JYU DISSERTATIONS 196

Anna-Maija Jäppinen

Patient Education in Physiotherapy in Total Hip Arthroplasty

Patients' and Physiotherapists' Conceptions

UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF SPORT AND
HEALTH SCIENCES

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ABSTRACT

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Patient education is a part of patient-centered health services and an important, integral part of physiotherapy. Nevertheless, physiotherapists have difficulties to identify themselves as educators. People are increasingly responsible for their health and health choices. At the same time the demand for reducing health care costs shortens hospital stays. The short stays in hospital and often missing follow-ups in physiotherapy challenge patient education in physiotherapy and physiotherapists' educational skills.

The aim of this study was to explore patient education in physiotherapy in total hip arthroplasty (THA) from patients' and physiotherapists' viewpoint. The research followed patients' pathway from home to hospital and back home, in the course of which patients were interviewed four times. Physiotherapists were also interviewed in a group and individually. Qualitative methods, phenomenography and narrative approaches were used in this dissertation, with results published in four scientific articles.

The findings showed that in the pre-operative phase the combination of knowledge and practical elements was important as well as the role of interaction in supporting body changes and confidence in the hospital services. At the post-operative phase, the role of moving in helping patients to prepare for going home was central. Widening the perspective to managing at home, issues like exercising, written home exercise instructions and physiotherapists' guidance to enhance patients' self-confidence were relevant. Patients' narratives of patient education changed along the rehabilitation pathway after THA. The narrative analysis produced three story models indicating that there was some need for more information, progression in the training program and follow-up physiotherapy. From physiotherapists' viewpoint, the role of individuality in exercise advice and interaction, then the role of preparing the patient to manage for the future, were central to the way of coaching home rehabilitation. The research results showed that patient education was constructed from four main issues: knowledge, practical skills, body understanding and interaction with patient and physiotherapist. The results yielded a deeper understanding of the phenomenon, of patient education in physiotherapy. The results and the structure of patient education in physiotherapy, presented at the end, can be used in developing patient education practices, educational skills and continuing education.

Keywords: patient education in physiotherapy, counselling, total hip arthroplasty, phenomenography, narrative approach

TIIVISTELMÄ (ABSTRACT IN FINNISH)

Jäppinen, Anna-Maija
Potilasohjaus fysioterapiassa lonkan tekonivelleikkauksessa – potilaiden ja fysioterapeuttien käsityksiä
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Potilasohjaus on osa potilaskeskeistä terveyspalvelua ja tärkeä, olennainen osa fysioterapiaa. Fysioterapeuttien on kuitenkin vaikeaa tunnistaa rooliaan potilaiden ohjaajina ja opettajina. Ihmiset ovat entistä enemmän vastuussa terveydestään ja terveysvalinnoistaan. Samalla terveydenhuollon kustannuksia pyritään vähentämään lyhentämällä sairaalassa oloaikaa. Lyhyet sairaalajaksot ja usein puuttuva seuranta fysioterapiassa luovat haasteita fysioterapeuttien potilasohjaukseen ja fysioterapeuttien potilasohjaustaitoihin.

Tämän tutkimuksen tarkoituksena oli selvittää potilasohjausta lonkan tekonivelleikkauksessa potilaiden ja fysioterapeuttien näkökulmasta. Tutkimuksessa seurattiin potilaiden kulkua hoitopolulla kotoa sairaalaan ja takaisin kotiin, jonka aikana potilaita haastateltiin neljä kertaa. Myös fysioterapeutteja haastateltiin sekä ryhmässä että yksilöllisesti. Tässä väitöskirjatutkimuksessa käytettiin, fenomenografista ja narratiivista lähestymistapaa, kvalitatiivisia tutkimusmenetelmiä ja tuloksia julkaistiin neljässä tieteellisessä artikkelissa.

