the cognitive dissonance that physiotherapists might encounter – harness dissonance to drive change - Clear learning goals - Long-term training interventions with ongoing support and feedback, training until targeted competency is reached -> adequate measures of competency - More than self-reported measures and written exams – audit notes, use clinical observation. Especially in research settings, regular use of fidelity testing to support compliance with the program - Not assuming that everybody learns the same way and in same amount of time
<p>Not feeling confident in dealing with psychosocial issues despite training or feeling less confident in certain domains</p>	<ul style="list-style-type: none"> - Examination of individual physiotherapist’s backgrounds, their preferences and the contexts in which they work, when planning the training, e.g. sending a questionnaire to participants before the training - Recognition that some might need more/different kind of support or more time than others – tailored support - Utilization of physiotherapists’ previous skills and knowledge (e.g. breathing/relaxation exercises are more familiar to many physiotherapists than cognitive techniques) to build confidence at the beginning - Asking for feedback already during the training, giving room for discussions – adapting - Using enough training and support to create confidence in skills related to psychosocial factors because they are less familiar to physiotherapists - Utilizing direct supervision and feedback to train physiotherapists towards competency criteria
<p>Organizational challenges not considered when planning training interventions - Not enough time, no clear referral pathways, lack of support</p>	<ul style="list-style-type: none"> - Consideration and targeting of barriers on organizational level when planning training/ implementation interventions - Inclusion of clinical leads in the process, consideration of planning at the organizational level when starting a training intervention, consideration of whether treatment

	<p>pathways/organizational practices can be changed to support the new way of working?</p> <ul style="list-style-type: none"> - Giving physiotherapists skills and freedom in how to use their time effectively – allowing them to use enough time for patients with complex situations - Training of whole work communities instead of individual physiotherapists to enable peer support - If possible, training of physiotherapists (at least partially) together with other professionals to enhance collaboration - Creation of clear referral pathways - Nudging: e.g. making the use of questionnaires easy – pre-filled by the patients before the appointment
Patients' biomedical beliefs and expectations of physiotherapy	<ul style="list-style-type: none"> - Teaching physiotherapists how to manage patients' expectations - Aiming to change public perceptions of physiotherapy and pain - Use of multiple sources for information with consistent messages
Not easy to change one's practice, feeling overwhelmed by the amount of new information and learning. Physiotherapists using only part of the programs that fit their own skillset and preferences and patients' preferences	<ul style="list-style-type: none"> - Setting of clear goals – new skills / change in practice as a focus – planning assessment of competency – training until goals are reached - A structured approach in training may be helpful at the beginning of the training phase to decrease stress and give confidence to the participants, but room must be left for flexibility / creativity within the structure - Mentoring and feedback to individualize the training after initial workshops - Multiple learning methods, patient demonstrations / role plays followed by reflective discussions to avoid model learning and support own thinking processes instead - Long-term mentoring and support, time for practice - Encouragement of practice of new skills in wider contexts - Research on training for mentors creation of models - Considering alternative ways of teaching theory in addition to traditional lecture format – enough time to digest - Web-based learning resources can be utilized to support learning - Regular meetings with problem-solving and discussions to avoid therapist drift - Teaching participants to reflect on their own practice and give feedback to their peers. Regular feedback from mentors and observing others work - Creation of learning communities during the workshops so that participants can support each other during the training process. Instead of training of individual physiotherapists, training of whole work communities

6.4 Methodological reflections and considerations

This section reflects on the methodological choices made in this dissertation and the credibility of the research. This dissertation employed a qualitative design to study the phenomenon of exploring the meaning of the biopsychosocial approach in the management of musculoskeletal conditions. Three phenomenographic studies and a qualitative metasynthesis were conducted to answer the research questions. Therefore, the following first discusses the methodological issues of the three phenomenographic studies together, and then the issues related to the systematic review and metasynthesis separately.

6.4.1 Phenomenographic studies

It is still expected that qualitative researchers address issues related to the validity and reliability of the research, although these concepts stem from positivist research approaches that attempt to study an objective reality. This is in contrast with the idea of a more intersubjective reality that is the object of study in most qualitative research approaches that utilize interviews as a data collection method (Åkerlind 2005).

The credibility of phenomenographic studies cannot be evaluated by asking how well the findings correspond to the existence of the phenomenon in reality, because phenomenography assumes that the relationship between the informant and reality is relational. An interpretative process can never be objective, and the categories are a form of construction. No single correct interpretation exists; we need to aim for a defensible interpretation (Marton & Booth 1997, 136; Åkerlind 2005). Therefore, a different research team that studies the same phenomena may not necessarily find the same categories (Marton 1986; Stenfors-Hayes et al. 2013). Instead we can assess how well the categories of description and the outcome space correspond to the human experience of the phenomenon (Uljen 1996; Åkerlind 2005;). The credibility of phenomenographic research is said to mainly lie in the relationships among the categories and the data. To be able to assess this, an adequate amount of quotations is important when reporting phenomenographic studies (Stenfors-Hayes et al. 2013). Depending on the journals' word count restrictions, we have used one to three quotations per theme variation.

The focus on research quality should be more on ensuring that the research methods are used appropriately and correspond to the research aims (Ashworth & Lucas 2000). The quality of a phenomenographic outcome space can be reviewed using the following three criteria: each category should reveal something distinctive about a way of understanding the phenomenon in question; the categories should be logically related, and the critical variation that is seen in the data should be represented in as few categories as possible (Marton & Booth 1997, 125-126). In addition, the whole research process and the interpretive steps need to be made clear to the readers and the way in which the researchers have critically assessed their own interpretations need to be reported. One form of the latter is reflexivity, being aware of and analyzing one's own presuppositions throughout

the whole research process (Åkerlind 2005; Sin 2010). Because it is impossible to approach a dataset without preconceptions, it is important for a researcher to recognize their own conceptions and assumptions to be able to be open to the conceptions of the study participants and not let their own assumptions guide the agenda (Uljen 1996). I wrote about my preliminary understanding both at the beginning of my PhD, before starting to interview patients, and later during the process, before writing the article about physiotherapists' perceptions. It is also important to be aware of the context to which the conceptions of the interviewees are related. In this thesis, my personal conceptions arise from my work experience as a physiotherapist with patients with musculoskeletal conditions, my own experience as an educator, and all the workshops and informal learning I have undergone throughout my career. During the analysis process of each study, in the research group we also discussed how our professional backgrounds, beliefs and attitudes towards the topic may have influenced the analysis, and had regular discussions on the analysis process of each study (Sandbergh 1997; Sin 2010).

A challenge in assessing the credibility of phenomenographic studies is the variations in the ways in which the studies are conducted and reported. There is no single method or guide on how to analyze the data, but we decided to follow the process described by Åkerlind (2005). We also used previous phenomenographic studies conducted by the research team as guides during the process.

The concept of saturation has been questioned in the field of qualitative research and the concept of information power has been proposed instead to decide on an adequate sample size for qualitative studies (Malterud et al. 2016). Information power means that the more relevant information for the actual study the sample holds, the lower the number of participants needed. The sample sizes of the three phenomenographic studies of this dissertation were in line with what is suggested for phenomenographic studies. The common sample size in phenomenographic studies is 10–15 participants, who are selected for variation (Åkerlind 2008b). However, Study II had only nine participants, and it is possible that a larger sample would have resulted in more variation in the conceptions or new themes and categories. We had a limited group of possible informants in all the studies and therefore could not recruit any more interviewees.

The information power of the phenomenographic studies of this dissertation can be considered sufficient (Malterud et al. 2016). I personally conducted the interviews as I had previous training and experience in qualitative research and interviewing, and the quality of the dialogue between the interviewees and interviewer was good. I am a physiotherapist and have good knowledge of the CFT approach. Although this has benefits, I had to be careful that my own preconceptions did not influence the way in which I interpreted what the interviewees said. The aims of the studies were fairly specific and involved a specific group of informants – physiotherapists who had participated in the CFT training intervention and the LBP patients of these physiotherapists, and later, more specifically, the patients who had undergone physiotherapy delivered by these physiotherapists after they had participated in brief CFT training. The fact that the

whole group of physiotherapists who completed the training was included is a strength of Study II. The studies were theoretically well informed, although the feasibility of the CFT approach in the context of the Finnish health care system had not previously been explored. The health care systems and the basic training of physiotherapists vary in different countries and this affects the organizational factors that can be perceived as barriers to or enablers of adopting a biopsychosocial approach and influencing patients' conceptions.

The authors of all the studies are clinical and research physiotherapists, psychologists and a professor of physical and rehabilitation medicine with an interest in an individual biopsychosocially oriented approach to managing musculoskeletal conditions. POS and SL were the trainers in the physiotherapists' training intervention workshops and RH and JK were present during the workshops. The diverse backgrounds of the research group improved quality and rigor and subjected the analytical process to group reflexivity. The reliability of the research was also supported by two of the authors of these studies (AP and PV) not being familiar with the CFT approach and not being included in the training but being experts in qualitative research. The trustworthiness of research can be enhanced by studies being conducted in a research group instead of by a single researcher (Wahlström et al. 1997; Giacomini et al. 2000). This is important, because I was familiar with the CFT approach and used it in practice with LBP patients. My own experiences could have had an effect on how I interpreted the data. To deal with this, although I had the main responsibility for conducting the research, the studies of this dissertation were planned, and their results analyzed through collaboration among the whole research team. In addition, the results were discussed in a peer group of researchers familiar with the phenomenographic research method but with no previous knowledge of the CFT approach. In phenomenography, feedback is not sought from interviewees because the interpretations are made on a collective level. The aim is not to represent the understanding of any particular individual and that the results cannot be understood without understanding the conceptions of the whole group of interviewees (Åkerlind 2005).

Qualitative researchers have also questioned the usefulness of the concept of generalizability. The term is usually associated with statistical generalizability, which is related to the search for universal laws of nature that are true without exceptions. Generalizability refers to the extent to which the findings from a specific sample are representative of a larger population and generally, qualitative research does not intend to make generalizations in this sense. However, other types of generalizability can be used in qualitative research, such as naturalistic generalizability and transferability (Smith 2018). Transferability means the extent to which the findings of a study can be applied in other contexts. It has been suggested that if sufficient information is provided for the reader, they can make their own judgements about transferability (Sin 2010). The reader can engage with the results of the study and assess whether the results are generalizable to them and their setting (Smith 2018). The results of our studies probably cannot be directly transferred to other cultures, although many findings are consistent

with previous research conducted in other western countries. The feedback I have received on the original papers of this dissertation show that the results have been perceived as generalizable by many readers worldwide (Smith 2018). The results have been shared widely via social media and the first citations have already emerged. Physiotherapists and other health care professionals have reported that the results of Studies I and II resonate with their experiences of the challenges faced in clinical work, and that Studies III and IV have helped them reflect on their own learning process while attempting to integrate a biopsychosocial approach in their clinical practice. In the original studies and in this dissertation I have also suggested what the educational and clinical implications of the results might be.

The consolidated criteria for qualitative research (COREQ) guidelines were followed in the reporting of the phenomenographic studies (Tong et al. 2007). Phenomenographic studies have the potential to be used for improving health care and developing any discipline (Barnard et al. 1999). As the findings of phenomenographic research describe the variation in the ways of understanding a phenomenon and how these different ways of understanding are related to one another, knowledge of these differences can work as a pedagogical tool in professional training and help educators better support their students during their learning process (Stenfors-Hayes et al. 2013). According to Larsson and Holmström (2007), the aim of professional training should be the acquisition of new, more comprehensive ways of seeing one's work. Understanding the different ways in which patients understand their conditions and the treatment they receive can help professionals understand their patients and thus deliver patient-centered care (Stenfors-Hayes et al. 2013).

There was a gender bias towards women in the empirical studies, especially Study III; however, this reflects the workforce in Finland, where women comprised 77% of new physiotherapy students in 2007 (Kuusi et al. 2009) and 82% of graduate physiotherapists in Finland in 2017 (Valvira 2017).

One limitation of the larger research project, which also had an effect on the qualitative studies, was that we only arranged workshops for the participants and there was no opportunity for clinical supervision and mentoring. It would have been interesting to compare the findings of this dissertation to the results of a quantitative project, but unfortunately such studies have been delayed. Their data have been collected, but not yet published. It would also have been interesting to examine whether the physiotherapists actually changed their attitudes, beliefs and practice, and to discuss the patient outcomes together with the qualitative findings. At the moment, it is still unclear whether these physiotherapists actually changed their practices or whether the intervention had a positive effect on patient outcomes. A strength of our project is that our training of the physiotherapists was closer to a normal professional development workshop setting than previous training for physiotherapists that have delivered CFT interventions in randomized controlled studies (Vibe Fersum et al. 2013), and that we interviewed all the participating physiotherapists, who reported different kinds of responses to training. This also further enhanced the transferability of the results.

6.4.2 Systematic review and metasynthesis

Qualitative synthesis is a relatively new concept in health research and methodological discussions are ongoing. It has been stated that qualitative metasynthesis is a useful way to increase the transferability of findings from qualitative studies to a broader context, therefore addressing the critique of the generalizability of the findings of qualitative studies (Levack 2012).

Generalizability, or transferability as preferred by many qualitative researchers, can be enhanced by systematic sampling, triangulation and audit trials. In qualitative research, generalizability can be seen as idiographic or case-bound, as generalizations are drawn from informationally representative rather than nomothetic or formal cases, whereas in quantitative studies, generalizations are drawn from statistically representative samples and applied to populations (Sandelowski & Barroso 2007, 2-5). The degree of transferability between contexts is related to similarity between the two situations or contexts (Finfgeld-Connett 2010).

This discussion is closely related to other philosophical discussions on qualitative metasynthesis. The most relevant of these is the discussion on qualitative metasynthesis possibly undermining the *raison d'être* of qualitative research. This means that when attempting to synthesize findings from multiple studies, we might lose connection with the individual viewpoints of the informants, which are considered to be essential ingredients of qualitative research (Levack 2012). This bears the risk of weakening the value of the parts of qualitative studies that give qualitative data their power (Sandelowski & Barroso 2007). It has been stated that qualitative metasynthesis is three steps removed from the phenomenon it attempts to understand and the lived experiences of the research participants as the findings of the original studies have another layer of interpretation (Sandelowski 2006; Levack 2012). This limitation has been managed by, for example, extracting direct quotations from the included studies, taking care to compare the results of the coding with the original data (Finfgeld-Connett 2010).

To improve the quality and rigor of research, it is recommended that a qualitative research synthesis is conducted in a research group with diverse backgrounds and that the analytical process is subjected to group reflexivity (Lachal et al. 2017). Consequently, triangulation occurs at the level of researchers when everybody brings their own, different perspectives to the project (Finfgeld-Connett 2010). Our team was composed of researchers with diverse professional backgrounds in physiotherapy, psychology and medicine, from Finland and Australia, and from a number of institutions. They also had extensive qualitative and quantitative research skills, and a strong background in biopsychosocial approaches within research, education and clinical practice.

The methods for identifying qualitative research in library databases are not yet well developed and qualitative research is not always easy to find (Levack 2012). More rigorous literature search methods are needed (Thomas & Harden 2008; Tong et al. 2012). To maximise both sensitivity and specificity, we used a comprehensive set of search strategies including both thesaurus terms and free-text terms, as recommended (Shaw et al. 2004; Lachal et al. 2017). We developed

the strategy with support from a university librarian and adapted it to the search language and syntax of individual databases. Published qualitative research syntheses often lack transparency and do not detail the search strategy and databases used (Barbour 2001). The full search strategy is reported in detail in the appendix of our article. I and the second author of the original paper independently ran the searches in the selected electronic databases. It is important to report inclusion and exclusion criteria clearly to enhance the credibility of the study and to allow readers to make an assessment about the transferability of the findings to their own setting. The criteria can be related to, for example, methodological aspects, participants, language, or thematic foci (Levack 2012; Tong et al. 2012; Lachal et al. 2017). Inclusion and exclusion criteria were created through the collaboration of the whole research group and reported in detail in the manuscript. A PRISMA flow chart was provided, as recommended, to report the process of the literature search, the screening of the literature and the identification of studies for inclusion (Moher et al. 2010). I and the second author of the original paper also independently screened titles and abstracts and performed a full-text review to identify which studies met our inclusion criteria, as recommended (Sandelowski & Barroso 2007). Disagreements relating to the inclusion/exclusion of studies were resolved through discussion. I and the second author also independently extracted the data.

A significant challenge of qualitative syntheses is the critical appraisal of the included studies. No clear consensus exists regarding the criteria to make decisions about the eligibility of the studies in the synthesis (Thomas & Harden 2008). Sensitivity analysis is recommended, as it involves the examination of the relative contribution of each study to the review findings (Thomas & Harden 2008). In addition, when the quality assessment for the studies has been completed and its results published, the readers can make their own evaluation regarding the credibility of the results (Toye et al. 2014). Despite these challenges it has become popular to appraise the studies for metasynthesis and varying quality assessment systems have been created. We chose the Critical Appraisal Skills Programme checklist (CASP) for qualitative studies (2013) due to its extensive use in other qualitative systematic reviews in the field of physiotherapy. CASP addresses the principles and assumptions of qualitative research without claiming to be a definitive guide (Synnott et al. 2015; O'Keeffe et al. 2016; Elvén & Dean 2017). I and the second author independently appraised the included studies, and disagreements were resolved through discussion or by consulting a third reviewer. We conducted a sensitivity analysis showing the contribution of each of the included studies to each of the subthemes (Thomas & Harden 2008). We did not exclude or numerically rate the studies on the basis of the CASP criteria due to the lack of consensus on how to do this. However, like previous studies, we found that studies with lower quality also contributed less to the findings of the synthesis and did not contain any unique themes (Thomas & Harden 2008; Morton et al. 2010).

To qualify as a qualitative metasynthesis, a simple narrative review or a basic aggregation of findings from original qualitative studies is not sufficient; an

element of interpretation is needed (Sandelowski & Barroso 2007). Therefore we used a thematic synthesis approach in our review to create new understandings and perspectives of the topic (Thomas & Harden 2008). To make the analysis process clear, we needed to define which sections of the included articles were analyzed and to describe the process of coding and interpreting the data (Tong et al. 2012). However, identifying the findings of qualitative research is not always easy because of varying reporting styles (Sandelowski & Barroso 2007).

With the growing popularity of qualitative research syntheses, reporting guidelines have also emerged. We followed the guidelines of the ENhanced Transparency in Reporting the synthEsis of Qualitative research (ENTREQ) (Tong et al. 2012). The aim of the ENTREQ statement is to help researchers report the most common stages of synthesis in qualitative health research: introduction, methods and methodology, literature search and selection, appraisal and synthesis of findings (Tong et al. 2012).

6.5 Ethical issues

This dissertation and its four studies followed good ethical principles. Ethical approval for the larger project was obtained from the Northern Ostrobothnia Hospital District Ethics Committee and it was updated in the summer of 2016 to include the qualitative studies. All the participants were informed of the aims of the study before the interviews, for which they provided informed consent.

The anonymity of the participants was considered throughout the research process and in the reporting of the studies, and letter codes or pseudonyms were used for the participants in the quotations.

The systematic review and metasynthesis was registered in the PROSPERO database (registration number: CRD42019127895, submitted for registration on 8 March 2019).

6.6 Challenges for future research

Is the learning and implementation of the biopsychosocial approach the final goal that we should aim for? Would all the problems in the management of musculoskeletal conditions be solved if all professionals adopted a biopsychosocial approach in their work? The answer is probably no. Even though results of the studies utilizing biopsychosocially oriented physiotherapy interventions in the management of musculoskeletal conditions seem promising (Silva Guerrero et al. 2018; van Erp et al. 2019), there is a lot of variation in the outcomes and more research is still needed to know whether this is the way towards optimal management of musculoskeletal conditions. This approach is in its early development and there are many barriers to this model of care, such as current societal beliefs, unhelpful financial incentives, funding issues, and social barriers.

The concept of the biopsychosocial approach has its challenges, as described at the beginning of this dissertation. This model has many misconceptions and has been used differently in different contexts, which makes it hard to know what people mean when they talk about the biopsychosocial approach. In fact, the applications of the biopsychosocial model in the pain field have further developed the model so that it is no longer the same as Engel (1977) originally proposed. The social domain of the approach in particular has not yet received enough attention and there is much we still do not understand. New studies also continue to shed light on the connections between the different contributing factors and this knowledge might help us more effectively manage musculoskeletal conditions in the future.

If we want to ensure that professionals keep up to date with the growing amount of new knowledge, it does not make sense to only teach them what we know now. Instead, we need to teach people how to keep up with new evidence and how to integrate it into their practice. This will require good skills for reflecting on one's own work and critical reading skills, as well as collaboration with others. None of us can do this alone.