Tulokset osoittivat, että leikkausta edeltävässä ohjauksessa tiedon ja käytännön yhdistäminen oli tärkeää, samoin kuin vuorovaikutuksen rooli kehon muutosten tukemisessa sekä luottamus sairaalapalveluihin. Leikkauksen jälkeisessä ohjauksessa keskeistä oli liikkuminen, mikä auttoi potilaita valmistautumaan kotiin menemiseen. Kotona selviytymisen kannalta oleellisia kysymyksiä oli, miten liikkua ja harrastaa liikuntaa, millaisia kotiharjoitteita olisi hyvä toteuttaa ja millainen fysioterapeuttien ohjaus edistää potilaiden itseluottamusta. Potilaiden kertomukset potilasohjauksesta muuttuivat kuntoutuspolun aikana tekonivelleikkauksen jälkeen. Tutkimuksen narratiivisen analyysin tuloksena muodostuneet kolme tarinamallia osoittivat, että tarvitaan lisätietoa, harjoitusohjelman progressiota ja seurantafysioterapiaa. Fysioterapeuttien näkökulmasta keskeistä kuntoutuksellisessa ohjaustavassa olivat yksilöllisyys harjoittelun ohjauksessa ja vuorovaikutuksessa, ja potilasohjauksen laatu potilaan valmentamisessa selviytymään kotona. Tutkimustulokset osoittivat, että potilasohjaus fysioterapiassa rakentui neljästä pääelementistä: tieto, käytännön taidot, kehon ymmärtäminen ja vuorovaikutus potilaan ja fysioterapeutin kanssa. Tulokset tuottivat syvempää tietoa ja ymmärrystä potilasohjaus fysioterapiassa- ilmiöstä. Tuloksia ja lopussa esitettyä potilasohjauksen konstruktiota voidaan hyödyntää potilasohjaus käytäntöjen, ohjaustaitojen ja fysioterapeuttien täydennyskoulutuksen kehittämisessä.

Asiasanat: potilasohjaus fysioterapiassa, ohjaus, lonkan tekonivelleikkaus, fenomenografia, narratiivinen lähestymistapa

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Here, at the very outset, I have to admit that my pathway to this dissertation has not been straight and linear. I have always been interested in many aspects of physiotherapy practice and of life in general. So, my research interests have arisen in relation to the context or position I have been working in at that time. And my intention was not primarily to produce this dissertation, rather it was more focused on developing physiotherapy practices in a working context at hospitals.

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This study has been financially supported by Helsinki University Hospital with a special government subsidy for health sciences research (VTR) and the University of Jyväskylä, support which is warmly acknowledged. This support has enabled me to spend time outside my normal work concentrating on writing. I also appreciate my employer for being flexible with my leave of absence.

I owe my sincere thanks to all the participants in this study. I also want to express my thanks to my co-workers who helped with the study design, data collection and writing process. I have been lucky in working with great colleagues, especially in the physiotherapy field. Thank you all for your cooperation and interest in my work. I also want to thank the members of HITU (research group for tacit knowledge).

I am happy that I still have relationships with friends and family even though lately I have been quite inactive in making connections. Thank you for your friendship. Finally, I want to thank Henkka, my husband. You have not made my work and life easy, but you have always believed in me and my abilities. My thanks also for sharing the joys and sorrows of everyday life.

Helsinki, 23.1.2020
Anna-Maija

FIGURES

TABLES

LIST OF ORIGINAL PUBLICATIONS

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

I. Anna-Maija Jäppinen, Harri Hämäläinen, Tarja Kettunen & Arja Piiranen 2015. Patients' conceptions of preoperative physiotherapy education before hip arthroplasty. European Journal of Physiotherapy 17 (3), 148-157. doi: 10.3109/21679169.2015.1061051

II. Anna-Maija Jäppinen, Harri Hämäläinen, Tarja Kettunen & Arja Piiranen. 2017. Postoperative patient education in physiotherapy after hip arthroplasty: patients' perspective. Musculoskeletal care 15 (2), 150–157. doi:10.1002/msc.1153

III. Anna-Maija Jäppinen, Harri Hämäläinen, Tarja Kettunen & Arja Piirainen 2018. Patient education in physiotherapy in total hip arthroplasty (THA) - The perspective of physiotherapists. Physiotherapy Theory and Practice, 1–10. Advance online publication. doi:10.1080/09593985.2018.1513617

IV. Anna-Maija Jäppinen, Minna Muñoz, Tarja Kettunen & Arja Piirainen. Patients' narratives of patient education in physiotherapy after total hip arthroplasty. Submitted for publication 2019. Request a copy from author.