Regarding the clinical applications of the biopsychosocial approach the place of biopsychosocial interventions in the world of physiotherapy in terms of the management of musculoskeletal conditions remains to be seen. Many research projects are currently ongoing worldwide and we also have some projects in Finland related to the implementation of the biopsychosocial approach in musculoskeletal care. The evidence base for these approaches is growing fast, but more research is needed to know whether this is the way forward or whether yet another direction is needed. More research is also needed on patients' perspectives of undergoing biopsychosocially oriented physiotherapy, and it would be interesting to see results with physiotherapists who have been deemed competent in CFT or other biopsychosocial interventions. A combination of quantitative and qualitative studies would be helpful in this, as qualitative studies help explain the results of quantitative studies and this enables us to form a broad understanding of both the efficacy of the interventions and their meaning. Phenomenographic studies are especially well suited for this, as they help us understand the variation in the conceptions of the study participants and the structure of the phenomenon. In terms of the feasibility study that this dissertation is part of, it will be interesting to see, when the further data of our project is analyzed, whether the physiotherapists' attitudes, beliefs and behaviors, as well as the patient outcomes change.

This dissertation expands the understanding of what is meaningful in physiotherapy and how physiotherapists could be trained to deliver it. However, further research is still needed to determine how to create meaningful physiotherapy encounters and how to optimally help patients with musculoskeletal conditions. Further research is also needed on the most beneficial ways to support physiotherapists in their process of expanding awareness towards a better understanding of the meaning of the biopsychosocial approach in the management of musculoskeletal conditions.

YHTEENVETO (SUMMARY IN FINNISH)

Tuki- ja liikuntaelimestön (tule) vaivat ovat suurin terveysongelma maailmanlaajuisesti siitä huolimatta, että niiden hoitoon käytettyjen resurssien määrä on jatkuvasti kasvanut. Biomedikaalinen malli on ollut pitkään vallalla lääketieteessä ja vaikka George Engel esitteli biopsykososiaalisen mallin vastauksena vallitsevan mallin ongelmiin jo 1960-luvulla, on sen implementointi kliiniseen työhön edelleen kesken. Biopsykososiaalinen lähestymistapa on edeltäjänsä laaja-alaisempi lähestymistapa, joka biomedikaalisten tekijöiden ohella huomioi myös psykologiset ja sosiaaliset näkökulmat potilaan tilanteeseen vaikuttavina tekijöinä. Malli on laajasti hyväksytty tule-vaivojen hoidossa ja uusimmat hoitosuositukset suosittelevat sen käyttöä. Onkin tärkeää selvittää potilaiden ja fysioterapeuttien käsityksiä biopsykososiaalisesta lähestymistapasta pohjautuvasta fysioterapiasta, jotta voimme arvioida nykyisiä sekä kehittää entistä parempia keinoja toteuttaa merkityksellistä fysioterapiaa ja fysioterapeuttien koulutusta.

Tämän väitöskirjatutkimuksen tarkoituksena oli kartoittaa biopsykososiaalisen lähestymistavan merkitystä tule-vaivojen hoidossa potilaiden ja fysioterapeuttien näkökulmasta tarkasteltuna.

Väitöskirja muodostuu neljästä osatutkimuksesta, joiden tutkimuskysymykset olivat seuraavat: 1. Millaisia ovat alaselkäkipuisten potilaiden käsitykset heidän kohtaamisistaan suomalaisessa terveydenhuoltojärjestelmässä? 2. Millaisia ovat pitkittyneestä alaselkäkivusta kärsivien potilaiden käsitykset lyhyen kognitiivisfunktionaalisen terapian (CFT) koulutuksen saaneiden fysioterapeuttien toteuttamasta fysioterapiasta suomalaisessa perusterveydenhuollossa? 3. Millaisia ovat fysioterapeuttien käsitykset CFT:n periaatteiden oppimisesta ja soveltamisesta käytännön työssä? 4. Millaisia ovat fysioterapeuttien käsitykset biopsykososiaalisten interventioiden oppimisesta ja soveltamisesta käytännössä tule-vaivojen hoidossa?

Väitöskirjatutkimus on osa laajempaa hanketta, jossa fysioterapeutit osallistuivat 4-6 CFT-koulutuspäivään. Väitöskirja sisältää neljä erillistä artikkelia, joissa käytettiin laadullisia tutkimusmenetelmiä. Alkuperäistutkimusten aineisto kerättiin puolistrukturoitujen yksilöhaastatteluiden avulla. Osatutkimusta I varten haastateltiin 17 alaselkäkipuista henkilöä, jotka olivat saaneet hoitoa selkäkipuihinsa ennen fysioterapeuttien saamaa spesifiä koulutusta. Osatutkimusta II varten haastateltiin yhdeksää alaselkäkipuista henkilöä, jotka olivat käyneet koulutuksen saaneiden fysioterapeuttien vastaanotolla ja osatutkimusta III varten haastateltiin 22 CFT-koulutukseen osallistunutta fysioterapeuttia. Systemaattista kirjallisuuskatsausta (Osatutkimus IV) varten tehtiin järjestelmällinen kirjallisuushaku seitsemästä tietokannasta (MEDLINE, EMBASE, CINAHL, ERIC, PsycInfo, SportDiscus and Sociological abstracts).

Aineistot analysoitiin hyödyntäen fenomenografista analyysiotetta (Osatutkimukset I-III) ja temaattista synteesiä (Osatutkimus IV). Fenomenografian tavoitteena on selvittää variaatiota tutkittavaan ilmiöön liittyvissä käsityksissä,

sekä ymmärtää käsitysten välisiä suhteita ja siten kuvata ilmiön rakennetta. Järjestelmällisen kirjallisuuskatsauksen ja metasynteesin avulla kootaan yhteen aiempien laadullisten tutkimusten tuloksia.

Ensimmäisessä osatutkimuksessa haastateltujen alaselkäkipuisten henkilöiden käsitykset kohtaamisista terveydenhuollossa varioivat viidessä teemassa; laajeten negatiivisista, kohtaamattomuuden kokemuksista kohti elämän muuttavia, itsenäistä toimijuutta tukevia kohtaamisia. Kriittiset tekijät, jotka auttavoivat potilaita kohti itsenäistä toimijuutta, olivat ammattilaisten läsnäolo, potilaiden ymmärryksen kasvaminen selkäkivusta, vahva terapiasuhde ja potilaan aktiivinen osallistuminen sekä vastuun siirtyminen potilaalle tietäen, että apua on saatavilla tarvittaessa.

Toisessa osatutkimuksessa alaselkäkipuisten henkilöiden käsitykset lyhyen CFT-koulutuksen saaneiden fysioterapeuttien toteuttamasta fysioterapiasta varioivat kuudessa teemassa laajeten alimmasta, tyhjän päälle jäämistä kuvaavasta kategoriasta kohti ymmärrystä kokonaisvaltaisesta lähestymistavasta fysioterapiaan ja elämään. Aineistosta tunnistettiin kohti laajempaa ymmärrystä johtavia kriittisiä tekijöitä, joita olivat positiivinen kokemus fysioterapiasta, hyvä yhteistyö fysioterapeutin kanssa, laaja sosiaalinen tuki, parempi ymmärrys kivusta biopsykososiaalisena ilmiönä ja itsehoitotaitojen karttuminen.

Kolmannessa osatutkimuksessa CFT-koulutukseen osallistuneiden fysioterapeuttien käsitykset varioivat neljässä teemassa, jotka laajenivat uuden lähestymistavan erilaisuudesta kohti sen monipuolista soveltamista. Kaikki eivät nähneet koulutusta riittävänä tukemaan muutosta heidän työssään, mutta jotkut kuvasivat koulutusta elämän muuttavana kokemuksena. Kriittiset tekijät, jotka kuvaavat kategorioiden välisiä eroja, ja jotka voidaan nähdä CFT:n soveltamisen mahdollistajina, olivat: kognitiivinen joustavuus, kyky muuttaa käsityksiään, kokemus ravistelluksi tulemisesta, kyky reflektoida omaa työtään kriittisesti, työyhteisön tuki, vakuuttuminen uudesta menetelmästä, luovuus, moniammatillinen yhteistyö ja jatkuva oppiminen.

Neljännän osatutkimuksen sisältämää, järjestelmällistä kirjallisuuskatsausta varten tehdyssä haussa löytyi 3563 tutkimusta, joista 12 täytti sisäänotto-kriteerit. Teema-analyysin pohjalta tunnistettiin 45 koodia, joista muodostui neljä teemaa (muuttunut ymmärrys ja käytäntö, ammatilliset hyödyt, kliiniset haasteet ja oppimisen edellytykset) ja 16 alateemaa. Tulosten mukaan, vaikka fysioterapeutit raportoivat muutoksesta kohti biopsykososiaalista ja potilaskeskeistä ajattelua, moni ei kokenut koulutuksen antavan riittäviä valmiuksia intervention kaikkien osa-alueiden toteuttamiseen. Fysioterapeuttien näkemysten mukaan koulutuksessa olisi olennaista yksilöllinen mentorointi, erityisesti psykososiaaliin tekijöihin liittyen, keskustelu ammattiroolin rajoista ja potilaiden odotuksista sekä organisationaalisten tekijöiden, kuten riittävän ajan ja toimivien hoitopolkujen huomiointi.

Väitöskirjan tulokset tukevat aiempaa tutkimusta, jossa on noussut esiin tarve yksilölliselle ja joustavalle alaselkäkipujen hoidolle ja fysioterapeuttien koulutukselle. Osatutkimusten tulokset osoittivat, että potilaiden käsitykset koh-

taamisista terveydenhuollossa sekä CFT-koulutuksen saaneiden fysioterapeuttien toteuttamasta fysioterapiasta vaihtelivat kohtaamattomuudesta ja tyhjän päälle jäämisestä elämän muuttaviin ja kokonaisvaltaisiin kohtaamisiin. Fysioterapeuttien käsitykset laajenivat uuden lähestymistavan erilaisuuden tunnistamisesta kohti sen monipuolista, luovaa soveltamista. Biopsykososiaalisen lähestymistavan ymmärtäminen näyttäytyi viitenä fysioterapeuteille ja potilaille yhteisenä teemana: uuden lähestymistavan erilaisuus, kivun ymmärtäminen, potilas-keskeinen hoito, itseluottamuksen lisääntyminen ja tuen tarve.

Tämän väitöskirjan tuloksista esiin nousseita kriittisiä askelmia voidaan hyödyntää tule-kipuisten kuntoutumista edistävän fysioterapian kehittämisessä sekä kehitettäessä biopsykososiaalisen lähestymistavan oppimista tukevaa koulutusta fysioterapeuteille.

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ORIGINAL PAPERS

I

FROM “NON-ENCOUNTERS” TO AUTONOMIC AGENCY. CONCEPTIONS OF PATIENTS WITH LOW BACK PAIN ABOUT THEIR ENCOUNTERS IN THE HEALTH CARE SYSTEM

by

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From “Non-encounters” to autonomic agency. Conceptions of patients with low back pain about their encounters in the health care system*

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Abstract

Low back pain is a considerable health problem which affects people around the world, causing major healthcare costs. The use of qualitative research methods enables us to describe and understand patients' experience of, and attitudes to, healthcare. The aim of the present phenomenographic study was to identify and describe the contextual nature of the conceptions of patients with low back pain of their encounters in the HCS. Seventeen patients with chronic or episodic low back pain classified as “high risk” were interviewed in open recall interviews, using videos of patients' initial physiotherapy sessions that had been recorded previously. The data were analysed using the phenomenographic method. Patients' conceptions of their clinical journey were formulated by a variety of themes: convincing care, lifestyle change, participation, reciprocity and ethicality of encounters. The themes varied in four categories: “non-encounters”, seeking support, empowering collaboration and autonomic agency. The results showed a range of clinical interactions – from very negative and disempowering, to empowering and life changing. The key differences between the first and second categories were professionals “being present” and patients starting to understand their low back pain. Between the second and third category, the key aspects were strong therapeutic alliance and the active participation of the patient. Finally, the key differences between the third and fourth categories were the patient being in charge and taking responsibility while knowing that help was available if required. The results may help in improving the care of patients with low back pain.

KEYWORDS

Communication, Low Back Pain, Patient Experiences

1 | INTRODUCTION

Low back pain (LBP) is a disabling health problem which affects people globally, causing major healthcare costs (Dagenais, Caro, & Haldeman, 2008; Koes, van Tulder, & Thomas, 2006). All major published national guidelines on the management of LBP acknowledge a shift towards a biopsychosocial management approach (Koes, Lin, Macedo, McAuley, & Maher, 2010; National Institute for Health and Care Excellence, 2016) and recommend patient reassurance, advice to stay active, discouragement of bedrest and progressive activation (Koes et al., 2010). In spite of a huge increase in healthcare resources spent in this

area, the effective management of LBP has not been achieved. One possible reason for this might be professionals' poor adherence to evidence-based guidelines (O'Sullivan, O'Keeffe, & O'Sullivan, 2017).

Physiotherapists and other healthcare professionals (HCPs) have mostly received biomedical training – at least in their initial education (Pincus et al., 2007), and physiotherapists feel unprepared to deal with psychosocial factors in their patients (Synnott et al., 2015). Addressing these factors is crucial because negative beliefs about LBP, such as the perceptions of a biomedical cause and long duration of the pain, and excessive fear of movement, predict disability, work disability and chronicity (Foster, Hill, & Hay, 2011; Main, Foster, & Buchbinder, 2010). Biomedical beliefs about LBP are deep rooted in Western society and seem to be hard to change (O'Sullivan, 2012).

There is growing evidence that a strong therapeutic alliance, linked to a collaborative and effective relationship between the patient and

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HCP (Martin, Garske, & Davis, 2000), can have a positive influence on treatment outcomes such as pain symptoms, satisfaction with care (Hall, Ferreira, Maher, Latimer, & Ferreira, 2010) and the global perceived effect (Ferreira et al., 2013). Physiotherapists' communication skills, practical skills, individualized patient-centred care, and organizational and environmental factors influence patient-therapist interactions (O'Keeffe et al., 2016).

The use of recall interviews offers the opportunity to enhance memory and facilitate the exploration of reasons, opinions and motivations for health-related behaviours (Kwasnicka, Dombrowski, White, & Sniehotka, 2015). However, to date, they have not been used in the pain field. Therefore, the aim of the present study was to explore the phenomenon of encounters in the healthcare system (HCS) in people seeking care for LBP. The research question was: what are the conceptions of patients with low back pain about their encounters in the HCS in Finland?

2 | METHODS

2.1 | Design and patients

The phenomenographic method was chosen because it enables us to identify and describe qualitatively different ways of understanding a phenomenon – to understand the contextual nature of LBP patients' conceptions of their clinical journey in the HCS, enabling us to discover a hierarchical structure of the phenomenon by categorizing themes emerging from the data (Åkerlind, 2005, 2008; Marton & Booth, 2009).

Conceptions include a person's experiences, and have a broader and deeper meaning than opinions: conceptions can be seen as an understanding of a certain phenomenon and they form a hierarchical structure (Åkerlind, 2005, 2008; Marton & Booth, 2009). Categories that are higher in the hierarchy are more developed or complex than the lower ones (Åkerlind, 2008).

Patients were volunteers who were attending primary or occupational health care owing to chronic or episodic LBP and were categorized as high risk on the Keele STarT (Subgroups for Targeted Treatment) Back Screening Tool (SBST) (Hill et al., 2008), indicating high levels of psychological risk factors. They had been invited to participate in the study by their treating physiotherapists earlier during this project, and contacted by telephone by the first author regarding their willingness to participate in the interview. In all, 17 out of 23 patients (five men and 12 women) across Finland agreed to participate.

They were all Finnish speaking, with a mean age of 46 years (range 20–69 years). Detailed information on patients' gender, age and duration of interview is presented in Appendix 1.

2.2 | Data collection

The data were collected by the first author (R.H.) in autumn 2016. The interviews were conducted in Finnish, and were open recall interviews, in which subjects view a video sequence that they are involved in and are then invited to reflect on the videoed event (Dempsey, 2010). Videos of the patients' initial physiotherapy consultation that had been recorded earlier during this project were used.

While the primary aim was to interview the patients about their conceptions of their initial physiotherapy consultation for their LBP, the recall video prompted them to recall many other experiences and insights into their healthcare journey that they wanted to discuss. They were asked to explore their views on their encounters with HCPs in general, and watching the video guided the interview. The interview started with the question, "Tell me about who you are, how you ended up in the current situation", and continued dialogically (e.g. around their clinical journey, their experiences of examination, explanations and treatment, and therapeutic alliance). The interviews lasted from 43 to 89 min (mean 63 min) (Table 1) and were transcribed verbatim by the first author, and the quotes used in the study were translated into English by a professional translator.

2.3 | Data analysis

The data were analysed using a phenomenographic method. The transcripts were firstly read by the first author, and meaningful units were identified. The search for underlying foci, looking for similarities and differences and identifying key structural relationships in the data to find key themes, was carried out in the study group. As the themes emerged, they were compared in an iterative process, confirming or contradicting emerging structure about meanings and relationships with respect to the data. During the analysis, the results were discussed in the whole study group and the consistency between the original data and our findings were evaluated to minimize the influence of our own interpretations. This continued until a consistent set of categories was agreed on, and the core meanings of the categories were labelled, leading to no further refinements. During this process, critical aspects between the categories were identified (Åkerlind, 2005, 2008).

TABLE 1 Themes, variation of themes and descriptive categories of the phenomenon of encounters in the healthcare system

Themes/variation of themes	Descriptive categories			
	Category I: "Non-encounters"	Category II: Seeking support	Category III: Empowering cooperation	Category IV: Autonomic agency
1. Convincing care	Uncertainty	Convincing interview and examination	Convincing explanations	Restoration of hope
2. Lifestyle change	Identifying the effects of LBP	Identifying the need for support	Reinventing self	New way of living
3. Participation	Inability to participate	Need for instruction	Active participation	Own responsibility
4. Reciprocity	Expert driven	Different languages	Creating an alliance	client-driven
5. Ethicality of encounters	Depersonalized care	Presence	Reliability	caring physiotherapy

LBP, lower back pain

2.4 | Ethical issues

Ethical approval for the study was obtained from the Northern Ostrobothnia Hospital District Ethics Committee. Before starting the interviews, the first author explained the nature of the study to the patients, and that their anonymity would be assured. Informed consent was provided by the interviewees.

The study authors are clinical and research physiotherapists, and a medical doctor with interests in the clinical application of the biopsychosocial model in the management of LBP. The first author wrote preconceptions before starting the study, and this was discussed in the research group.

The study followed the consolidated criteria for reporting qualitative research (COREQ) guidelines (Tong, Sainsbury, & Craig, 2007).

3 | RESULTS

The descriptive categories of the conceptions of LBP patients of their clinical journey in HCS were formulated by a variety of themes. These themes were: convincing care, lifestyle change, participation, reciprocity and ethicality of encounters (Table 1), and the themes varied in four categories: "non-encounters", seeking support, empowering cooperation and autonomic agency. The patients talked about various HCPs they encountered on their clinical journey. Some conceptions were specifically about physiotherapy, and there the term "physiotherapist" is used instead of HCP.

3.1 | Category I: Non-encounters

In the first category, patients rated their clinical encounters as "non-encounters" as they felt that they were not listened to and because there was a mismatch between what they expected and what they received (Table 1).

Patients reported that they had received inconsistent information and explanations from HCPs about the reasons for their symptoms and were uncertain of their situation, which made them feel frustrated, worried and scared:

I don't know... because the doctors have said that it's because of the nerve, that the disk compresses the nerve, but then again, when I've had acupuncture he's said that nerves don't act like that, that sometimes they get tired and sometimes they work normally, so, like, I still don't know if anyone can ever know how to stop these symptoms or what it's all about. (B3)

After the filmed encounters, some had given up seeking solutions and accepted pain as a lifelong companion, while others continued to seek a diagnosis and new treatments, asking for imaging studies and wishing for surgery. When a diagnosis was missing, patients felt that they did not get proper treatment, and that their pain was not taken seriously.

Patients identified the effects of pain on their lives. They reported that their circle of life had shrunk and they had given up doing things they used to enjoy. The need for change was clear but taking the first step was seen as difficult because patients did

not have support for this. They experienced an inability to participate in their own treatment because they were sent back and forth between different healthcare units and the waiting times were long. To be able to participate in their own rehabilitation process, they required a clear plan and help from HCPs. Being signed off as sick made some patients feel low because they felt trapped in their own homes, while those who were working despite the pain felt that all their energy went into working, and that they did not have resources left for other aspects of life:

I am not depressed or anything like that – I am a positive person – but sometimes you get an unpleasant feeling that you are not happy with those thoughts ... I am not clever enough to handle this well enough, so I sometimes wonder why I can't be retired and stay at home, so that I could live my life somehow ... at the moment, I live only for work (P5)

Patients felt that they were not being heard. They felt that the encounters were expert driven, and the HCP interrupted them and dismissed what they had to say, without listening to their wishes and opinions:

Well, you notice it, it's hard to explain but you notice who listens and who... well... doesn't... Some just keep interrupting and say it's not the way you think, that's just impossible... A lot of doctors have the attitude that 80% of people have back pain some time during their lives, so go home, and what are you doing here... Like, of course, it's true that 80% certainly have back pain but the severity varies... (H13)

When this happened, patients searched for other treatments. Information was given to patients without first finding out how much they already knew. This made them feel frustrated and hurt, either listening to the same explanations repeatedly or not understanding the language that the professional used. Patients felt that the care was depersonalized and that HCPs were not interested in them, and were just working on a conveyor belt, repeating the same routine with all patients:

Yeah, right, it's not that ... in occupational healthcare, it's a bit like conveyor belt work, [in] that they stick with the same routine and out you go... (L8)

Sometimes, patients felt that the professionals blamed them for being ill. They felt that HCPs seemed to be in a hurry, and that some issues important to the patient did not receive attention. For some, the HCPs allowed only a few visits to physiotherapy, and patients felt that they were being abandoned by their physiotherapist when their sessions ended. By contrast, they sometimes felt that physiotherapists in private practice encouraged unnecessary treatments, making them feel robbed.

3.2 | Category II: Seeking support

In this category, patients reported that they needed support to get started with understanding their LBP and the treatment process.

Patients reported that, while the HCPs were present in this category, they (the patients) did not always receive the kind of support that they were looking for (Table 1).

Patients valued a confident interview and examination. They understood that when a thorough examination was carried out, HCPs were better able to help them:

Of course, when there's that, that thorough examination and interview, of course, it's important to know the base you're starting from... (E15)

Explanations of what was being done in the examination and about the findings, given in understandable language, were important. A thorough examination gave credible justification for the reasons behind the pain and helped patients to trust that their symptoms were benign. A thorough interview enabled the HCPs to identify patients' needs for support, and understand their overall life circumstances. This helped the patients to realize the key issues that were important for making a change.

Patients reported that physiotherapists helped them to notice that they had unknowingly lived for a long time with constant tension in their body. They also helped patients to be aware of the stress that was going on in their lives, and to understand the importance of taking care of oneself:

Well, like when she started building up from my story how she could help me, so it like comes from there, you know... When she can put things together and, hello, this is clearly the case that you don't have a moment to catch your breath... and some issues – have you thought that your body is like tensed all the time? So try and loosen things up a bit and... everything. They're concrete things, even though you say them out loud yourself, but you don't have time to think about it. No, I bet not many people, like, stop and think. (F13)

However, patients reported that they often did not do the exercises given because there was a lack of instruction and support from the physiotherapist. They also reported that there was often no possibility for follow-up visits, and that clear goals were not set. The patients reported that they needed someone to push them, like a personal trainer. A lack of written instruction prevented them from doing prescribed exercises because they were unsure of what they were supposed to do. Some patients preferred having the instructions on paper and others wanted to be able check them on their mobile devices, as these individuals operated in a paper-free environment. Some reported that they would have needed physical guidance when words were not enough for them to understand the right way to do the exercises:

Well, I guess there should be more visits... kind of... if you've been sitting or standing in a certain posture for 40 years, so you'll find it difficult to learn a new way with just the one visit. I remember we tried that standing position and other stuff there, but, well, if I had to do the same, I'm sure I couldn't – it would certainly need more visits. (Q2)

For patients, explaining the meaning of their pain was hard, and they felt frustrated when the HCP did not grasp what they meant – patients felt that that they spoke different languages. This led to misunderstandings and a lack of treatment. Even though, in this category, the HCPs tried to understand the patients' perspective, it was hard for the patients to explain their pain, and there was no common understanding of their problems:

Well, it's somehow easy for me to talk about it ... always thinking that can I do it ... or, like my symptoms, it's so hard to explain... Also, on this [on the video], when she asked me to mark my pain points on a drawing ... but it's my legs that get tired – it's not pain, so it's so hard to explain somehow that it's not pain, they just get weak... So, how could I say that so I'd get understood? (B2)

HCPs being attentive was one of the most important things that enabled the encounter to be supporting and empathetic. It was important that the HCP gave the patient time to tell their story, even when it went a little off topic.

3.3 | Category III: Empowering cooperation

Patients felt that a strong therapeutic relationship was built through the cooperation and support of HCPs, enabling them to be active participants in their rehabilitation (Table 1).

The explanations given by HCPs needed to be plausible, so that patients could be convinced about what the HCP was saying. Patients wanted explanations of why they should do the exercises and how these would benefit them. When things were explained clearly and understandably, patients felt special and that they were being taken seriously:

I like it when the doctors and nurses, and everybody give reasons and explain how things are. It's so nice to feel a little special somehow, when they tell me about how something is... (K15)

Providing examples and referring to research validated the explanations. It was important that the answers made sense to patients. They wanted to have explanations and information given during the visit in written form because they had forgotten most of what they had been told by the HCP during the first visit.

In physiotherapy, patients learned to adapt everyday activities that they had not been paying attention to before. They reported that physiotherapists helped them to reinvent themselves by helping to make their own body familiar again, to prioritize and to understand how the mind and body are connected:

Well, I've been stretching daily and then I've taken a lot more rest. I've put things in order of importance, so it's actually been the most important thing. At that time, all my effort went into work but now I've been able to say no, I don't have to do every single thing. (A4)

Understanding the meaning of their LBP opened up new insights for patients, and exploring their own values led to concrete changes in

their lives. Sometimes, this could mean doing less, – understanding the importance of rest and working less.

Physiotherapy was seen as getting instructions for better everyday life, pain management and tips to change ways of working. Learning strategies to affect the pain were regarded as important, but support from a physiotherapist was still essential in keeping up their own active participation, especially during more difficult moments. To make exercising easier, patients adjusted their environment – for example, by moving the exercise bike in front of the television. Patients had been thinking that they had no power over their symptoms, and their self-efficacy improved when they noticed that there was a lot they could do for their own well-being:

Well, actually, I've been satisfied that she found those tips for what's worth doing, and very good ones for, like, when my back locks up really often, so she gave me advice on how to open the locks because I hadn't even been aware of those kinds of movements before. (M1)

According to patients' conceptions, building a therapeutic relationship is a process that needs to proceed slowly, building common ground bit by bit:

You don't tell anybody directly that you're so stressed that nothing will help, that you can't do that, but you need to cut it up into smaller pieces and slowly give them it [information]. (F15)

Good cooperation was defined as reciprocal understanding, respect and listening. HCPs built alliance by asking broader questions that enabled patients to figure out new aspects of their situation on a deeper level. Patients realized that the professionals were listening when they summarized what they had said in their own words, and returned to things that they had said later in conversation.

It felt easy and natural for the patients to be in physiotherapy. They liked going there because the physiotherapist was a nice person and they could always continue from where they left off at the previous session because the physiotherapist remembered what had been done and talked about. The atmosphere was relaxed, patients did not need to be nervous and they felt safe, which gave them courage to talk about anything. A common sense of humour, common interests and the confidence of HCPs created an atmosphere of reliability. To enable this, a good first impression and HCP consistency were seen as important. In addition, the physical environment (e.g. mirrors and exercise equipment) helped to create an atmosphere of trust when it looked as though it was intended for helping people:

Well, maybe it was the furniture and everything... You could see that they had mirrors and everything, so you could see... (G4)

3.4 | Category IV: Autonomic agency

The participants developed from patients into autonomic actors in charge of their own situation, and the effects of rehabilitation also started to have a positive effect on their families. At this stage, physiotherapy was no longer needed regularly, but it was important to have a

clear plan and the possibility of contacting the physiotherapist if needed. It was crucial that the decision to continue on their own was made by the patient, with the physiotherapist not being seen to abandon them (Table 1).

When the patients noticed that the instructions and information they received were having a positive effect on their symptoms, it helped them to be convinced about the benefits of treatment. When the understanding grew and patients started to trust that their LBP was not something serious, hope could be restored, levels of concern decreased and patients felt more at ease:

Yes, since then I haven't been afraid that there might be, for example, some disc bulge or something like that, so maybe that's when I shed the unhelpful beliefs. (D3)

Getting concrete help and being able to affect the symptoms increased feelings of self-efficacy and being in control.

Patients learned from HCPs that support from friends, family and peers was essential in starting exercise or in calming down their hectic lives. Many patients started a common project with the whole family as a new way of living, which enabled them to have support when they were about to give up. Understanding how stress affects the life of the whole family led to shared moments of relaxation or to a realization that it was alright just to stay at home without any plans. Strenuous exercise previously performed by patients was replaced by some more relaxed forms of exercise, even though patients had thought that they were unsuited to them:

Now, it's so wonderful for me... It's been... especially for people, like, I'm that sort of person who reacts to everything with the whole body, and I guess my body feels it's under attack, so there should be something to balance it, so it was a totally new thing to me. I hadn't thought about the meaning of that before at all, and I couldn't have imagined myself putting headphones on and listening to some relaxation [tapes, like mindfulness etc.]... it wouldn't have crossed my mind before, but now it does. (F1)

Lifestyle changes led to better mood and thereby fewer fights with the children, and the well-being of the whole family improved. In the end, the responsibility for rehabilitation lay with the patient.

The instructions given by the physiotherapist needed to fit in with the schedule and routines of everyday life, and needed to be simple enough. Patients performed only those exercises that immediately felt helpful. It was possible to find the right kind of exercises, with the physiotherapy being client led, whereby the physiotherapist listened to patients and took into account their knowledge, opinions and symptoms in planning the treatment. Physiotherapists listening to the whole story and bringing up psychosocial issues was appreciated. When the treatment was executed according to patients' needs and goals, they felt that they were in safe hands. Feeling that someone was genuinely interested and trying to help, guided patients through difficult times:

I don't know how, but somehow I get the feeling that he was really interested, and really I don't know how you

see or sense that... It can also be that you yourself read the people wrong, but somehow I get the feeling [that] he's genuinely trying to help and that I don't need to worry but he thinks of ways of making me feel better. (B6)

Empathy and taking care of the patient as a whole person were considered to be important aspects of caring physiotherapy.

3.5 | Summary of the findings and critical aspects

The study identified a range of clinical encounters across healthcare, mostly with doctors and physiotherapists, but also with acupuncturists, massage therapists, and so forth. In the first, narrowest category, patients were searching for help to figure out what was wrong with them, but their expectations were not met in the HCS, and even though encounters took place, a connection was not built. To develop the clinical journey of patients with LBP, the step from the first to the second category is critical because it is here that the rehabilitation can actually get started. It was critical that the HCPs were attentive and tried to understand the patient's needs, even though it was sometimes hard to find a common language.

To progress in the rehabilitation process, a patient-centred approach was needed, and a strong therapeutic alliance was necessary between the second and third categories. The responsibility for rehabilitation started to shift slowly from the professional to the patient. Finally, in the fourth category, patients gained agency over their own lives. LBP no longer dominated their lives and they had the possibility of contacting the HCP if needed (see Figure 1).

4 | DISCUSSION

The results show a range of clinical interactions – from very negative and disempowering to empowering and life changing. All patients were already in the HCS in public or occupational healthcare but most of them had additionally searched for help in the private sector because they felt that the system had failed them. Many did not receive what they felt they needed in the private sector either, and felt stuck in the first and second categories with their lives on hold, as reported previously by Bunzli, Watkins, Smith, Schütze, and O'Sullivan (2013). To be able finally to manage on their own, patients reported that care should be individualized and include their whole life circumstances – organized within a biopsychosocial framework so that they can gain knowledge related to their own situation. This is a challenge for HCPs as most patients had biomedical beliefs about their

LBP. Support from peers and family was considered to be important as well. According to our results, patients perceived it as crucial to have a clear treatment plan and clear goals, with a HCP who is responsible for the whole clinical process. Having professionals who are consistent and know patients' whole story was considered to be important in order to find the appropriate clinical pathway. Positive interactions can have a life-changing effect on patients' way of life and on their families.

Themes that arose from patients' conceptions in the present study were mostly in agreement with those seen in other studies, within different countries and contexts. Our results for the second and third categories were similar to those of Hopayian and Notley's (2014) systematic review of the expectations and experiences of healthcare of patients with LBP and sciatica. Common themes include HCPs conducting a full assessment, considering the patient context, having good interpersonal skills, and providing information and a diagnosis. Hopayian and Notley's (2014) notion that patients who lack an explanation for their pain, and advice on what they can do by themselves, do not recover was similar to our results of the first category, "non-encounters". Bunzli et al. (2013) also reported similar findings. Similarly, MacNeela, Doyle, O'Gorman, Ruane, and McGuire (2015), in a study of patients with chronic LBP, reported that unsatisfying relationships with HCPs often led to patient disappointment as the care was seen to be depersonalized. The conceptions in our fourth category mostly describe encounters with physiotherapists, a finding consistent with that of MacNeela et al. (2015), who found that patients' perceptions of physiotherapists were mostly more positive than those of doctors in primary care.

While patients wished the encounters to be empathetic and individualized, in our study these aspects were often not sufficient to achieve autonomic agency. A systematic review of patient-centred communication and therapeutic alliance (Pinto et al., 2012) found a lack of studies that explored communication in promoting patients' sense of autonomy and competence. Oliveira et al. (2012) suggested interventions to train clinicians in communication that values patient autonomy, which would enhance satisfaction with care. They suggested the length of consultation, understanding of patients' experiences and development of a relationship based on emotional support as important factors in improving satisfaction with care. According to our study, encounters with HCPs that encouraged patients' own understanding of their activity and responsibility, but also the possibility of contacting their HCP when needed, were considered to be important. In addition to building a good therapeutic alliance, creating patient autonomy was seen to be central to independent living.

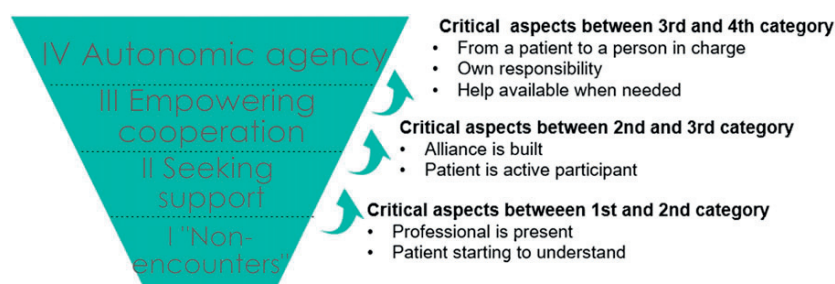


FIGURE 1 Hierarchy of the descriptive categories of encounters in the healthcare system, and critical aspects between the categories

TABLE 2 Messages to healthcare professionals from patients with low back pain

Messages to healthcare professionals from patients with low back pain	
We find it unhelpful when you...	We find it helpful when you...
- Don't listen to us	- Are confident and thorough
- Interrupt us	- Care and take time to listen to our worries, concerns and fears
- Don't consider our expectations	- Can understand how pain has an impact on our life
- Give inconsistent information	- Explain why we have pain, using simple language
- Give us scary information	- Provide examples and resources
- Provide information we don't understand	- Reassure us and build our confidence
- Do not give a clear explanation for our pain	- Are empathetic and supportive
- Don't support us	- Summarize things for us
- Don't involve us in our rehabilitation plan	- Understand our goals and life circumstances
- Don't provide us with a clear treatment plan	- Remember that we are people
- Don't write things down for us	- Use humour with us
- Sign us off as sick	- Make us feel safe
- Blame us for our problem	- Help us to reflect and become aware of our body
- Are in a hurry and rush us	- Put us in charge, with you working as a coach
- Don't follow us up	- Give us time
- Overtreat us unnecessarily	- Provide clear instructions (written or on electronic devices) and a long-term plan that is flexible and adapted to our lives
	- Help us to modify our lifestyle
	- Give us feedback
	- Let us contact you
	- Get our family involved in our care

The use of the recall interviews revealed that much of what HCPs say during the first appointment is forgotten by the patient. A written summary of the themes discussed with the professionals and the assessment could be helpful to address this. It is important that this documentation promotes a positive understanding of patients' health concerns, to ensure health literacy. The use of web-based health care services may assist this process.

4.1 | Limitations and strengths

The use of recall videos as discussion prompts, the fact that the patients were sampled from across Finland, and that were all rated as high risk were strengths of the study. Although the results broadly agreed with those of other studies, they may not be extrapolatable to low-risk patients and to other cultures. Qualitative results provide an insight into the individual but are difficult to generalize because of the small sample. A small data set enables a deeper understanding of the phenomenon, and 10 interviews is normally enough to capture the variability of the phenomenon (Åkerlind, 2008). No external review of the data was carried out.

5 | CONCLUSIONS

The present study explored the phenomenon of the clinical journey of patients with LBP in the HCS. The themes varied across four categories, from "non-encounters" to autonomic agency. The key differences between the first and second categories were the HCP being present

and patients starting to understand their LBP. Between the second and third categories, the key differences were therapeutic alliance and active participation of the patient. Finally, the key differences between the third and fourth categories were the patient being in charge and taking responsibility for their LBP, and the knowledge that help is available when needed. Messages from patients to HCPs that arose from the present study are presented in Table 2. The results may help in improving the care of patients with LBP.

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APPENDIX

PATIENTS' GENDER, AGE AND DURATION OF INTERVIEW

Patient	Gender	Age	Duration of interview (min)
A	F	23	58
B	F	36	61
C	M	43	50
D	M	39	72
E	F	66	89
F	F	36	83
G	F	56	55
H	M	23	85
I	M	42	45
J	F	63	71
K	F	69	57
L	M	45	53
M	F	20	43
N	F	45	62
O	F	40	57
P	F	61	76
Q	F	40	51
			Total: 1068 minutes

F, female; M, male



II

PATIENTS' CONCEPTIONS OF UNDERGOING PHYSIOTHERAPY FOR PERSISTENT LOW BACK PAIN DELIVERED IN FINNISH PRIMARY HEALTHCARE BY PHYSIOTHERAPISTS WHO HAD PARTICIPATED IN BRIEF TRAINING IN COGNITIVE FUNCTIONAL THERAPY

by

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Patients' conceptions of undergoing physiotherapy for persistent low back pain delivered in Finnish primary healthcare by physiotherapists who had participated to brief training in Cognitive Functional Therapy

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Declaration of interest

Peter O'Sullivan and Riikka Holopainen have received fees for speaking at conferences and providing clinical workshops for health care professionals in the management of musculoskeletal disorders. Jaro Karppinen has received fees for lectures from MSD, Pfizer and

Orion. Scientific advisory board: Axsome Therapeutics Inc. Arja Piirainen and Pirjo Vuoskoski have no conflicts of interest to declare.

Abstract

Purpose: To explore the conceptions of patients with persistent low back pain (LBP) of undergoing physiotherapy delivered in Finnish primary healthcare by physiotherapists who had participated to brief training in Cognitive Functional Therapy (CFT).

Methods: As part of a feasibility implementation study exploring CFT in management of LBP in the Finnish primary healthcare system, we interviewed nine patients from four geographical areas in Finland after receiving care. We used a phenomenographic approach to explore the variation in their conceptions.

Results: The analysis revealed four descriptive categories: ‘hung out to dry’, ‘stuck’, ‘making sense and taking control’, and ‘holistic approach to care and living’, that varied based on six themes.

Conclusions: Although the participants accepted this approach to care well, there was significant variation in patients’ conceptions. Restricted access to care within the healthcare system and a lack of social support led some of them to feel they had been left alone to suffer with their pain. On the other hand, based on the results of this study, positive experiences of physiotherapy and good collaboration with the physiotherapist, wider social support outside of physiotherapy, a better understanding of the multidimensional nature of pain and the acquisition of self-management skills were reported as positive aspects of undergoing physiotherapy that may be related to positive treatment outcomes.

Keywords

Phenomenography, Psychologically informed physiotherapy, Cognitive Functional Therapy, conceptions, low back pain, physiotherapy, primary health care

Introduction

Major guidelines emphasize the use of a biopsychosocial approach in the management of persistent LBP [1, 2, 3]. The biopsychosocial model as presented by Engel [4] was originally not a pain model, but was later applied in management of musculoskeletal pain conditions. Biopsychosocial approach can be seen as both a philosophy underpinning clinical care and as an approach to clinical practice. It stresses the importance of understanding how multiple biological, psychological and social factors affect person's pain experience and patient-centeredness is at the heart of this approach [5, 6]. An application of biopsychosocial approach in field of physiotherapy, psychologically informed physiotherapy (PIP), can be seen as a conduit between traditional biomedically-based, physical impairment-focused physical therapy practice and cognitive-behavioral approaches developed originally to treat psychological conditions. It combines cognitive-behavioural approaches with physiotherapy practice, and takes into consideration the biopsychosocial contributions to a person's musculoskeletal pain experience [7]. Cognitive Functional Therapy (CFT) can be considered one example of PIP [8]. CFT is a physiotherapist-led cognitive and behavioural intervention that utilizes a biopsychosocial clinical reasoning framework to explore, identify and manage common barriers to recovery (e.g. negative pain beliefs, emotional distress, fear and avoidance of movement and activity). It aims to individually coaching people with LBP in the self-management of their condition. The key aspects of CFT include helping people make sense of their pain from a biopsychosocial perspective, develop pain control strategies during graduated exposure to engage with previously avoided movements and activities aligned to their functional goals, and adopt healthy lifestyle behaviours [8, 9].