The data of this doctoral dissertation consisted of transcriptions of interviews with the patients and the physiotherapists. Ten patients and seven physiotherapists took part in the study. Patients were individually interviewed four times over the course of the caring process and physiotherapists individually and in a group. Data collection for the study was carried out in collaboration with the University of Applied Sciences, the University and the Hospital. The study design was produced in a research group, where Anna-Maija Jäppinen was a central actor. Anna-Maija Jäppinen applied for ethical approval and was responsible for participants' recruitment and providing information about the aims of the study orally and in writing. Participants provided their written consent for the interviews.

In all original publications, Anna-Maija Jäppinen had the main responsibility and was the first author. Analysis processes were discussed together with supervisors Tarja Kettunen and Arja Piirainen. The writing process and submissions of the articles were Anna-Maija Jäppinen's responsibility.

CONTENTS

1 INTRODUCTION

People live longer nowadays, manage their own way of doing things and make health choices during their lifespan. Still many long-term conditions, like osteoarthritis, impair older people's performance and quality of life. Osteoarthritis is a common joint disease in Western countries and as the population of the world is aging and medical advances lengthen the average life expectancy, osteoarthritis will become a larger health problem (Ehrlich 2003). Age is the strongest predictor of the development of osteoarthritis (OECD/EU 2016), but the cause of osteoarthritis is still multifactorial, and the affected mechanisms are complex (Allen et al. 2016). Total hip arthroplasty (THA) is a gold standard treatment for severe osteoarthritis (Mäkelä et al. 2010), when conservative treatments do not bring relief. It has been estimated that over 1 million arthroplasties are done yearly worldwide (Pivec et al. 2012). Fast track programmes in THA have been developed especially in Europe to decrease the time patients are in hospital (Pivec et al. 2012) while still maintaining a high level of patient safety (Raphael et al. 2011; Stambough et al. 2015). Short hospital stays diminish costs (Stambough et al. 2015), but the time for patient education is shorter. Fast track programmes and a shorter time for patient education are common in other surgery fields too. In clinical practice many diseases and health conditions are treated in an outpatient ward and patients are more and more responsible for their health, health choices and rehabilitation. Patients are experts in their own life, disease and rehabilitation (Cott 2004) and professionals support that. Therefore, it is important that patient education in physiotherapy in THA facilitates the patient's recovery, self-care and ability for self-rehabilitation, especially when rehabilitation after discharge and follow-up visits with a physiotherapist are not common practice.

Studies of patient education in physiotherapy in THA found that pre-operative physiotherapy with patient education shortened the length of hospital stay (Crowe & Henderson 2003), patients' function improved earlier, less physiotherapy was needed (Vukomanović et al. 2008) and anxiety decreased before surgery (Giraudet-Le Quintrec et al. 2003). Studies of patient education in physiotherapy

after THA concluded that self-directed home exercises had similar effects as outpatient physiotherapy (Galea et al. 2008; Coulter et al. 2016; Austin et al. 2017). The education content and its implementation differ between studies.

In health care the natural sciences have an influence and the biomedical model has been dominant, and this has also affected physiotherapy. There has been criticism directed against the biomedical model's power for knowledge development in physiotherapy (Noronen & Wikström-Grotell 1999; Grönblom Lundström 2008; Nicholls & Gibson 2010). Physiotherapy in THA has been studied, but generally from a natural science; biomedical perspective, when the focus has been on the symptoms and the reasons behind them and what therapeutic exercise is most effective in treating them. This post-positivist approach has benefits, but to understand the complexity of human behaviour, other models and a humanistic approach in research are also needed (Plack 2005; Thornquist 2018). In addition, physiotherapists' practical knowledge, skills and used techniques should be linked to patients' values in the context of society (Edwards & Richardson 2008). It should be taken into account that the key concept in physiotherapy, such as movement, is related both to biomedical and humanistic approach (Wikström-Grotell 2016). Different approaches can be complementary in physiotherapy knowledge-base (Noronen & Wikströn-Grotell 1999).

In widening physiotherapists' knowledge base, studies of patient education in physiotherapy and patient-physiotherapist interaction, in the real health care system, are relevant. To facilitate patients' rehabilitation process, we need to know what aspects in patient education in physiotherapy support it. Studies of patient education in physiotherapy are needed. This study was based on the humanistic science tradition. The aim of this study was to explore patient education in physiotherapy in total hip arthroplasty from patients' and physiotherapists' viewpoint. It explored patients' and physiotherapist' conceptions in an attempt to gain a deeper understanding of the phenomenon, patient education in physiotherapy. The underlying reason focusing on this issue was the reduced time for patient education, the demand for patient self-rehabilitation according to hospital instructions, without a follow-up by the physiotherapist, and the lack of studies.