Physiotherapists face challenges when learning and implementing biopsychosocial interventions as this requires upskilling especially in understanding psychological aspects of pain and a large shift in their professional role. Other major barriers reported by

physiotherapists are patients' biomedical beliefs and treatment expectations [10, 11]. Furthermore, current healthcare systems in many countries do not provide the necessary access and resources to support guideline-recommended physical and psychological therapies for people with persistent LBP, in order to deliver effective care [12]. A growing number of studies are exploring physiotherapists' perceptions of learning and implementing biopsychosocial interventions [10], and a number of qualitative studies have investigated patients' experience of living with chronic pain [13] and LBP patients' expectations and experiences on the management of LBP [14, 15, 16]. However, the perceptions of patients with LBP after undergoing biopsychosocially oriented physiotherapy remain an under-researched area as we were able to find only two previous qualitative studies around this topic.

Wilson et al. [17] reported that patients with chronic pain who had benefited from PIP perceived it as strikingly different from traditional, biomedically oriented physiotherapy. They experienced that the physiotherapist worked with them individually, as a whole person and paid attention to their thoughts and emotions and their whole body, not just the painful area. They considered this surprising but important. They also experienced their physiotherapists as fellow human beings who cared for them, not just professionals, in contrast with their previous experiences of remote and impersonal clinical interactions. Although these factors increased their adherence to treatment, they also reported challenges within the process, such as discrepancy between expectations of the management and contents of PIP, strong and not always pleasant emotional experiences elicited by the exercises, and distress that developed from their growing awareness of the impact that pain has had on their lives [17]. Bunzli et al. [18] reported that for patients who underwent a CFT intervention, changing pain beliefs to a more biopsychosocial perspective and achieving independence were important for achieving a successful outcome. A strong therapeutic alliance, development of body awareness and the experience of control over pain were considered important precursors for changing beliefs. To

achieve independence, problem-solving skills, enhanced self-efficacy, decreased fear of pain and improved stress coping were considered imperative. Those who did not respond to treatment continued to feel defined by their pain and maintained a biomedical perspective.

Previous research has also suggested that discussing psychological and social factors during physiotherapy was well received by the majority of people. In one study (Kamper et al. 2017), 60% of patients who had persistent LBP hoped to discuss problems in their lives with their physiotherapist. However, some of them interpreted questions about psychosocial issues to represent doubts about the legitimacy of their pain. This points to the need for a broad biopsychosocial perspective in the management of LBP, and the importance of communication skills in order to ensure that people with LBP don't feel invalidated while asked about psychosocial issues during the interview [14].

As studies on the perspective of patients with persistent LBP who receive biopsychosocially oriented physiotherapy are scarce, it is important to gain more knowledge about whether this kind of approach is acceptable to these patients and how they understand it. We were interested in understanding LBP patients' conceptions of undergoing physiotherapy delivered in the Finnish healthcare system by physiotherapists who have received brief CFT training. Exploring patients' conceptions is important for understanding the barriers to and enablers of implementing this approach in the healthcare system [8].

Furthermore, we wanted to understand the conceptions of all the participants, not only those who reported benefitting from the treatment. We chose a phenomenographic approach to capture the variation in their conceptions [19, 20, 21]. Therefore, the aim of the study was to explore the conceptions of patients with persistent LBP of undergoing physiotherapy delivered in Finnish primary healthcare by physiotherapists who had participated to brief training in CFT.

Materials and methods

Study design

To gain further understanding of biopsychosocially oriented physiotherapy from the perspective of people with persistent LBP, a qualitative study was conducted in parallel with a feasibility study exploring the implementation of a brief CFT training intervention for physiotherapists working in Finnish primary healthcare (public and occupational healthcare). The dataset of this study consists of transcripts of semi-structured interviews with patients with persistent LBP who underwent physiotherapy delivered by physiotherapists who had participated in brief CFT training. The training of the physiotherapists consisted of four to six days of workshops that took place in April 2016 (initial workshop) and January 2017 (booster-session). These workshops aimed at equipping the physiotherapists with understanding of biopsychosocial nature of LBP, enhancing their communication skills and developing an understanding of how to deliver CFT to patients with persistent LBP. No direct mentoring was given or clinical observation made of the physiotherapists working as part of the training. More detailed description of the training intervention of the physiotherapists can be read elsewhere [11].

In the healthcare environment in which the study was nested – Finnish public healthcare –only a limited number of physiotherapist appointments are usually provided. Occupational health services usually cover one to three occupational physiotherapist appointments. In public healthcare, the number of appointments available depends on the healthcare district. In some districts, the physiotherapists decide on the number of appointments each patient needs, whereas in other districts the maximum number of visits is limited to three to five per condition/year. Often, individual physiotherapy appointments are followed by group-based physiotherapy.

Participants

Eighteen physiotherapists who underwent the training provided a video of a consultation between 3 and 16 months after the training was completed. Because no competency checking of the physiotherapists was conducted within this study, we did not know whether the consultations were delivered according to principles of CFT. Therefore, for the purposes of this study we needed to identify participants who had experiences of physiotherapy where psychosocial and lifestyle factors were discussed. The first author watched the videos and identified 12 clinical encounters in which these factors were explored with the patient in at least two areas. These included for example beliefs about the reasons for pain, pain-related fear, anxiety, mood, stress, how pain affected aspects of their lives such as social and work participation, physical activity, social support, treatment expectations, and the patients' values and goals. The 12 patients on these videos were then contacted by the first author and invited to participate in the study. Nine of them agreed to participate, one declined because of mental health issues and two could not be reached. Two of the interviewees were men and seven were women. The mean age of the interviewees was 52 (range: 31–72 years). All the participants were medium/high risk in one or both of the Start Back Tool [22] and short form of Örebro [23] questionnaires, indicating that psychosocial components were included in their pain presentation. All had persistent pain and pain duration was 24–36 weeks for two interviewees whereas the rest reported having pain for more than one year. They lived in the area of four different healthcare districts in Finland (South Karelia, Tampere, Oulu and Päijät-Häme). All participants had previous experiences of physiotherapy. Table 1 presents the demographic data of the interviewees. During the course of this study, the participants had received one or more individual physiotherapy sessions and many had also participated in group physiotherapy. Pseudonyms are used to protect the participants' anonymity.

Patient pseudonym	Age	Gender	Start Back score	Örebro score	Working status	Length of interview (minutes)
Tuula	71	Female	4/2 -> medium risk	57 -> high risk	Retired	47
Anneli	60	Female	6/4 -> high risk	70 -> high risk	Disability pension,	50
Pirjo	51	Female	5/2 -> medium risk	53 -> high risk	On sick leave for 1 year	48
Seppo	57	Male	6/5 -> high risk	54 -> high risk	Unemployed	54
Sanna	31	Female	4/2 -> medium risk	29 -> low risk	Working full time	63
Ritva	53	Female	5/3 -> medium risk	53 -> high risk	Working full time	69
Marianne	56	Female	8/4 -> high risk	74 -> high risk	Unemployed, applying for disability pension	64
Aino	54	Female	7/4 -> high risk	51 -> high risk	Working full time	28
Kalle	39	Male	1 -> low risk	41 -> medium risk	Working full time	36
Mean	52					51 / total 7h 39min

Table 1. Demographic details of the interviewees

Data collection

Interview data were collected using semi-structured recall interviews utilizing the participants' previously videotaped initial physiotherapy sessions, on average 1.5 years after the initial physiotherapy sessions that were videotaped. This delay was due to problems receiving videos from all physiotherapists and delays in other parts of the larger research project. An interview schedule (Appendix 1) was followed but rather than be prescriptive, the schedule was more of a guide for the interview and did not dictate its exact course. The questions were adapted flexibly to the specific context during the interview. The participants were first encouraged to talk about their experiences of the particular physiotherapy encounter and subsequent

appointments if they had had more than one, and afterwards the parts of the videotaped physiotherapy sessions where psychosocial and lifestyle factors were discussed, were watched together with the participants to support recall of the situation. The duration of the interviews was on average 48 minutes (range 28–69 min, total 7 h 39 min). Seven of the interviews were conducted in person in a place chosen by the interviewees and two using a video conference application due to tight schedules of the participants. During one interview, the partner of the interviewee was present, according to her wish. Informed consent was obtained from the participants before their interviews. All the interviews were conducted in Finnish by the first author who was previously unknown to the participants. The interviews were audio-recorded and transcribed verbatim [19, 24]. The quotations used in the manuscript have been translated into English by a professional translator. The resulting data consisted of 134 pages (font = Times New Roman 12, spacing = 1.5). The transcriptions served as the raw data for the analysis and were not sent to the participants for checking [20].

Data analysis

A phenomenographic approach was used to analyse the data. Phenomenography explores the variation in the ways in which interviewees perceive the phenomenon in question [25] and as it is a data-driven approach, the categories of description and themes arise from the data [20].

We followed the principles of phenomenographic analysis presented in the literature [19, 20, 25]. The analysis process started with listening to the audio-recorded interviews multiple times and repeated reading of the transcribed data (RH). We used a Microsoft Word (Microsoft Corp, Redmond, Washington, USA) document for the initial coding of the data and during the analysis process we also drew mind maps of the meaningful units. After comparing and contrasting the meaningful units we identified and grouped them to identify similarities and differences. By identifying themes of variation, we determined the relations and hierarchies between the

categories of description (RH, PV & AP). We constantly evaluated the consistency between the original data and our findings to minimize the influence of our own interpretations.

We simultaneously identified the critical aspects between the categories, progressing from a less complex understanding to a more developed one [21]. The categories of description illustrated the variation of conceptions of undergoing physiotherapy delivered by physiotherapists who had participated in brief training in CFT and were structurally and logically related to each other. They formed a hierarchical whole [20, 25, 26]. The categories as such represented the expanding awareness of this phenomenon and described the conceptions of the nine interviewees on a collective level instead of describing different types of individuals [20, 21, 26].

We obtained ethical approval from the Northern Ostrobothnia Hospital District Ethics Committee. All the participants were informed of the aims of the study before the interviews and provided informed consent. We followed the consolidated criteria for qualitative research (COREQ) guidelines in reporting this study [27]

Results

The phenomenon of undergoing physiotherapy delivered in Finnish healthcare system by physiotherapists who had participated to brief training in CFT, as perceived and conceptualised by patients with persistent LBP, was captured by four hierarchical categories of description.

I) Hung out to dry; II) Being stuck; III) Making sense and taking control; and IV) Holistic approach to care and living.

The categories were hierarchically structured and the lower categories represented more developed conceptions of the phenomenon. The categories varied on the basis of six themes: 1)

Life course continuum; 2) Expectations versus experience; 3) Physiotherapist as a person; 4) Safety net; 5) Pain beliefs, and 6) Self-management (Table 2, Figure 1).

The variation of the themes within each category of description are highlighted by the name of each theme in bold, and the name of each theme of variation is in italics throughout the results section (see Table 2). Pseudonyms of the participants' names are used to identify quotations (see Table 1).

Categories	Hung out to dry	Being stuck	Making sense and taking control	Holistic approach to care and living
Themes				
Life course continuum	Left empty-handed	Living in the shadow of pain	Supported to take charge	Physiotherapy as a turning point
Expectations versus experience	-	Disappointment in physiotherapy	Astonishment with physiotherapy	Physiotherapy as treatment of body and soul
Physiotherapist as a person	-	Timid physiotherapist	Multidimensional knowledge of the physiotherapist	Wonderful, caring physiotherapist
Safety net	Dependence on others	Lack of social support and understanding	Valuable support net	-
Pain beliefs	Seeing the body as broken and incurable	Seeing pain as a mystery	Importance of being reassured	Seeing a human as something holistic
Self-management	Lack of support/difficulties with self-management	Trying hard without success	Supported to continue	Seeing self-management as crucial

Table 2. Themes of variation and categories of description of undergoing physiotherapy delivered in Finnish primary healthcare by physiotherapists who had participated to brief training in CFT.

Category I 'Hung out to dry'

The first category describes the interviewees' conceptions during the process of physiotherapy ending with feeling 'hung out to dry', lacking independence and ways to control their pain, and having to financially depend on others. Even though they reported benefiting from

physiotherapy, once it ended, they felt they had been left alone and without support. They also had to depend on their partners and rehabilitation/disability benefits, and felt the healthcare system failed to support them with their ongoing financial problems and disability. Once the support from the physiotherapist ended, it was also more difficult to continue with self-management: they reported failing to do their exercises by themselves without regular support. Despite meeting a physiotherapist who had talked to them about psychosocial factors, their pain beliefs remained negative and they saw their bodies as broken and incurable.

The first identified theme of variation was **life course continuum**, which in the first category manifested as being *left empty-handed* by the healthcare system. Some of the interviewees reported being left ‘empty-handed’ and feeling frustrated after the physiotherapy appointments ended. They had received physiotherapy and some had also participated in group sessions and reported benefiting from these, but everything had ended all at once and they felt they were left alone with their pain, which still considerably affected their daily lives and work ability. They perceived that this negatively affected their mood and wellbeing. They wanted more physiotherapy appointments, and more group meetings that would continue regularly throughout the year, and to have someone to help them with paperwork.

Anneli: *‘Well I was left empty handed now that this [physiotherapy] ended and the rehabilitation and of course now that I’m retired the occupational rehabilitation has ended so everything is finished now so I just try to manage... so of course you can go to physiotherapy if you have money but it’s so expensive to go to private physiotherapy that with my income of a thousand euros I can’t go there many times a month.’*

Marianne: *‘Well I ended up with nothing at all so that’s also why I felt down in the autumn, this is how it goes...’*

In this category, the themes ‘expectations versus experience’ and ‘physiotherapist as a person’ did not emerge.

In this category, the fourth theme of variation, **safety net** manifested as *dependence on others*. Some interviewees who were sicklisted or unemployed reported that they felt ashamed that they needed to be supported by their partners financially and had to rely on rehabilitation/disability benefits because they could not bring income to the family. Being supported by a partner was stressful and the interviewees felt they were at the mercy of others and that this was not taken into consideration during physiotherapy or by other healthcare professionals, even though it had a great impact on their wellbeing. Some of the rehabilitation benefits only came in short periods and the participants worried about their future because they did not know whether or not the benefit would continue. They also found it stressful to fill in all kinds of application forms and have them rejected. One interviewee reported that it was a huge relief to retire because the insecurity ended.

Marianne: *‘It’s stressful, yes, and kind of... money politics, to be at the mercy of others... it’s quite horrible and then basic unemployment benefit from which the activity supplement was taken away so it’s under 500 euros, that’s my monthly income so that’s maybe the biggest issue, the money... the money thing... that in the middle of the night I start thinking about it so I just walk around even though I’m not in pain.’*

Anneli: *‘They were such short periods these rehabilitation benefits, just a month or two and off you go to the doctor again and send off new papers and wait for the insurance company to reply and towards the end of the waiting period I started to lose sleep when I thought about it in the middle of the night that what if they don’t give it to me, what will I do then... The first day of this year I retired so that helped in a way, at that point of course it’s not nice that I can’t [work]*

but the running back and forth and the uncertainty ended, thinking what about next month so in that sense it was a relief for me mentally.'

The fifth theme of variation, **pain beliefs**, was described in this category as *seeing the body as broken and uncurable*. Even though the patients had discussed pain within the biopsychosocial framework with the physiotherapist during the physiotherapy appointments, many still talked about their pain in mechanical, negative terms and saw their body as broken and uncurable. Many still connected the worsening of their symptoms to degeneration and believed that nerve compression and facet locking were the reasons behind the pain.

Seppo: *'Well the spine, there's some stenosis in my lower spine and higher up some degeneration and even scoliosis so it somehow twists it into the wrong position and because of the stenosis in my lower back then it's my lumbar spine that's always the most painful ...'*

Aino: *'When I need to reach down for something off the ground or carry – it [back] doesn't like that at all it's the strain yes... You notice right after, you can hardly straighten yourself up afterwards.'*

In the theme of **self-management**, the interviewees reported a *lack of support*: they had received home exercises from their physiotherapist, but they had stopped doing them when they had less pain or otherwise had no motivation to continue. Many perceived that they did not receive enough support and would have wanted more physiotherapy appointments for support to self-manage their condition, reporting that without follow-up they did not continue with their self-management programme. They also reported worrying that at home they were not sure whether they were doing the exercises correctly. Some had participated in group exercises but they reported that once the meetings ended they stopped exercising because they found it difficult going to the gym independently, and the end of group meetings meant the end of their social life, resulting in seclusion for some.

Anneli: *'Yes when the stretching instructions aren't on paper you don't necessarily do them correctly like when the instructor is there and shows you how your arm needs to go there so that's what I'd like to have more of, that would be good...'*

Marianne: *'It would be so good to go, I am so bad at going alone and I told Anna that I won't be able to do this alone, like, I've been on sick leave for ten years and away from working life so I've become quite a hermit so it's so hard to actually go, to make yourself go to the gym alone somewhere, I can't, somehow it's not my thing.'*

Category II Being stuck

In the second category, the interviewees described their struggles with rehabilitation. Physiotherapy was a disappointment for them in the beginning because it was not what they had expected based on their previous experiences. As in the first category, a lack of support was also perceived to negatively affect their attempts at a better life. Although in this category, some support was available, it was not considered enough by the participants. Pain remained a mystery to them and even though they were trying hard to self-manage, they were not getting better.

The **life course continuum** theme expanded from the first to the second category from being left empty-handed to *living in the shadow of pain*. The participants reported that even though at the moment they were doing quite well, they did not really know why and the threat of the pain possibly worsening was always lurking around the corner. They reported that their pain had been coming and going and physiotherapy had not answered their questions about this nor given them the skills to affect the situation.

Sanna: *'Well my back issues during the last years have fluctuated, I always have some aches and pains and they vary ... well, I'm always aware it's there and then there are times when I notice that I haven't had back pain and I start thinking when will it come back... I always have*

to have some kind of ailment, I'm always aware it's there, the potential back pain will strike any minute now...

Anneli: *'No, really, it's so bad, this back... that when it hurts it hurts and there is nothing I can do about it'*

In the theme of **expectations versus experience**, being stuck was seen as *disappointment in physiotherapy*. In this category the interviewees perceived physiotherapy as differing from their previous experiences; it either did not meet their expectations, or their wishes were not taken into account. Some saw it as negative that physiotherapists no longer provided massage or manual therapy in public healthcare, they understood it was only home exercises now. This made them question the usefulness of physiotherapy at first. Some of the interviewees perceived that they did not remember much about what they had talked about at the physiotherapy appointment and about the exercises. Some also felt they were not able to learn what the physiotherapist tried to teach them, and all this meant that they were stuck in their rehabilitation process.

Tuula: *'Yes I've been to physiotherapy before, I've been massaged, physiotherapists don't do massage nowadays, I thought she would give me a massage, but she doesn't do that anymore, I need to go privately...'*

Pirjo: *'Well I went there a couple of times but it was those tapes, those kinesiology tapes but I can't remember whether we did some exercises... I can't remember, maybe we just talked and...'*

The first variation of the **physiotherapist as a person** theme emerged in the second category: *timid physiotherapist*. One interviewee perceived her physiotherapist as timid in the beginning because she did not provide manual therapy as the patient had expected. In addition, the physiotherapist's inability to answer her question about the reason for her pain made her report

that she felt she had not been heard or understood. At this point this made the interviewee question the whole treatment.

Anneli: *'I'm not sure, but in my opinion Satu was young, like a student apparently or had she just graduated so she was a bit timid like, of course with this life experience, one expects concrete actions that she didn't really dare to take but I can't criticize her otherwise, she was very proper and a nice girl all in all but somehow something... I wish I could say...some kind of manipulation I would have sort of expected more but she's not a masseuse, I have to understand that...'*

In the **safety net** theme of this category, the interviewees reported a *lack of social support and understanding* from their employers, co-workers or families. It was not possible to modify their work or work shorter hours to allow them to continue working despite their pain. They understood that this had a negative effect on their rehabilitation. Many also reported that they received no empathy from their partners or that their partners were fed-up of constantly hearing about their pain. Some reported feeling lonely because of this and that they had stopped asking for help and just tried to manage by themselves. There were also reports of not being believed and understood by friends and colleagues because pain is invisible. There was a great deal of stigma.

Pirjo: *'Yes for about six months I got to do shorter workdays but then I needed to start or should have had to start working full time and I couldn't do that, my employer didn't let me do shorter hours anymore, and I had to go on sick leave.'*

Marianne: *'Matti [husband] is not at all empathetic or like that at all...that's also why I feel quite lonely because he's not at all that kind of person... I always remember when I came from the surgery and I came lying in that kind of invalid taxi because it was day surgery and I came here, we still had the city apartment but I wanted to come here to the countryside and when the*

taxi driver helped me and gave me those crutches and the taxi drove away Matti said why are you walking with those crutches... very dismissive.. like very, but when he has a bit of a runny nose the world is upside down.'

The interviewees discussed their **pain beliefs** and reported being uncertain about the reason for their pain even after having physiotherapy and discussing pain with their physiotherapists. They continued *seeing pain as a mystery*. Different professionals had given them different explanations and advice and the interviewees claimed that this made them even more confused and frustrated. Some stated that even though the physiotherapist had tried to explain the role of psychosocial factors in their pain experience, they did not see the connection to their situation and remained sceptical and uncertain. They still considered it appropriate to ask about these issues in physiotherapy because for some others they might be relevant. The uncertainty also created concern about the future.

Kalle: *'Well I guess I don't know whether tension can be called the cause of the pain but I don't know what causes it but it's more a consequence, but no, I still have no idea why my back bothers me so much, I don't know...'*

Sanna: *'What irritates me very much is that I saw a doctor who said I don't have scoliosis at all and then I went to see a physiotherapist who said I have a lot of scoliosis and then I went to a doctor who said I have scoliosis and then to a physiotherapist who says that yes this is just normal, that nobody has a straight back... so I have had such different diagnoses that I don't know whether I have scoliosis or not and whether it matters or not, so every professional I've met has given me different views...'*

The theme of **self-management** manifested in this category as *trying hard without success*. Despite investing a great deal of time in doing the exercises prescribed by the physiotherapists and trying to pay attention to the ways in which they worked, the pain could maybe be alleviated

but it didn't go away; they were stuck in the current situation. Some also reported that the exercises made the pain greater, but they understood that it was necessary to move, otherwise things would get worse.

Seppo: *'I know beforehand that even if I do a lot of exercise the pain isn't going away but it helps if you compare it to what it was in the beginning when I could do nothing and would all the time be sick and sore and in a bad mood and nervous.'*

Pirjo: *'As I said earlier, it takes the whole day for me to take care of myself, so I do a lot but it's not getting better'*

Category III Making sense and taking control

The focus of this category was on factors that appeared during the physiotherapy process that supported participants' progress towards making sense of their pain and taking control to be able to live better. The participants reported receiving valuable help from their physiotherapists and started to get things under control and be in charge of their own rehabilitation. They valued the knowledgeable and professional physiotherapists as well as the group sessions in which they participated. The group was important for both peer support and support self-management. They also understood the importance of having a strong support network outside the physiotherapy context. Discussions with the physiotherapist reassured many that there was nothing seriously wrong with them.

In this category, **life course continuum** meant that the interviewees reported that they were *supported to take charge* of their situation. Physiotherapy was seen as necessary, because it helped them make sense of their situation, enabled them to exercise and the interviewees were able to make choices in their lives based on knowledge. They also reported learning new ways to manage the pain from the physiotherapist, such as relaxation and breathing exercises, which helped them feel better. Some had already earlier had strong self-efficacy and managed their

pain by themselves, but they perceived that physiotherapy strengthened their understanding that pain can be prevented by exercising. The experience of being able to self-manage was considered important.

Ritva: *‘Hmmm... well in my opinion it started quickly, as I said I got, kind of support from Meri and we concretely went through how I can relax because relaxation helped me...’*

Kalle: *‘Now that I think in the context of what I just preached about needing to do things yourself then it’s in line with this that the patient is taught to take care of themselves and it sounds wise and useful and I have done that, in another way by doing sports and exercising in another way but I could imagine that those who don’t go skiing in the darkness of the night, those would get the same benefits if they did these exercises independently.’*

The theme of **expectations versus experience** was seen in this category as *astonishment with physiotherapy*. Some interviewees reported having had negative expectations or negative previous experiences of physiotherapy and were sceptical about physiotherapy in the beginning, especially when it turned out to be different from what they had expected. However, they reported that their PIP physiotherapist was able to convince them that things could move forward and this was a very positive surprise. They understood that it was important to meet someone who was specialized in LBP management. That the physiotherapist asked about psychosocial and lifestyle factors came as a surprise to many of the interviewees and it felt a bit strange. They had not thought about the connection between these factors and pain before, or their previous physiotherapists had concentrated on only the painful body part. They perceived that it was a positive surprise to take a wider look at the situation.

Ritva: *‘And I have previously received [exercises from previous physiotherapists] for core muscles for them to support and I went to pilates for years and I don’t believe that my core muscles are in bad shape... so I was very suspicious when I went there [current physiotherapy]’*

but she [the current physiotherapist] convinced me that we will get somewhere with this [new approach]...'

Aino: *'Well at least they should check who is specialized in what so you could meet a physiotherapist who is specialized in back issues and not send you to someone with a different specialty... You should get to go to someone who has special knowledge in this specific field and then you would feel like things are progressing, not that they check you once and are quiet for a while and blablabla, sometimes it feels like that when you've met a physio so we'll just see what they say... And this was such a positive surprise even though I first felt uncomfortable about being videotaped but I soon forgot about the whole camera.'*

The patients' conceptions of the **physiotherapist as a person** broadened further in this category, which meant appreciation of the *multidimensional knowledge of the physiotherapists*. They understood that it was important that the physiotherapists had an understanding of different medical diagnoses and that they were able to adapt the exercises according to the patient's situation and ability. Being knowledgeable also meant to the interviewees that to be able to support them in understanding pain and taking control, the physiotherapist needed to understand a great deal about life in general, and psychology, and to have the ability to see that the person in front of them was stressed and there were other things going on in their lives as well as back pain, even though they did not say it out loud. The patients appreciated that the physiotherapists were professionals who understood people.

Ritva: *'Well for sure, she was so professional that she saw that there were other things in my situation than this back and that she could help me with them as they affected my back.'*

Marianne: *'At least for someone like me who is in terrible pain and has something wrong with their body the physiotherapist should be reliable, and they know a lot about other things in life and psychology and so on...'*

Making sense and taking control, in the **safety net** theme, required a *valuable social support network*. The social support network helped them enormously in coping with pain and many reported receiving support from, for example, friends, if it was lacking from the family. They understood that it was important to have people around who listened to their worries.

Aino: *'When I call my children or grandchildren I forget about everything, what could be better, and you know, I have a good husband who supports me.'*

Anneli: *'Yes... I feel that it's mood and other things, yes they have a lot in common, something helps or hinders, and all the sorrows and worries that you have...I've had such a really good support network that I've been able to cope with these [pains] and he [the husband] is someone I can talk to about anything, he listens...'*

This category expanded the understanding of **pain beliefs** to understanding the *importance of being reassured*. The interviewees understood that reassurance was an important part of the physiotherapy and other medical care they had received, to be able to understand that there was nothing seriously wrong with them. Many had previously been worried that they might have cancer or need an operation and were relieved when they found out they could continue doing their valued activities.

Ritva: *'Well that was a big thing [talking to the physiotherapist]...verbalizing, kind of... when you read it yourself somewhere you don't get verbal confirmation that it's nothing serious...'*

Marianne: *'Anna explained to me, I asked her after the latest MRI, to explain to me in Finnish what it says and she explained and it was a relief that there was an explanation for my pain, I already thought I was going crazy...the pain was terrible and the fear of something else, what if it's a tumour'*

In the theme of **self-management**, interviewees saw it as important that they were *supported to continue*. In a physiotherapy group they saw other people who were in the same situation.

The social aspect was important; meeting other people and sharing advice. Regular meetings with the physiotherapist also helped them keep up with their exercise regimen.

Tuula: *'Yes, and then the exercises get done when I go to the group meeting, well I do them at home too but less, but the group really is good, we do things and everyone goes through the machines and there is some exercising and yes, the group is the thing and all those people there.'*

Seppo: *'They gave individual advice that you can do this and that, and new instructions for the movements and handouts so I can do them at home'*

Category IV Holistic approach to care and living

In the fourth and widest category the interviewees describe their perceptions of participating in physiotherapy as holistic. They reached a new way of thinking and a holistic understanding of pain and multidimensional physiotherapy. This required a physiotherapist who was a nice person and who genuinely tried to help them. Exercise and self-management were seen as mandatory parts of the participants' lives.

The **life course continuum** theme broadened further in this category as the participants saw undergoing *physiotherapy as a turning point* in their lives that had changed their way of thinking and their outlook on their pain and their lives in general. This could mean finding a different attitude towards doing exercise or developing oneself, the ability to say no, and understanding the importance of sleep and recovery. Some understood that they had the right to take care of themselves and that they noticed that they had been trapped in a vicious circle and that there was a way out or that it was possible to accept the current situation and live well despite suffering pain from time to time. Some even became enthusiastic about studying pain and lifestyle factors on their own.

Anneli: *'It has maybe changed my thinking in many ways... that I have always worked like crazy and gone and served others all the time and now I can say no...'*

Aino: *'Well I can look at the back pain in a different way that it is not the main thing in that I can now deal with it differently... I was left with the feeling that I can handle it in a different way, well there are days when...damn it... but there are other things in life than back pain... it's not that...'*

In this category, the participants understood the importance of a **holistic approach to care and living** and they stated that in physiotherapy their situation was examined from a broader perspective than before. The interviewees saw *physiotherapy as treatment of body and soul*. Some even saw the multidimensional perspective on pain as an integral part of physiotherapy. This meant receiving good advice and new ideas for their own ways to manage pain but also emotional support from the physiotherapist and the ability to contact them and ask for advice if needed. They saw that when the physiotherapist asked more wide-ranging questions, it helped create trust between them and the patient. The physiotherapist was important because some patients had no-one else to talk to about their pain or about other things in life not related to pain. They also reported that asking more wide-ranging questions enabled the physiotherapist to get to know them better and through understanding their values, help them more effectively.

Anneli: *'Yes at best it can be the treatment of the whole person, treatment of the body and the soul so I see this only positively ... it's good...'*

Ritva: *'Yes I can say that those appointments were holistic, that I got so much of this kind of emotional support which I see as very important and a kind of encouragement and also very good advice on relaxation.'*

In this category, under the theme of **physiotherapist as a person**, the interviewees reported having a *wonderful, caring physiotherapist* and that they found common ground right away.

They perceived their physiotherapist as easy to approach and that the atmosphere was open – they did not need to watch what they said and they felt they were listened to and taken seriously. It was important to have enough time and to talk with their physiotherapist. They felt that the physiotherapist was genuinely trying to help them. They described their physiotherapists as warm, empathetic and positive, and as going the extra mile for them.

Sanna: *‘For sure because she listened and asked further questions and wasn’t in a rush and it felt like we had time and that she was actually interested in the issue...’*

Aino: *‘I think she was the sort of person that when I was there, she was solely for me and did everything to get things moving forward for me...yes she is an absolutely wonderful person’*

The theme of **safety net** did not appear as a theme variation in this category.

The theme of **pain beliefs** expanded further in this category as the interviewees started seeing being *human as something holistic*. They reported having started to understand pain within a biopsychosocial framework, holistically, and stated that therefore the treatment also needed to be holistic. They had noticed, for example, that being with their loved ones made them forget about the pain and understood how stress, mood, loneliness and lack of sleep affected their pain and wellbeing and on the other hand how pain affected their sleep and mood. Some had thought about these connections before but for most this came as new understanding.

Aino: *‘A human is a holistic thing so the situation should be treated holistically as well, in simple terms...these thoughts came from talking to Sara, I hadn’t thought this far before, that sleep and stuff like that can affect pain management’*

Tuula: *‘Well... what the problem is maybe loneliness because I got divorced and after that my friend died and things happened many years back, maybe that affects my back too...’*

According to the interviewees, in the theme of **self-management** in this category, they started *seeing self-management as crucial* in dealing with their LBP and that the responsibility was theirs. They gave themselves credit for their own efforts in the management of pain and their own wellbeing. They had found exercises that relieved their pain or they understood the benefits of exercise for their general health and wellbeing. They compared themselves with other people who did not do their home exercises and expressed the importance of their efforts to keep up exercising.

Kalle: *'It have to stress that if there is a week when I don't do anything my back aches for sure so I emphasize that it's up to me, of course nobody makes their back hurt, but I know what happens if I do nothing so then I'm a bit stupid if I don't do it, so some sort of exercise and movement is kind of compulsory.'*

Seppo: *'My brother had prolapses in his neck so he went to physiotherapy as well and he got some home exercises and after six months I asked him whether he had done the exercise and he said no, they didn't help and I said that I've done exercises for over ten years and they don't help in that way because this will not heal but they help make daily life easier.'*

Discussion

This study focused on the conceptions of patients with persistent LBP who had undergone physiotherapy delivered in the Finnish primary healthcare, delivered by physiotherapists who had participated to brief CFT training. When they were asked about their views on their physiotherapy encounters, they answered in a broader sense. During the interviews, they did not merely talk about what happened during the physiotherapy appointments, but also about how pain affected their whole life, including their financial situation, their social connections, and ability to work – aspects that have an influence on patients' attempts to manage their pain. The conceptions of undergoing physiotherapy varied greatly between the participants of this

study. Four categories of description were identified from the data: ‘hung out to dry’, ‘stuck’, ‘making sense and taking control’ and ‘holistic approach to care and living’. Several critical aspects were identified in these categories that may be essential factors to consider when attempting to optimize the management for people with LBP in the future (Figure 1). The participants of our study had varying levels of disability and lived within different healthcare districts in Finland. They were treated by physiotherapists who had only received brief CFT training with no direct mentoring or competency checks on their level of skills and care. Together these aspects may have had implications for the variation in the participants’ conceptions and the struggles some of the patients faced may be due to insufficient training of the physiotherapists, problems with the intervention itself or factors related to the healthcare system.

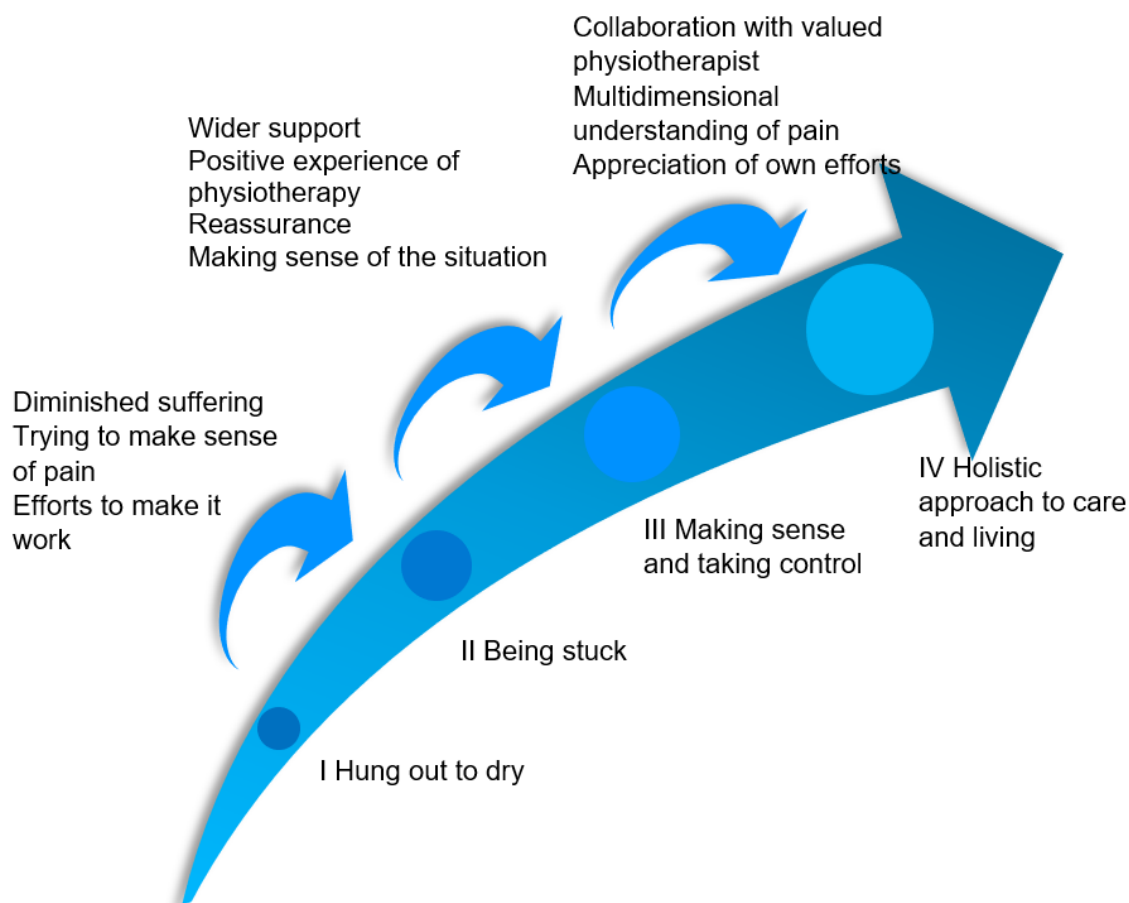
The critical aspects observed between Categories I and II that led to the expressions of ‘being hung out to dry’ to ‘being stuck’ in the process were diminished suffering, trying to make sense of pain and their own efforts to make it work. However, if there were positive changes, the participants did not understand the reasons behind them, and social support was still lacking.

The conceptions of undergoing physiotherapy evolved further between Categories II and III. The critical aspects that changed between these categories that enabled making sense and taking control of one’s own situation were positive social support networks and positive experiences of physiotherapy, allowing the patients to be reassured, take charge and start to make sense of their pain.

Finally, the critical aspects between Categories III and IV that may be seen as further enablers of positive conceptions and perceived outcomes of physiotherapy and enablers of a holistic approach to care and living from patients’ point of view were collaboration with the valued

physiotherapist towards understanding the multidimensional nature of pain and living well again despite pain, as well as appreciating their own self-management efforts.

Figure 1: Critical aspects describing transitions between categories while undergoing physiotherapy delivered in Finnish healthcare system by physiotherapists who had participated to brief training in CFT.



These results resonate with the ideas of systems-based practice and systems thinking in healthcare [28]. A system consists of interrelated parts and the literature has identified levels of systems in healthcare delivery that can also be seen in the results of this study [29]. The barriers and enablers, identified from the reports of the patients after undergoing physiotherapy delivered in the Finnish healthcare system by physiotherapists who had received brief CFT training, varied greatly. Some were related to individual aspects such as patients' pain beliefs and expectations. Other barriers and enablers were related to the care team, such as physiotherapists' qualities, and levels of social support and flexibility at their workplaces.

Aspects related to larger system and environmental level, in this context, those related to healthcare and social support systems, such as discontinuation of care and financial insecurity, were also reported to play a large role in the patients' experiences (Table 3).

Although some of the participants reported having experienced a turning point in their lives by undergoing physiotherapy and seemed to have reached a good outcome, similar to previous studies, many still reported negative pain beliefs relating to their 'damaged spine' or not understanding the reasons for their pain. Many seemed to have failed to understand the biopsychosocial message their physiotherapists had tried to convey to them [30, 31]. This finding is in line with that of Overmeer & Boersma, who reported that those who most needed the biopsychosocial understanding and approach to care had difficulties receiving the message. They found that depression and pain catastrophizing correlated with this difficulty [32]. Bunzli et al. also found that those with poor outcomes after a CFT intervention reported biomedical beliefs and continued feeling defined by their pain [18]. For many of our participants, the biopsychosocial approach to care came as a surprise and was different to what they had expected based on their previous physiotherapy experiences. Similarly participants of a study by Wilson et al. [17] saw PIP as strikingly different from their previous physiotherapy experiences. Like the conceptions presented in the higher categories (III and IV) in our study, Wilson et al. found that the participants saw PIP as individualized and holistic. All of our participants reported that it was acceptable to talk about psychosocial and lifestyle factors in physiotherapy even though some did not see them as relevant to their situation. We had no reports similar to some of those in Kamper et al.'s study, in which a few interviewees perceived the issues in these domains negatively [14].

Negative societal cultural beliefs about LBP seem to cause stigma towards people with pain, resulting in a lack of support from family, friends and the workplace, as seen in the conceptions of the participants of our study [33, 34, 35]. This needs to change so that the support received

by people in pain can be enhanced. More biopsychosocial cultural beliefs could also mean more positive beliefs and expectations of patient care. Social support is an important predictor of LBP outcomes. It is suggested that negative spousal relationships are one of the factors related to higher disability in LBP [36] and that good social support buffers pain-related stress, improves the reappraisal of pain and facilitates coping [37]. The results of our study support this view.

Similar to Wilson et al. (2018), our participants' conceptions highlight the importance of therapeutic alliance. [17]. The conceptions described in the higher categories show that the patients felt that their physiotherapist was genuinely interested in helping them and was caring, and they liked them as a person. However, there were also reports of the physiotherapist being timid and not listening to their wishes. Bunzli et al. reported strong therapeutic alliance, together with experience of control over pain and development of body awareness as the requirements for changing beliefs [18], consistent with previous research that has highlighted that a strong therapeutic relationship is a predictor of improved clinical outcomes [38], and that physiotherapists' interpersonal and communication skills are important factors of good therapeutic alliance [39].