2 THEORETICAL PERSPECTIVES ON PATIENT EDUCATION IN PHYSIOTHERAPY IN TOTAL HIP ARTHROPLASTY (THA)

2.1 Patient education

In this chapter the theoretical background of patient education and adult learning is first viewed. Then patient education in health care, its definitions are handled. After that, the focus will be on patient education in physiotherapy. There are many related terms in the patient education field. In this thesis patient education in physiotherapy is used to describe education and counselling interaction between patient and physiotherapist, which is an integral part of physiotherapy.

In terms of patient education, there are many different science traditions and scientists, which has impacted on the scientific thinking and philosophy of science nowadays. Simplifying, the main educational orientations can be seen, which are based on natural sciences, humanistic sciences and social sciences. The natural sciences have a technical interest in knowledge and the function of science is to predict and deduce. Central to humanistic sciences is a hermeneutic interest in knowledge and the function of science is understanding the phenomenon (See Niiniluoto 1997, 13-73).

Patient education has adopted perspectives from humanistic, cognitive-behavioural, social cognitive and psychodynamic thinking (Gillon 2007, 87; Braungart et al. 2014). The humanistic perspective sees persons as unique and complex individuals with a history and personal values, recognizing human potential (Gillon 2007, 88; Braungart et al. 2014). A cognitive-behavioural perspective combines both cognitive and behavioural approaches, where there is a relationship among cognition, emotions, physiology and behaviour. Traditionally, behaviourist theories have been used in health education in behaviour change practices, even though this approach could be considered passive, teacher-centred with learning based on extrinsic rewards rather than the learner's inner motives. Cog-

nitive approaches stressed the importance of goals and expectation and the balance between them in motivating action. (Braungart et al. 2014) The cognitive-behavioural approach handles the role of dysfunctional thinking and the ability to learn to think and act in a less dysfunctional way (Gillon 2007, 105-106). Social cognitive perspectives include aspects of personal characteristics, environment and social context in patient education (Braungart et al. 2014). Psychodynamic thinking and the person-centred approach of Carl Rogers highlight that individuals have resources for self-understanding and altering basic attitudes, and for self-directed behaviour. Person-centred therapy aims to facilitate the utilization of such resources via acceptance, therapist congruence, and empathic understanding (Lux et al. 2013).

2.1.1 Adult learning and patient education

Fundamental to understanding patient education and the theoretical framework of how people learn, it is relevant to view learning as a phenomenon. Education is defined as a process aiming to facilitate learning, and teaching is a process of facilitating a person's ability to apply what he or she has learned (Falvo 2011, 37-39). Learning is defined as "the acquisition of knowledge or skills through study, experience, or being taught" (English Oxford Living Dictionaries 2019). Generally learning is thought to be a dynamic, multi-dimensional and individual process (Miller et al. 2011, 63). Learning theories emphasize different aspects of learning (Wenger 2009) and no single learning theory covers all the aspects of learning. Many learning theories are quite new and have been formulated in the educational context with children and young people. Nevertheless, the interest in knowledge is old, and the teachers of ancient times were adult teachers, such as Plato and Socrates. Socrates broke the problem into parts and as in a midwifery could draw answers by questioning (Marton & Booth 1997).

Traditional learning theories underline different aspects of learning. According to Merriam et al. (2006) and Wenger (2009) behaviourism focuses on behavioural acting via stimulus-response and selective reinforcement and cognitive structures and the information process in the brain are central in cognitive theories. Constructivism is interested in the mechanism of learning and interaction with the environment and the pedagogical focus is task-oriented (Wenger 2009; Merriam & Bierema 2014, 12). Social learning theories integrate social components into the process of learning (Wenger 2009). Humanistic learning theories focus on the learner's inner person (Merriam & Bierema 2014, 41).