From the participants' descriptions, it seems that although the physiotherapists who underwent the brief CFT training had started asking questions about psychosocial and lifestyle factors, the treatment that some of the patients received deviated from the principles of CFT. This could be expected on the basis of our recent review, which found that physiotherapists learning biopsychosocial approaches often did not deliver physiotherapy according to the treatment manual, but used it flexibly based on their preferences, and mixed and matched it with their previous ways of working [10]. The participating physiotherapists received no direct mentoring or competency assessment, and the healthcare system seems to have restricted the care of patients who would have needed continued support. Previous studies have highlighted the need for adequate support and skills training, especially related to psychosocial factors [10, 40].

According to the participants' conceptions, the constraints within the healthcare system made them feel like they had been left alone and abandoned. This was similarly reported in a qualitative study by Braeuninger-Weimer et al. that explored patients' views of orthopaedic consultations for back pain. The patients reported feeling that they had been left empty-handed with no continuation of care [41]. The participants of the study by Bunzli et al. with poor outcomes also reported lack of pain control and independence [18], which is reflected by the conceptions in the lower categories of description in our study. Many may not have reached independence, as they reported feeling 'hung out to dry'. They wished for more physiotherapy and ongoing support to self-manage. As in our study, previous studies have reported patients wanting future access to physiotherapy in the form of follow-up visits to keep up their motivation to continue self-management and to provide reassurance [42, 43]. Similar to the participants in a study by Cook et al., who explored LBP patients' views on active rehabilitation, some of our participants seemed to have remained dependent on their physiotherapists and reported having no control over their pain [44].

Even though for most patients with LBP the prognosis is good and recovery is fast, some patients still report symptoms after three months and even a year, and 20–30% of LBP patients end up having ongoing pain and disability [45]. To decrease the burden of LBP, we need to listen to the experiences of patients. Based on the results of this study, the possible aspects that could be targeted range from individual to system level factors (Table 3). This includes education to change patients' pain beliefs and working with patients' families and workplaces to increase the social support that they receive. These are things that all healthcare professionals could advance collectively. Physiotherapists need adequate training to equip them with the skills for building strong therapeutic alliances, validating communication and person-centred care to ensure patients feel heard and understood in terms of their worries and goals, and to align care with these goals. Furthermore, both patients and professionals face challenges of

limited treatment sessions, lack of time and limited funding. To decrease the burden of LBP, expensive low value care needs to be defunded, and adequate funding ensured for high value care [46]. A new model of care that treats LBP like diabetes or other chronic conditions, and focuses on supporting self-management but offers close monitoring and support is needed [46]. In the Finnish healthcare system this could mean, for example, better collaboration between physiotherapists and exercise instructors who work outside healthcare setting, for example in regional exercise services, continuing group-based exercise and utilizing online platforms to follow up patients. More flexibility in working life is needed to allow people in pain to continue working. Furthermore, it seems important, based on the conceptions of the participants in this study, that our social system would provide adequate financial support for people unable to work so that those who are already distressed do not need to further stress about their financial situation. One size does not fit all, and some patients need more support than others; often those with high levels of self-efficacy and good social support may need less help from professionals. Screening is needed to target care effectively.

	Possible barriers to recovery	Possible enablers of recovery
Individual	<ul style="list-style-type: none"> - Negative pain beliefs, insecurity about the cause of pain - Negative/unrealistic expectations of physiotherapy - No strategy to manage pain - No success in self-management 	<ul style="list-style-type: none"> - Biopsychosocial understanding of pain - Effective reassurance - Cognitive flexibility – capability to overcome negative expectations - Ability to self-manage – building a routine, building self-efficacy and giving credit for own efforts
Care team	<ul style="list-style-type: none"> - Lack of social support from friends and family - Lack of support from employer (work modification not possible), - - Lack of trust in physiotherapist 	<ul style="list-style-type: none"> - Support from friends and family - Flexibility and understanding at workplace to enable continuation of working despite pain - Physiotherapist who cares and is valued as a person by the patient
Healthcare and social support systems	<ul style="list-style-type: none"> - Discontinuation of care when independence is not achieved - Lack of follow-up and support - Worries about financial situation and being financially dependent on others 	<ul style="list-style-type: none"> - Continuation of care and support (e.g. individual physiotherapy booster sessions or participation in group meeting) according to patients' needs - Financial security

Table 3. Possible barriers to and enablers of recovery based on conceptions reported by participants of this study that may be considered when planning effective care and care pathways for LBP.

Strengths and limitations

The information power of this study can be considered sufficient [47], although the number of participants is at the low end of recommendations for phenomenographic studies and it is possible that a larger sample would have resulted in more variation in the conceptions or new themes and categories. However, the aim of the study was specific, and a specific group of informants was needed – patients with LBP who underwent physiotherapy with a physiotherapist who had participated in the CFT training intervention. The quality and the dialogue between the interviewees and interviewer can be considered good and the first author who conducted the interviews had previous experience and training in the phenomenographic approach. The study was theoretically well informed, although the participants' perceptions of undergoing biopsychosocially oriented physiotherapy in the context of the Finnish healthcare system has not previously been explored. Healthcare systems in different countries vary and therefore the results cannot be directly transferred to other contexts. The authors are clinical and research physiotherapists and a professor of physical and rehabilitation medicine with an interest in the biopsychosocial approach in the management of LBP. Using authentic quotations to illustrate the results of the study increases the validity of the study [48]. The credibility of the study was also strengthened by continuous acknowledgement and reflection on the researchers' preconceptions, professional backgrounds, beliefs and attitudes towards the topic, and how these may have influenced the analysis process [48]. Two of the authors were not familiar with the CFT approach, which improved quality and rigor and enhanced the process of group reflexivity. The results were also discussed in a group of researchers familiar with phenomenographic research methodology, outside the team of authors of this article.

The outcome of the physiotherapy for the patients and the actual content of the physiotherapy after the initial filmed appointment remains unclear. The participating physiotherapists did not receive mentoring and their competency in this approach was not tested. An indicator that the

training had not being sufficient was evident in the filmed physiotherapy situations when 12 of the 18 physiotherapists started asking questions about psychosocial domains during the interview. A possible limitation of this study is also the delay for some of the participants between their physiotherapy appointments and the interview, as all the patients were interviewed after the last physiotherapist had returned their video and the videos had been watched. Previous studies that have used video recordings of physiotherapy appointments have reported that the presence of a camera reduced empathic behaviours, and this may have affected the initial encounters of these patients [49]. There was a gender bias towards women in this study.

Conclusion

To conclude, the patients' conceptions of undergoing physiotherapy for persistent LBP delivered by physiotherapists who had participated to brief CFT training varied considerably. Some ended up feeling disappointed and abandoned by the healthcare system, did not become independent in self-management, felt stigmatized and dependent on others, and had negative pain beliefs despite physiotherapists' attempts to help them understand the multidimensional nature of pain. On the other hand, for many, physiotherapy was a positive surprise and the participants reported seeing the physiotherapy as treatment of body and soul and felt supported by their physiotherapists to find new ways of understanding pain, to make sense of their situation and to learn new skills to take control of their situation. Barriers to and enablers of positive experiences and outcomes of physiotherapy were identified on individual, interpersonal, environmental, and system levels. Critical aspects that may be seen as enablers of positive experiences and outcomes of physiotherapy were appreciation of one's own efforts in LBP management; reassurance; development of biopsychosocial understanding of pain; support from friends, family and workplace; a knowledgeable physiotherapist who was also valued as a person; and a positive experience of physiotherapy. Possible barriers were negative

pain beliefs and expectations of physiotherapy, lack of success in self-management, lack of support and financial security, challenges in therapeutic alliance, and lack of continuation of care.

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III

AN ADVENTUROUS LEARNING JOURNEY. PHYSIOTHERAPISTS' CONCEPTIONS OF LEARNING AND INTEGRATING COGNITIVE FUNCTIONAL THERAPY INTO CLINICAL PRACTICE

by

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An adventurous learning journey. Physiotherapists' conceptions of learning and integrating Cognitive Functional Therapy into clinical practice.

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Conflict of interest statement of all authors

Peter O'Sullivan and Riikka Holopainen have received fees for speaking at conferences and providing clinical workshops for health care professionals in the management of musculoskeletal disorders

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Abstract

Recent low back pain guidelines recommend an integrated psychological and physical approach in the management of disabling low back pain. However, the most effective way of implementing these approaches in clinical practice remains unknown. One way to learn about this process is to explore physiotherapists' perceived benefits and barriers to integrating psychologically informed care into practice. The present study explored physiotherapists' conceptions of learning and integrating Cognitive Functional Therapy (CFT) into clinical practice. We interviewed 22 physiotherapists working in primary health care. We used a phenomenographic approach to analyze the results to explore variation in how the phenomenon of learning and integrating CFT into clinical practice was understood. The data revealed four themes: membership of a work community, the learning journey, the transition to new working methods, and outlook on physiotherapy. These themes varied in four descriptive categories: recognizing the difference of the new approach, the new approach challenges current understanding, waking up to explore, commitment to the new approach and expanding the application of the new approach. The critical differences between the categories and the enablers of the integration of CFT into clinical practice were cognitive flexibility, critical reflection, support of the work community, creativity, cooperation and continuous learning.

INTRODUCTION

Low back pain (LBP) is a leading cause of disability throughout the world (Hartvigsen et al., 2018) and current clinical practice has failed to effectively manage it (Buchbinder et al., 2018). Major guidelines on the management of LBP recommend a biopsychosocial (BPS) management approach (Koes et al., 2010; NICE, 2016), and despite recent studies indicating better understanding of the BPS framework in physiotherapy, transferring research findings into practice is a well-known problem. Unfortunately, professionals' adherence to evidence-based guidelines is poor (O'Sullivan, O'Keeffe, and O'Sullivan, 2017) and both undergraduate and postgraduate curricula pay very little attention to integrating psychological (cognitive and emotional), social and environmental factors into the management of LBP (Ehrström, Kettunen, and Salo, 2018; Foster and Delitto 2011). As a result, many clinicians report feeling inadequately skilled to treat patients with persistent pain and struggle to deal with the psychosocial factors. They often also stigmatize their patients with persistent pain (Synnott et al., 2015; Toye, Seers, and Barker 2017; Zangoni and Thomson, 2017). Furthermore, health care professionals, including physiotherapists, often use the BPS model dualistically and prioritize biomedical findings. Only when no diagnosis can be found do they turn to psychosocial explanations. This indicates a clear need for training health care professionals to adopt a non-dualistic biopsychosocial approach to help them better support patients with persistent pain (Toye, Seers, and Barker 2017).

A number of approaches have been developed to apply the BPS framework in physiotherapy practice in the management of musculoskeletal disorders. A recent systematic review demonstrated that physiotherapist-led, psychologically informed LBP treatments provided small effect sizes, with the exception of an RCT that used an intervention called Cognitive Functional Therapy (CFT) (Guerrero, Maujean, Campbell, and Sterling, 2018). The optimal

way to train physiotherapists to deliver psychologically informed interventions remains unknown, as the results of previous attempts to direct physiotherapists' practice behavior towards the BPS approach have been conflicting. Although attending BPS-orientated workshops has shown to positively change physiotherapists' beliefs in the short term (Domenech et al., 2011; O'Sullivan, O'Sullivan, O'Sullivan, and Dankaerts, 2013; Overmeer, Boersma, Denison, and Linton 2011), actual translation into a change in clinical behaviors and patient outcomes has been challenging (Fritz, Söderbäck, Söderlund, and Sandborgh, 2018; Overmeer, Boersma, Denison, and Linton, 2011; Sandborgh, Åsenlöf, Lindberg, and Denison, 2010). For example, an eight-day university course on the cognitive behavioral approach for physiotherapists was successful in changing physiotherapists' beliefs and attitudes, but it did not improve patient outcomes (Overmeer, Boersma, Denison, and Linton, 2011). The authors concluded that the learning process requires time and experiences of practice and clinical supervision, which short courses cannot provide.

Qualitative research provides a deeper understanding of these issues and to date, only a few qualitative studies have explored physiotherapists' views on changing their practice into a BPS approach in the management of LBP (Karstens et al., 2018; Sanders, Ong, Sowden, and Foster, 2014). Three specific studies (Cowell et al., 2018; O'Sullivan, O'Sullivan, O'Sullivan, and Dankaerts 2013; Synnott et al., 2016) have explored physiotherapists' views on adopting a CFT approach. CFT is an example of a BPS method that challenges more traditional biomechanical / pathoanatomical physiotherapy approaches. It is an integrated physiotherapist-led cognitive and behavioral intervention for individualizing the self-management of persistent LBP, once serious and specific pathology has been excluded and has shown promising results (O'Sullivan, Dankaerts, O'Sullivan, and O'Sullivan, 2015; Vibe Fersum et al., 2013). It uses a BPS clinical reasoning framework to explore, identify and manage cognitive, emotional, social, physical and lifestyle barriers to recovery (O'Sullivan et al., 2018; Synnott et al., 2016). CFT training aims

to equip physiotherapists with these skills through a combination of written resources, training workshops that include practical experimentation, and demonstrations with live patients, as well as direct clinical supervision and feedback (O’Sullivan et al., 2018; Vibe Fersum et al., 2013). All three qualitative studies (Cowell et al., 2018; O’Sullivan, O’Sullivan, O’Sullivan, and Dankaerts, 2013; Synnott et al., 2016) found that after CFT training, physiotherapists reported feeling more confident in their capacity and skills to manage the BPS dimensions of non-specific persistent LBP. This included increased confidence in identifying patients’ psychosocial factors and modifying their unhelpful beliefs, understanding the importance of therapeutic alliance and listening skills, and increased focus on everyday functional movements. However, the effects of these changes on patient outcomes are not known. The physiotherapists in the Synnott et al. (2016) and Cowell et al. (2018) studies had undergone intensive CFT training, which included clinical supervision, and the trainers deemed the physiotherapists in the Synnott et al. (2016) study competent in delivering CFT. The twelve physiotherapists in the O’Sullivan, O’Sullivan, O’Sullivan and Dankaerts (2013) study were interviewed after participating in nine days of CFT workshops, but without clinical supervision. As the study included physiotherapists who had changed their beliefs to a greater extent than average, some of whom had previous knowledge of CFT, these findings may not represent the perspective of other physiotherapists who attended the CFT workshops and reported less change in their back-pain beliefs.

Given the limitations and challenges documented in the studies above, it seems that a greater understanding is needed of physiotherapists’ experiences of learning and integrating CFT into clinical practice. To gain further knowledge of this process, a qualitative study was conducted in parallel with a feasibility study exploring the implementation of the CFT approach in Finnish primary health care. To date, the training of physiotherapists to deliver CFT in clinical trials

has been intensive and has included direct supervision and feedback (Synnott et al., 2016; Vibe Fersum et al., 2015), which may be a barrier to broad implementation across the profession. It is not known whether less intensive approaches are effective in training physiotherapists in CFT in a non-native English-speaking country. To keep the training in line with the usual delivery of continuing education courses, we conducted a training intervention that consisted of four to six days of workshops combined with a web-based platform offering optional individual learning tasks to support learning. Importantly, the training included no clinical supervision of the physiotherapists. We investigated the views of all the physiotherapists who participated in the workshops.

A learning process is always an individual experience and is different for each participant. However, previous studies have paid little attention to the variation between the physiotherapists' different kinds of experiences of learning and integrating CFT. The aim of the present study was to identify and explore physiotherapists' conceptions of learning the principles of CFT and integrating it into clinical practice.

METHODS

Study design

To explore the physiotherapists' conceptions of learning about and integrating CFT into clinical practice, we employed a qualitative research design (Åkerlind, 2017) involving semi-structured interviews of twenty-two physiotherapists who attended a four-day CFT workshop in April 2016. We chose a phenomenographic approach as this allowed us to explore the variation in the conceptions of the participating physiotherapists (Åkerlind, 2005; Åkerlind, 2017).

Physiotherapists' training

The aim of the training intervention was to: 1. present a multi-dimensional framework for understanding the biopsychosocial nature of LBP, 2. provide training in communication skills to explore the cognitive, emotional and behavioral aspects of LBP, and 3. develop an understanding of how to deliver CFT to patients with persistent LBP (O'Sullivan et al., 2018). It consisted of lectures, group discussions and patient demonstrations in line with previous studies, to enhance learning (O'Sullivan, O'Sullivan, O'Sullivan, and Dankaerts, 2013; Main et al., 2012). The more detailed content of the initial training intervention is presented in Table 1 and the CFT approach is described in further detail in O'Sullivan et al. (2018). The continuation of learning after the training sessions was supported by providing optional individual learning tasks (reporting of patient cases) and additional reading materials on a web-based platform. A two-day booster session was held in January 2017, which 12 of the physiotherapists attended. The booster session included four patient demonstrations that we used to deepen the physiotherapists' knowledge of the application of CFT (Table 2). The workshops were delivered by Peter O'Sullivan (initial workshop); Kasper Ussing (booster workshop), who also delivered the CFT part of the training; and Steven J. Linton, who delivered the communication and psychosocial part of the training in the initial workshop.

1h 45min	Overview of evidence of management of low back pain (LBP), multidimensional framework for understanding and exploring the biopsychosocial nature of LBP, beliefs and attitudes. (Lecture)
2h 45min	Physical, psychosocial and lifestyle risk factors (Lecture), Utilization of screening tools to identify psychosocial risk factors
1h 30min	Interview and examination
1h 30 min	Communication training
7h	Management planning, interventions (including management of fear avoidance behaviour, mal-adaptive movement patterns, pain behaviours, graded activity, graded exposure), problem solving, complex cases. (Lecture + group discussions, practicing the use of clinical reasoning form)
1h 30 min	Case studies
7h	Patient demonstrations (4 patients with 2 follow-up visits)

Table 1. Content of the initial four-day workshop

1h 30min	Questions and answers session, discussion on participants' difficulties / obstacles and successes in integrating cognitive functional therapy into clinical practice
2h	Management of low risk patients, movement patterns, challenging beliefs (lecture, group discussion)
7h 30min	Patient demonstrations (4 patients) with discussion and practice of the use of the clinical reasoning form

Table 2. Content of the two-day booster session

Participants

The participants represented a purposive sample of 22 of the 23 physiotherapists who participated in the initial CFT training workshop. One physiotherapist dropped out of the project after the initial workshop because she changed jobs. We invited primary health care (public health care and occupational health care) study sites from across Finland by contacting the physical and rehabilitation medicine specialists of the hospital districts or the persons in charge of treating musculoskeletal problems in occupational health care. The sites were only included

if they were interested in participating in the feasibility study and committed to reimbursing the travel and salary costs of their personnel. The participating physiotherapists were selected from the involved units by the persons in charge, and the researchers did not influence this selection.

The first author contacted all the physiotherapists by email and all 22 agreed to participate in the interviews. They were from all over Finland and worked in both public outpatient clinics (14) and occupational (8) health care units. Three of them were men and 19 women, with a mean age of 47 years (33–61). They had an average of 20 (9–31) years of clinical experience after graduation. Appendix 1 shows detailed information on the participants' gender, age, work experience, health care setting and amount of CFT training.

Data collection

The first author, who was not involved in planning and delivering the workshops, collected the data in spring 2017 after the end of the training intervention. She was present during the workshops to understand the process of the training but was otherwise unknown to the participants. The semi-structured interviews took place at the physiotherapists' workplaces according to their wishes. They were conducted in Finnish and only the interviewer and the interviewee were present. The quotations were later translated into English by a professional translator. The interviews began by asking: "Tell me about your process of learning CFT and implementing it in clinical practice" and "How do you see CFT now – what does it mean to you?", and continued dialogically according to the interviewees' answers (see interview guide Appendix 2.) The interview guide was pilot tested by a member of the research group who was not involved in this study but had undergone CFT training. The interviews lasted 62 minutes on average (47–81) and were audio-recorded and transcribed verbatim (clean, word-to-word) by the first author (Åkerlind, 2008; Brinkmann, 2013). The resulting data consisted of 368

pages (font =Times New Roman 12, spacing = 1.5). Participant validation of the transcripts/findings was not carried out (Åkerlind, 2005).

Data analysis

In the present study, we aimed to outline the variation among physiotherapists' conceptions of learning and integrating CFT into clinical work. We chose a phenomenographic approach because it enables systematic identification and description of qualitatively different ways of experiencing a phenomenon (Marton and Pong, 2005; Åkerlind, 2005) and the identification of the variation in the physiotherapists' conceptions and of the hierarchical structure of the conceptions (Åkerlind, 2005; Åkerlind, 2008). Phenomenographic studies aim to elucidate the second order perspective; to present the participants' conceptions in categories of description that illustrate the variation in how the participants understand the phenomenon in question (Marton and Pong, 2005; Åkerlind, 2017).

The phenomenographic analysis followed the principles presented in the literature (Marton and Pong, 2005; Åkerlind, 2005; Åkerlind, 2008). Phenomenography is a data-driven approach, which means that all findings arise from the data (Åkerlind, 2005). Although the categories of description were derived from the physiotherapists' interviews, they do not directly represent different types of individuals: They describe the variation in the physiotherapists' understanding of the process of learning and integrating CFT on the collective level (Marton and Booth, 2009). In other words, we abandoned the boundaries separating the individuals and focused on the pool of meanings discovered in the data (Åkerlind, 2005; Marton and Booth, 2009). In the present study, this means that the physiotherapists may have expressed more than one conception or may have had conceptions that belonged to different categories, related to different themes.

The analysis process began by the first author listening to the interviews and reading the transcripts several times to become familiar with the data and to identify the meaningful units. The selected quotes made up the data pool from which the similarities and differences, as well as the structural relationships, were identified. The initial coding of the data was conducted using a Microsoft Word (Microsoft Corp, Redmond, Washington, USA) document and the themes were found by sorting the printed quotes into piles and examining borderline cases (RH & AP). As the themes emerged, we compared and contrasted the selected quotes in an iterative manner. During this process, we observed that each theme varied hierarchically and by comparing the variation of the themes, we defined the categories of the phenomenon. During the analysis, the results were discussed with all of the authors and in a group of qualitative researchers, and the consistency between the original data and our findings was constantly evaluated to minimize the influence of our own interpretations. The categories of description were organized hierarchically – some conceptions were more complex or more complete than others. These categories of description represented the expanding awareness of the phenomenon of learning and integrating CFT into clinical practice. During this process, the categories' critical aspects were identified. These critical aspects of awareness highlight the transitions between the categories of description and describe what is needed to move from the understanding of one category of description to a more complex one (Åkerlind, 2005; Åkerlind, 2008).

We obtained ethical approval from the Northern Ostrobothnia Hospital District Ethics Committee. Before conducting the interviews, we explained the nature of the study to the participating physiotherapists. The interviewees provided their informed consent. The reporting of the study adhered to the consolidated criteria for qualitative research (COREQ) guidelines (Tong, Sainsbury, and Craig, 2007).

RESULTS

The phenomenon of learning and integrating CFT into clinical practice, as reported by the physiotherapists, was captured by five hierarchical categories of description: I) Recognizing the difference of the new approach; II) The new approach challenging current practice; III) Waking up to explore; IV) Commitment to the new approach; and V) Expanding the application of the new approach. These categories were hierarchically structured, and the latter categories represent more developed conceptions of learning and integration of the CFT approach than the former categories. They varied on the basis of four themes: 1) Membership of work community; 2) Learning journey; 3) Transition to new working methods; and 4) Professional role as a physiotherapist (Table 3, Figure 1).

The abbreviations at the end of the quotes identify the participating physiotherapists and page number of the transcript. The variation of the themes within each category of description are highlighted by the name of each theme in **bold** and the name of each theme of variation in *italics* throughout the results section (see Table 3).

	Categories				
Themes of variation	I Recognizing difference of new approach	II Towards integrating the new approach	III Waking up to explore	IV Commitment to new approach	V Expanding application of new approach
Membership of work community	Loneliness in work community	Organizational traditions as barriers	Desire for common language	Supportive work community	Importance of multidisciplinary
Learning journey	Resistance	Personal challenges during journey	Being shaken	Becoming convinced	Continuous adventurous journey
Transition to new working methods	Insecurity	Combining old and new approach	Critical reflection on one's own work	Better equipped to help	Permission for creativity
Professional role as a physiotherapist	Looking at patients in different way	Changing attitudes and language	Stepping outside one's comfort zone	Closer to patient	Renewed professional identity

Table 3. Themes of variation and categories of description of phenomenon of learning and integrating Cognitive Functional therapy into clinical practice

Category I Recognizing the difference of the new approach

This category describes physiotherapists' perceptions of learning about CFT and the realizations that arose, especially at the beginning of the learning journey during the workshop and after returning to the clinic. This highlighted the great difference of the CFT approach; the physiotherapists' previous ways of working, and the ways in which their colleagues still worked. As a result, they reported feeling isolated in their work communities and resistance

towards the approach and the training, and insecurity about their skills. They also reported doubting whether this was the right way in which to work. Some were unable to accept the proposed change in their work, and their learning journey did not continue beyond the conceptions described in this category.

The first identified theme of variation was **membership of the work community**, which in this category consists of *loneliness in one's work community*. The physiotherapists felt isolated in their work communities, as others did not understand their new way of working, and they had insufficient opportunities to share their thoughts due to a combination of busy workdays and a lack of physiotherapists in the same unit.

"This is quite a lonely job; I can't share these thoughts with anybody." V24

"In practice [during the workdays] there is not time to discuss but if there would be a forum where we could share our experiences..." Q13

The second theme of variation, **the learning journey**, in this category focused on *resistance* towards the new approach and training style. The resistance came as a surprise to some of the participants and it was seen as a barrier to learning during the workshop. They understood that the trainers wanted to wake them up, but a few of them found the way of training somewhat abrasive and the patient demonstrations a manifestation of a "guru culture". Most physiotherapists were able to overcome the resistance, but for some it prevented their learning journey from properly starting.

"During the first two days, I shared a room with X and we had quite tough discussions in the evenings and went for walks to ventilate and it felt quite surreal, I just couldn't accept it even though the patient cases were clear...my reaction was strong and it took me by surprise that I reacted so strongly, when thinking about it in hindsight... I don't know, maybe changing one's own thoughts and beliefs was just so hard..." C1

“My memory is that we didn’t go through some of the key things in communication, but it was just him [POS] showing off in front of us, just like this video presenting this man who got better, which... in my opinion, diminished his credibility, with him boosting his messages with stuff just like healers and preacher healers do...they have these videos as well, so it doesn’t contribute anything” B17

In this category, the third theme, **transition to new working methods** was related to the physiotherapists feeling *insecure* about applying CFT in their practice and changing their own way of working. Through experience they accepted parts of it, but they felt they had insufficient training and practice to become confident, because they considered most of their patient population unsuitable for the CFT approach (e.g. patients with acute pain). They also reported insecurity about their clinical reasoning skills in the BPS framework and about their knowledge of pain science and psychosocial factors. Applying certain aspects of the CFT approach was perceived as difficult and the uncertainties reported by the physiotherapists varied.

“I just wish I had more of these [low back pain] patients, there are so many patients with shoulder pain and I would need to be able to practice this broader approach” G14

“Sometimes...I feel like that is this too psychological this approach that I am not ready to think about these things with the patient so deeply and to reflect her thoughts like I don’t have that kind of training I can’t do that” I3

“Well, maybe it was drawing the summary...I haven’t done it many times so far... maybe it felt kind of the hardest thing...somehow I don’t trust myself to make it visible so the patient can see what the cause and effect relationships are... that kind of uncertainty...” O9

Despite the various challenges to adopting the approach, the physiotherapists reported that their **professional role as a physiotherapist** had changed. In this category, they reported having started to *look at their patients in a different way*, understanding that there was no one correct

way to move. They noticed that many LBP patients needed relaxation rather than exercises that created more tension and started to observe different aspects in their patients' movement behaviors.

"It's kind of a relief that you don't always need to think that you must do something but you are allowed be laid-back and to relax, there is no right and wrong... no wrong kind of a body and there is no right or wrong kind of sitting posture or...for example during our first day of training that we had a year ago, there were many little things, just basics on how to turn relaxed and lift and be relaxed..." E3

"Well, firstly observing the patient ...with new eyes, with me immediately looking if he's tensing some part of his body or if he's relaxed. Is there some avoidance behavior to do with his tension... it starts with ... observing his basic movement: how he sits, how he undresses, how he is, and it already gives some direction to the whole interview part." F2

Category II Towards integrating the new approach

The focus of this category was on the practical challenges that the physiotherapists faced when trying to integrate their newly learned skills into their practice. There were multiple barriers to the integration of these skills even though they wanted to change their practices, and in this category, old and new ways of working were often combined.

The physiotherapists' understanding and experiences of **membership of their work community** expanded from the first category to the second. They started reflecting on the *organizational processes as barriers* to integrating CFT into practice. They reported a lack of capacity to deliver CFT due to short appointment times, being constantly in a hurry and unclear referral pathways. Some also reported feeling the need to adhere to old protocols that they no longer saw as valid.

“It is usually maximum one hour and I should also do the documentation before the next patient arrives so... this lack of time...these patients would need much more time.” G8

”If we do this kind of thing [CFT] we need to have some kind of [psychological] support for these patients if they haven’t gotten into contact yet, like I don’t feel like a professional in those things even though I feel that I communicate with the patients quite well...we have lots of small groups and some pain groups and breathing groups but it’s not the same, these people need individual [management]... well, I think seeing the need to get these things working was certainly the biggest transformation in this process.” E3

“... mostly... in the beginning we had certain structures for doing this kind of preventive assessment and all the materials and templates were there... with this kind of risk-based model of patients’ own opportunities to influence the situation and motor control tests that I now feel are less important, but I still need to give the material to the patient and I feel that I don’t want to so I need to fight it because I see that the old materials are not what I would like to give the patient.” C12

The physiotherapists faced *personal challenges during the journey*. They reported not being able to fully engage in learning, despite recognizing the need for change, because of a lack of English language skills, difficult life situations and other commitments. **Their learning journey** was not progressing in the way they wanted.

”Firstly, the English language is not one of my strengths... I looked more at the examples [patient demonstrations] and tried to learn from them.” S1

“But immersing myself and getting into the subject has now been of secondary importance because of, well, being busy at work and thinking about personal stuff, so I would’ve gotten much more out of this... if I had... studied it.” E17

In this category, the **transition to new working methods** meant that insecurity expanded into *combining old and new approaches*. This resulted in an understanding that their previous knowledge could be still utilized and the physiotherapists expressed familiarity with and relatedness to the new approach. The new approach helped them rediscover previously learned but unused tools, such as relaxation exercises.

"That way this approach in it was not unfamiliar...I am not trained in psychophysical physiotherapy but I have used those methods because my colleagues have used them and I have been in that kind of community where I have worked certain amount with psychiatric patients and those methods were partially familiar like those related to relaxation and breathing and generally those related to wellbeing ... "K1

"All the things we've gained...experienced so far, they're worth utilizing in the background, nothing is, nothing is kind of excluded; it's just something extra, this approach." T5

In this category, the physiotherapists reported that the new approach challenged them to *change their attitudes and language*, positively affecting the way they practiced. They reported that looking at their patients in a different way expanded to acquiring a more courageous attitude towards pain, giving patients more positive messages, progressing more confidently with exercises and unraveling patients' negative beliefs, meaning a change in their **professional role as physiotherapists**.

"That kind of confidence, that I've looked at those particular red flags and I can be sure that I've gotten the courage to encourage this patient to move, and I dare to make them bend. That's the kind of thing that really gets reinforced because before there's always been ... a bit too much respect for the pain, or being afraid ... with this training I've gained lots of courage and I've tried to, like, communicate to the patient that there's nothing to be afraid of, that all those sensations aren't necessarily [dangerous]..." P4

“What it means is that I aim to strengthen the person’s trust in her own body and tell that the back is strong, a positive outlook on the body and it’s use. Confidence and courage... and to bring up positive things about the patient, things that can help the patient move on.” VI

Category III Waking up to explore

In this category, the training made the physiotherapist wake up to explore their practice more broadly and after starting to explore ways to make the new approach feasible in their own work environments, they started to seek solutions to how they could be better help their patients. This reflective process, which was painful for many, led physiotherapists outside their comfort zones towards a more multidimensional approach in their practice that considered psychosocial issues and scientific evidence. This was mostly new to the physiotherapists.

The **membership of the work community** was seen in this category as *desire for a common language*. The physiotherapists noticed that the mixed messages that patients received from different professionals, for example interpretation of MRI results, made their work more difficult. They also sought more multidisciplinary work methods than those currently in use in their work communities. The desire for a common language extended beyond their own work community; they also wished to spread evidence-based understanding of LBP more widely among health care professionals and in the media.

“Well, the problem was that he [a patient] had an assessment and opinion from ten different experts, as well as his own... it was really hard to start helping him.” D2

“If other professionals could adopt this... and maybe cooperate... in the future we should do multidisciplinary work...that could maybe be fruitful if we spoke the same language and we could promote this together...” M16

“This should be in the news. This is such a wonderful message that everybody should be aware of this.” V23

The physiotherapists stated that to get the **learning journey** started, a feeling of *being shaken* was necessary. It is not easy to turn one’s thinking upside down, and in the beginning, the physiotherapists felt dumbfounded; the training was an eye-opening experience. For some, the shock was bigger than expected. Others stated that this was the greatest change in their professional thinking, their biggest upheaval since graduation.

”Could I say that sometimes making a change gets easier, you know, when you get properly shaken up, it might be... it can depend on a person, it may be that for me it suited well because I adopted those things quite easily” V16

“Well, those four days, it was like being hit over the head, somehow just like a kind of stunning experience, so really, really like interesting... somehow I kind of woke up and became eager to sort of look at things from a totally different viewpoint.” O1

The transition to new working methods was linked to a *critical reflection on one’s own way of working*. Some even felt ashamed that they had earlier unhesitatingly believed what was taught at workshops. Now they discovered that some of those statements lacked evidence, which led to observing their previous ways of thinking and working critically, and they hoped to adopt work practices based on evidence in the future.

”Of course I haven’t been scientifically oriented, I have just learned by doing and I have thought that what I have learned was right and I have never been able to question whether there would be something wrong... so it was confusing... but it makes sense because he could explain using research and the materials I have been reading...” P3

“I look at the way I worked earlier in a different light...I don’t mean that what I’ve done has been all wrong, but with a certain patient population, with the high-risk ones there, I don’t

think we've been able to act in the right way...the approaches we've used earlier, they haven't been the right ones." C17

The physiotherapists' conceptions of their **professional role as a physiotherapist** broadened further in this category and expanded beyond their previous biomedical focus, to consider addressing psychosocial factors. This led them to step *outside their comfort zones*. Many started using the Örebro Musculoskeletal Pain Screening Questionnaire (ÖMPSQ) and the STarT Back Screening Tool (SBST) as shields when starting these conversations, and felt they were now able to listen to distressing patient stories. They understood they did not have to be psychologists to talk about all aspects of life; they could be humans to other humans and obtain permission to use more time for interviews.

"If it works... it is because as a therapist in a situation with the skills I have, I feel that I can't handle this and progress with this, the questionnaire works as...I don't know whether shield is the right word for that" B6

"This phrasing of questions and then the listening itself and getting to grips with those slightly trickier topics so that I'm like ready to listen to them; earlier, if the patient started to talk about them, I pretty quickly tried to shift the focus away, so I was listening and hearing but then again not really..." C3

"After the trip to Lahti [booster session] I told the girls that now I understood that I don't need to be a psychologist, that I can ask questions, but I don't need to be the psychologist in the way it came across on that trip, you know.. it sort of woke up in me" N3

Category IV: Commitment to the new approach

In the fourth category, the physiotherapists started to commit to the new approach with support from their work communities. They reported a growing conviction in the approach, an increasing feeling of competence and an understanding that a strong therapeutic alliance

facilitates better patient results. The doubts transformed into enthusiasm and many themes within this category describe enablers of learning and integrating CFT rather than the barriers described in the lower categories.

This category expanded the understanding of learning and integrating CFT into clinical practice to also understanding the importance of commitment to the new approach. In this category, **membership of the work community** meant being enhanced by *a supportive work community*, in which supportive leadership, colleagues with a similar understanding, the opportunity to share clinical experiences, and flexibility in appointment duration all helped in committing to the new approach and sustaining learning as well as changing their practice behaviors.

“It’s already a big help that our senior physician knows about this and accepts it ... it certainly helps that there are others who’ve been there [on CFT course] so we can share... I’m allowed to work this way and use this kind of approach, and we’re lucky we can plan our own appointment lists, so in principle, when I see there’s this kind of patient then I can give them a longer appointment so I won’t run out of time straightaway...” R12

“It is good, it is very good to have colleagues who I can share and think together these things, it is very fruitful and it helps continuing one’s own learning when I can think about this...” Q17

Committing to the new approach and setting out on the **learning journey** required *becoming convinced* of the approach. Physiotherapists reported that this was facilitated through seeing patient demonstrations. Moreover, watching presentations of scientific evidence, success with their own patients or resolving their own back problems by experimenting and utilizing the CFT approach on themselves were also seen as important, as this made the physiotherapists see that it worked not only for the trainers, who were experienced in using the approach, but also possibly for the participants.

“Well, there were the patient demonstrations, they’ve been really good, and no way do I believe that any kind of lectures could open up this approach this well, and there I was, amazed how ... this approach kind of ... clicked for them, when I listened to these patients at the beginning I was thinking that this is never going to work and then it was just, click, and there it was, you saw that they were responsive and, well, the demonstrations were somehow quite unbelievable.” O8

“I have tried to reach relaxation and through relaxation my back is basically painfree...so I have experienced personally this small going astray in this thing and I have personally benefitted and experienced that this ideology is helpful and now I try to tell this joyous message for my patients” F8

The physiotherapists perceived that CFT helped them gain better treatment outcomes and the **transition to new working methods** meant that they felt *more equipped to help* patients with persistent LBP. They saw more complex patient cases as positive challenges and no longer as a source of frustration, and this helped them commit to the new approach. This also increased their enthusiasm towards their work.

“It’s had an effect, it’s somehow given me the feeling that I can do this...it’s challenging but I sort of feel much better equipped and I can, like, say that there’s a certain kind of professional pride in knowing and doing something quite valuable...” U13

“One is more... enthusiastic about those back pain patients, earlier I was like oh no, that one comes again.. that... she has pain in the knee and all other aches and pains. I am more courageous to meet the patient because I don’t need to think who of my colleagues could I send her to if I can’t do anything with her so I have more courage to handle the situation ...my own enthusiasm and efficacy has grown here...” J13

The theme of the **professional role as a physiotherapist** broadened as the physiotherapists reported *getting closer to the patients*. This was possible through new-found, person-centered communication skills, being present and listening to a patient's story and using time for the interview, which were seen as ways to improve treatment outcomes.

"Yes, well, firstly the interviews have become much longer so it takes much more time when you let the patient really talk, I've had to hold myself back so I don't put words in the patient's mouth; I do that sometimes because I'm kind of fast-paced, so sometimes I need to slow down and tell myself to shut up and let the patient tell... their own story." P7

"My way of thinking has been enhanced, that when you listen to the patient and you have time... for that patient, that you listen and that trust. That it is one thing I get praised for - often I have been the first person who has had time to stop among that patient's problems that ...well... those seeds sometime sprout from small things I believe in that kind of on the other hand simple things, in the fruitfulness of the beginning of the therapeutic alliance" K3

"Now she's been heard because it's here that we listen so you ... you just ask the question and you listen and the same patient can have the experience before of coming to listen when talked to, when talking about his issues and being given instructions, but he's not necessarily asked about very much ... that the listening skill in this, in this approach, it's grown, and I've taken the skill of listening over into my everyday life and my own working community as well" T13

Category V Expanding application of the new approach

In the fifth and widest category, the physiotherapists started applying their skills more broadly, adapting the new approach to their own work environments. This resulted in more collaboration, using the skills in the treatment of other musculoskeletal problems, understanding the importance of continuous learning and using creativity in their work. This

was also manifested as renewed professional identity and a wider professional role. These conceptions represent a good understanding of the important principles of CFT.

In this category, the physiotherapists understood *the importance of multidisciplinary* and saw the **membership of their work community** as playing an integral role as a member of a team. Following the training, the physiotherapists reported collaborating more closely with psychologists, psychiatric nurses, physical education instructors, and doctors. This enabled them to help patients navigate the health care system and to know where to refer them if needed.

“Maybe I’ve learned...to offer more conversational support, for example, through a psychologist or psychiatric nurse, because here the good thing is that you can see a psychologist without a referral, she’s said that I can send my patients... and in fact I’ve cooperated a fair bit with the psychologist.” K4

“The experience for the patient that he gets the multidisciplinary and he gets the help for sure much better in that situation” M17

The physiotherapists described their **learning journey** as a *continuous adventurous journey* that continued beyond the official end of the training intervention, and that becoming convinced about the approach was not the end of the journey. The initial four-day workshop was seen as a good start to becoming familiar with the approach, but the physiotherapists stated it took time and practice for things to fall into place. Those who participated in the booster session saw it as important to consolidate and advance their learning. They described the journey as a wave motion: feeling tired from time to time and regressing back to old routines, but then receiving support to continue the journey again.

“Then about the booster session, I think it was absolutely essential because it cleared up a lot of thoughts and I’d managed to try it out a bit in practice... I could sort of absorb the knowledge, I was at that point that, like, now I want to learn all of this, I wanted to even the first time, but

I just couldn't manage it so well, only now I see it was good that the training was longer ... after that it's felt like it clarified my thinking a lot more" A3

"Well, this year's been a kind of a journey of adventure, the whole time I feel like I'm continuously studying and learning this..." V15

"If I reflect back on this period, I see it's started with small steps and they've become bigger as I've adopted the tools and in a way it's become partly a routine, but I don't mean I've reached my target in any way or am somehow skilled in using this method, but I sort of feel I've learned and made progress" K4

The **transition to new working methods** in this category was represented by newly learnt skills taking on a personal shape. The physiotherapists felt they were given *permission for creativity*, enabling wide use of their personality and skills. They reported feeling liberated after not having to strictly work according to certain rules and formulae anymore and were instead able to be more patient-centered.

"It's somehow a creative space nowadays...what I find amazing is that there are no specific [rules]... I don't know beforehand what's going to happen next... compared to earlier when we had certain kinds of practices ... we did certain kinds of tests with all the patients..." V13

"In my opinion this [CFT] has enabled that I can even use myself creatively..." D14

The physiotherapists reported that their **professional role as a physiotherapist** and their outlook had changed from that of an "expert" to that of an "enabler". This included helping patients develop greater awareness of their cognitive processes and behaviors and helping them regain body awareness while acting as a coach. The *professional identity of the physiotherapists was renewed*. They felt motivated when the patients figured things out by themselves and the physiotherapists could support their self-efficacy and saw the value of patients being able to contact them if needed.

“Well, it’s always when you get somebody to figure things out and if I manage to do that then it’s a very powerful motivating factor because so much can happen in that person’s thinking about the use of the body as well... it’s these moments that are awfully motivating and I don’t think those sorts of strong experiences of successfully helping someone are even necessarily possible with a more traditional or other way...”A9

”And also those instructions for the future and follow-up and that kind that they feel, those people that they can come and always contact me if they need.. that they have somebody they can trust and who they can return to” G4

SUMMARY OF THE FINDINGS AND CRITICAL ASPECTS BETWEEN THE CATEGORIES

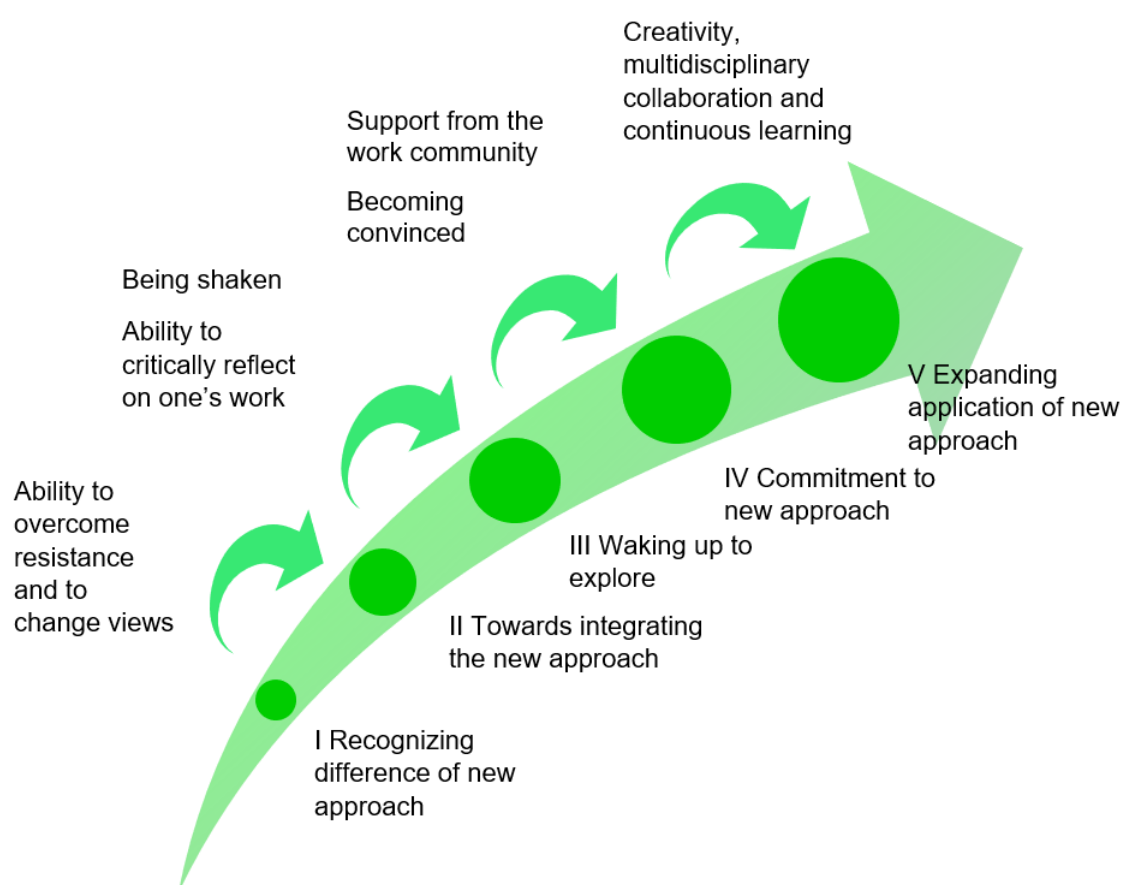


Figure 1: The critical aspects between the categories of description of the phenomenon of learning and integrating CFT into clinical practice.

We identified a number of key aspects that changed between the categories, which can be considered essential for the learning journey towards adopting CFT and which should be considered when planning support for physiotherapists during this process. The first critical aspect which changed between Categories I and II, was the ability to overcome resistance and to change one's views. This included accepting new ideas and implementing parts of the new approach alongside old ways of working. The process of learning and integrating CFT into clinical practice evolved further between Categories II and III, and the critical aspects that changed between these categories arose from the experience of being shaken, the ability to critically reflect on one's own ways of thinking and working. This meant also stepping outside one's comfort zone to further explore the possibilities of the new approach. The critical aspects that helped the learning journey continue further from Category III to IV were support from the work community and gaining confidence in one's own skills through experiential learning, which led to becoming convinced of the new approach. Finally, the critical steps from Category IV to V that led towards expanding the application of the new approach were multidisciplinary collaboration, the use of one's creativity at work, and understanding the importance of continuous learning. Learning did not stop after the training intervention ended; it became an ongoing journey.

DISCUSSION

The main finding of this phenomenographic study is that physiotherapists' conceptions of learning and integrating CFT into clinical practice vary greatly. The results show that a number of factors influenced the physiotherapists' learning journey. The critical aspects between the categories of description can be understood as stepping stones towards more complete perceived learning and integration of CFT into clinical practice. The physiotherapists participating in our study worked in different kinds of work communities, had different

backgrounds, levels of work experience, and opportunities to engage in learning. These factors possibly contributed to the variation of the physiotherapists' conceptions.

The process of learning and integrating CFT into clinical practice described by the participating physiotherapists has many commonalities with the Normalization Process Theory (NPT), which helps explain barriers and enablers of the adaptation of new approaches as well as the activities people engage in when attempting to change their ways of working. NPT proposes that implementation is operationalized through four mechanisms: coherence, cognitive participation, collective action and reflexive monitoring (May and Finch, 2009). These mechanisms can be seen in our study in the process in which the physiotherapists attempted to establish coherence between their previous practices and the new approach, described below.

First of all, the physiotherapists reported that they had previously received biomedically-focused training, and that the CFT approach was very different to that which they had been taught during their undergraduate training and further education workshops. In the beginning, during the initial workshop, almost everybody felt considerably challenged, which created a great deal of cognitive dissonance and resistance. Earlier studies exploring physiotherapists' experiences of adopting a BPS approach for the management of LBP have not reported this. Sanders, Ong, Sowden and Foster (2014) reported thoughtful obedience from physiotherapists, but no resistance. This may partially be due to the biomedical background and no previous knowledge of CFT among the physiotherapists participating in our study, whereas in many previous studies (Cowell et al., 2018; O'Sullivan, O'Sullivan, O'Sullivan, and Dankaerts, 2013; Synnott et al., 2016), at least some of the participants had earlier knowledge of the BPS approach and were competent in CFT or had much more extensive training. Furthermore, many other psychologically informed physiotherapy approaches concentrate on teaching cognitive behavioral therapy methods in addition to previous skills, whereas CFT directly challenges the biomedical beliefs related to physiotherapy practice. This may partly explain our findings.

Based on the conceptions of the physiotherapists in our study, if the resistance towards the new approach and other barriers could not be overcome, no coherence was found, which led to discontinuing the learning journey and not adopting the CFT approach. The first critical aspect, cognitive flexibility was important for overcoming resistance and changing one's attitudes and beliefs, and required cognitive participation (May and Finch 2009). The physiotherapists who were able to overcome this resistance reported that confusion and the feeling of being shaken were important drivers of changing their ways of working. Reflective monitoring of their own practice and thinking was crucial at this level. It seems important that, in addition to the content of the CFT approach, the course provided new tools to reflect on one's own practices and to critically assess information that was delivered by other professionals, the media and journals. Self-reflection is seen as necessary for health care professionals treating people with musculoskeletal problems (Nijs et al., 2013). This might be critical for keeping the lifelong learning journey moving forward and is an important factor for all training interventions to take into account.

In addition to earlier biomedically-oriented training, we identified a number of barriers to learning and adopting CFT, some of which were similar to those in earlier studies that have explored physiotherapists' experiences of applying psychologically informed care in clinical practice. For example, Karstens et al. (2018) explored physiotherapists' views on adopting a stratified treatment approach in Germany and reported a lack of clear referral pathways as a barrier to adopting the approach, very like our results. Another study (Sanders, Ong, Sowden, and Foster, 2014) explored the same approach in the UK and also recognized the lack of a common language among health care professionals, manifested as confusing messages to patients and a barrier to implementation. We, like most other qualitative studies in this field (Cowell et al., 2018; Fritz, Söderbäck, Söderlund, and Sandborgh, 2018; Karstens et al., 2018; Sanders, Ong, Sowden, and Foster, 2013) observed that a lack of time and a limited number of

patient appointments were also common barriers. The economic benefits of spending more time with complex LBP patients must be demonstrated to justify spending this extra time with them. Previous studies (Foster and Delitto, 2011; Nielsen, Keefe, Bennell, and Jull, 2014) also support the importance of appropriate referrals to psychological health professionals. In contrast to these, the physiotherapists in our study also reported a lack of support and feelings of isolation in their work communities, as well as the expectation to follow clinical protocols that they no longer considered evidence based. Previous research has reported that clinical mentoring, which our physiotherapists did not receive, is an enabler of and is crucial to changing one's practice. (Cowell et al., 2018; Synnott et al., 2016)

Implementation studies have identified that when change in practice happens, it also occurs at the level of the whole work community and collective action is needed (May and Finch 2009), whereas changing an individual's beliefs and competences is not sufficient to bring about changes in clinical behaviors. If physiotherapists feel lonely in the process of change, they easily regress back to their old ways of working (Piirainen and Viitanen, 2010). Therapist drift is a known phenomenon and is described in psychotherapy literature (Waller, 2009), highlighting that clinicians do not always deliver therapy according to its principles, despite having undergone training. The physiotherapists in our study also noticed this phenomenon. When they encountered problems, they reported feeling insecure about the CFT approach and went back to their old, familiar ways of working, which felt safer. Overmeer, Boersma, Denison and Linton (2011) state that it might even be unrealistic to expect a single physiotherapist to change outcomes among patients with complex problems, and that this requires collective action and a broader change at an organizational level.

Personal challenges in learning CFT, as reported by the physiotherapists in our study, and which have not arisen in earlier studies, should be considered when planning support for the

participants of future interventions. Lack of English language skills, difficult personal situations and commitment to other studies were all reported as barriers to learning.

In line with previous studies (Nielsen, Keefe, Bennell, and Jull, 2014; Synnott et al., 2016) and the NPT (May and Finch, 2009), our results show that this process takes time and that physiotherapists go through an evaluation of whether or not the new approach fits their current practice. For some, this resulted in adaptation (May and Finch, 2009), which meant combining their new and old ways of working, and not using the new approach regularly. In contrast, others reported having fully adopted the CFT approach and that it had become normalized in their practice (May and Finch, 2009). Like us, Sanders, Ong, Sowden and Foster (2014) observed that the physiotherapists were convinced to change their practices by trying out the new approach and reflecting critically on their work. Also in line with previous studies (Nielsen, Keefe, Bennell, and Jull, 2014; O'Sullivan, O'Sullivan, O'Sullivan, and Dankaerts, 2013; Synnott et al., 2016), although most of our participants reported convincing scientific evidence and live patient demonstrations as the most important enablers of learning, some physiotherapists experienced these demonstrations and the style of presenting the evidence as negative.

A more complete perceived change in one's practice towards the CFT approach seems to have been reinforced by support and collaboration in the work community, by becoming convinced and gaining confidence and by successes with patients with complex problems through an experiential learning process. Furthermore, the idea of being creative in one's work and continuously learning also seem to have been important. One aspect that was unique to our study was that the physiotherapists reported becoming convinced through applying principles of CFT to themselves (if they suffered from LBP).

We do not know whether the physiotherapists changed their practices. This we will explore in future studies. It has been proposed that new knowledge is implemented at individual, group and organizational levels (Pirainen and Viitainen, 2010; Zidarov, Thomas, and Poissant, 2013) through participating in an iterative process that instead of proceeding linearly, includes phases of more and less active progression. The physiotherapists in our study described this process as a wave motion – the adoption of CFT elements did not occur in a linear manner.

During the training, the physiotherapists recognized the need to change their practices into a more person-centered approach to care, which closely reflects the expectations of patients with LBP who seek care from health care professionals (Holopainen et al., 2018). In line with previous studies (O’Sullivan, O’Sullivan, O’Sullivan, and Dankaerts, 2013; Synnott et al., 2016), most of the physiotherapists in our study reported an increased awareness of the influence of cognitive, psychological and social factors on persistent LBP. Other studies that have trained physiotherapists to adopt the assessment and management of psychosocial factors in their work have noticed similar problems to those encountered by some of the physiotherapists in our study. For example, the use of screening for psychosocial risk factors in LBP is widely recommended (Lin et al., 2019), but many physiotherapists found this challenging. In line with the conceptions of some of the participants in our study, many other studies have reported the lack of knowledge regarding psychosocial issues and interventions as a barrier to more widely implementing this perspective in physiotherapy practice (Beissner et al., 2009; Foster and Delitto, 2011; Main and George, 2011; Nielsen, Keefe, Bennell, and Jull, 2014; Singla, Jones, Edwards, and Kumar, 2015). Even though the physiotherapists in our study were taught how to use the questionnaires, many of them had not started using them or only used them occasionally. This is similar to the results of a study by Sanders, Foster, and Ong (2011), in which general practitioners who were taught to use a subgrouping tool reported barriers to its use: time constraints and other organizational pressures, and a lack of coherence

related to the new way of working. However, in our study, the questionnaires were reported as being enablers of discussion of psychosocial issues, as they worked as shields.

As shown in previous research (Matthias et al., 2010; Toye, Seers and Barker, 2017), primary care providers often view caring for patients with persistent pain as burdensome, and our participants stated that this had been their experience before the CFT training. However, many reported that using the BPS approach to treat LBP felt professionally stimulating and rewarding after receiving training and saw more complex patients as welcome challenges. Others have also reported this (Nielsen, Keefe, Bennell, and Jull, 2014; Sanders, Ong, Sowden, and Foster, 2014; Synnott et al., 2016). Many reported greater motivation in their work and renewed professional identity. However, even after the training, some of the physiotherapists in our study did not feel adequately prepared to deal with complex patients and wished for more training, as in Sanders et al.'s study (Sanders, Ong, Sowden, and Foster, 2014).

Most of our participants reported using a more functional examination and management approach, changing their communication to contain more positive messages and a person-centered communication style, similar to previous CFT studies, (O'Sullivan, O'Sullivan, O'Sullivan, and Dankaerts, 2013; Synnott et al., 2016). In our study, some physiotherapists found a new role as an enabler of their patients' own realizations. Enabling patients to find their own solutions to their health issues as opposed the physiotherapist telling them what to do is considered a more powerful way to change patient behaviors (Nijs et al., 2013).

RECOMMENDATIONS FOR THE FUTURE

The results of this study can be used as a tool for developing pedagogical practices in continuing education in physiotherapy. The critical aspects in the learning process identified in our study could be considered when planning future training interventions for physiotherapists. First, we recommend providing physiotherapists with adequate support when they experience cognitive

dissonance and encouraging critical reflection. Secondly, including the whole workplace in the training, increasing flexibility in workplace practices and supportive leadership are important. Steps should also be taken to support the continuation of learning and applying the BPS approach at the workplace to reinforce physiotherapists' confidence in their skills and motivation to learn more. More active collaboration between health care professionals should be encouraged. Continuing support for using the BPS approach and creativity in one's work is recommended. Steps should be taken to mandate the use of screening tools for all patients, in line with best practice recommendations (Lin et al, 2019)

Learning about CFT and integrating it into clinical practice is a process, and many of the physiotherapists in our study stated that without the booster sessions, individual learning tasks and support from colleagues, the learning journey would have ended, as changing their practices was not easy. The results of our study support previous research that has found that physiotherapists' professional development courses of two or three days are unlikely to be sufficient for changing clinical practice. A longer process is recommended (Keefe, Main and George, 2018; Mesner et al, 2016). Therefore, future studies in the field of physiotherapy should also concentrate on exploring the effect of training work communities, instead of only individual physiotherapists, and include auditing of clinical notes and supervision of and feedback for participants.

Optimizing clinical training in order to help implement new knowledge and skills into clinical practice is a key priority in the management of persistent LBP. For example, funding for training interventions, more effective treatment pathways and culture change in work communities are needed. The current literature seems to support clinical mentoring, but more research on implementation interventions is needed, as this requires considerable time and effort. Whether this investment is cost-effective remains to be seen. Future studies should

compare training interventions with and without clinical supervision and mentoring to see whether this is important for changes in practice and improved patient outcomes.

STRENGTHS AND LIMITATIONS

The information power of this study is sufficient (Malterud, Siersma, and Guassora, 2015). The first author, who conducted the interviews, had training and experience in qualitative research and interviewing, and the quality of the dialogue between the interviewees and interviewer was good. She is a physiotherapist and has good knowledge of the CFT approach. The aim of the study was fairly specific and involved a specific group of informants – the physiotherapists who participated in the CFT training intervention. The fact that the whole group of physiotherapists who completed the training was included is a strength of this study. The themes raised by the interviewees were rather broad, which is explained by the large number of participants, as well as the analysis method, which explored the variation of understanding the phenomenon in question. The study was theoretically well informed, although the feasibility of the CFT approach in the context of the Finnish health care system has not previously been explored. Health care systems and the basic training of physiotherapists vary in different countries and this affects the organizational factors that can be perceived as barriers to or enablers of adopting a BPS approach. The results cannot be directly transferred to other cultures, although many findings are consistent with previous research.

The illustration of the results using authentic quotations increases the validity of the study. The authors are clinical and research physiotherapists, a professor of clinical psychology and a professor of Physical and Rehabilitation Medicine with an interest in an individual BPS-oriented approach to managing LBP. POS and SL were the trainers in this intervention and RH and JK were present during the workshops. The diverse backgrounds of the research group improved quality and rigor and subjected the analytical process to group reflexivity. The

credibility of the study was also strengthened by the first author writing preconceptions before starting the study, as well as by discussion in the group on how professional backgrounds, beliefs and attitudes towards the topic may have influenced the analysis process, and regular discussions on the analysis process. The reliability of the research was also supported by one author (AP) not being familiar with the CFT approach and not being included in the training intervention, and by the results being discussed in the group of researchers familiar with the phenomenographic research method but having no previous knowledge of the CFT approach.

One limitation of this study was that we only arranged workshops for the participants and there was no opportunity for clinical supervision and mentoring. It is also unclear whether these physiotherapists actually changed their practices or whether the intervention had a positive effect on patient outcomes. A strength of our study was that our training intervention was closer to a normal professional development workshop setting than previous training for physiotherapists that have delivered CFT interventions in randomized controlled studies (Vibe Fersum et al., 2013), and that we interviewed all the participating physiotherapists, who reported different kinds of responses to training. This also further enhanced the transferability of the results.

There was a gender bias towards women in this study; however, this is reflective of the workforce in Finland: in 2017 women comprised 77% of new physiotherapy students in 2007 (Kuusi, Jakku-Sihvonen, and Koramo, 2009) and 82% of graduate physiotherapists in Finland (Valvira, 2017).

CONCLUSIONS

The participating physiotherapists' conceptions of learning and integrating CFT into clinical practice varied greatly. They reported that the CFT training intervention led them towards a more biopsychosocial, multidimensional understanding and care of patients with persistent

LBP. The participants reported a range of responses to the training, suggesting that for some, the training was insufficient to support adequate changes in their practice behavior and that for others it was a lifechanging experience. The journey was not without challenges, but where they were overcome, a new way of working was possible, and physiotherapists reported increased work motivation. However, it is not yet known whether the changes the physiotherapists reported influenced their clinical practices and patient outcomes.

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IV

PHYSIOTHERAPISTS' PERCEPTIONS OF LEARNING AND IMPLEMENTING A BIOPSYCHOSOCIAL INTERVENTION TO TREAT MUSCULOSKELETAL PAIN CONDITIONS: A SYSTEMATIC REVIEW AND METASYNTHESIS OF QUALITATIVE STUDIES

by

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