Patient education in this thesis deals with adult education and learning in the health care context, when adults have health problems and need to learn ways to maintain or improve health and promote recovery. Similarly, in the field of adult learning there is no single theory (Merriam et al. 2006, 83). The character of adult learning is life experience, and adult learning needs and interests vary from those of children (Merriam & Bierema 2014, 12). Lifelong experience as a root of learning has been the idea of andragogy (Lindeman 1926). Andragogy has roots in humanism, and it could be useful to take a close look at this orientation, which was introduced by Savicevic in Europe and promoted by Knowles in

North America (Savicevic 2008). The term andragogy meant "the art and science of helping adults learn" (Knowles et al. 2014). Merriam and Bierema (2014, 60) summarize the adult learner's features in andragogy as follows: "independent self-concept, a reservoir of experience, the developmental tasks of adult social roles, desire for immediate application, internal motivation, and the need to know". Teachers' role is to help the adult to become aware of this need to know which can be simulated in a real-life situation, for example, what the adult is now and what he/she wants to be (Knowles et al. 2014, 90-91). Adults have more and different life experiences than youth and therefore individual differences are larger. Individualization of learning and teaching has been central to adult learning. Learning awareness starts from the individual's own experience of learning and widens during the learning process (Marton & Booth 1997, 108-109). Adults' heterogeneity also enriches adult learning situations and could be used in groups. Peer-support is also used to promote patient education and lifestyle changes.

When discussing adult learning, it is useful to examine closely integrative pedagogy. Integrative pedagogy is not a learning theory, it is a model or a principle of constructing adult learning environments. In this model four key elements of learning - theoretical, practical, self-regulative and sociocultural knowledge - are combined. Theoretical knowledge is conceptual and practical knowledge is experiential. Reflection is linked to the use of theoretical and practical knowledge. This link is called self-regulative knowledge and in this integration model, practice and self-regulation can be viewed as a problem-solving process. (Tynjälä et al. 2016). Integrative pedagogy approach has been used in studying and explaining professional expertise, but it may be also applied in rehabilitation. Recognizing a rehabilitee's knowledge, strengths, actions, needs for improvement and ways of thinking is the basis of education and counselling. For example, reasoning for self-exercise links theory to practical skills and facilitating the rehabilitee's self-reflection helps in goal achievement. (Tynjälä et al. 2016; Kettunen & Tynjälä 2018).

2.1.2 Patient education in health care

Patient education has been widely discussed in health care. There has been a need for change in how to see the person in the health care services. The World Health Organization's global strategy on integrated people-centred health services 2016-2026 emphasised the need for a paradigm shift in the health care services: foundation, management and delivery. The vision of the strategy is:

> A future in which all people have access to health services that are provided in a way that responds to their life course needs and preferences, are coordinated across the continuum of care and are safe, effective, timely, efficient and of acceptable quality. [1]

The strategy has five goals and one of them is empowering and engaging people; providing the opportunity, skills and resources that people need. It highlights

[1] WHO 2015

that people, particularly with non-communicable and chronic diseases, are responsible for their health needs and making health behaviour choices. Their ability to practise self-care is essential (WHO 2015).

The need for patient education is evident, but there is no one definition for patient education and there are many terms related to it. Terms like health education, health promotion, patient counselling, and health counselling are used (Poskiparta et al. 2000; Caladine 2013). The WHO, World Health Organization, defines health promotion as follows:

> Health promotion enables people to increase control over their own health. It covers a wide range of social and environmental interventions that are designed to benefit and protect individual people's health and quality of life by addressing and preventing the root causes of ill health, not just focusing on treatment and cure.[2]

Dreeben (2010, 457) emphasizes that patient education is:

> A planned systematic, sequential, and logical process of teaching and learning provided to patient and clients in all clinical settings.[3]

Patient education is a part of people-centred services and patients' rights for information and education is statutory in many Western countries, as in Finland (Act 785/1992). Patient education is a part of many health care professionals' work, and it is not restricted to one professional group. The need for individual health care and patient education is recognized in health care, but both professionals and patients need to practise their communication and education/learning skills to optimize patient education, bearing in mind the patient's social surroundings and relations (Hoving et al. 2010). Health care professionals' duty to maintain and develop professional competence, including educational skills, is also statutory (Act 559/1994). Solvang & Fougner (2016) summarized that patient-centred care has three important elements: collaborative partnership with respect, empowerment in health promotion and a holistic perspective towards illness and treatment. Patient-centeredness can be considered a goal of an encounter between patient and professional and, as such, is valuable in the process of patient empowerment. The concept of patient empowerment is broad including, for example, empowerment via health care contacts and health education programmes, and patients who empower themselves via medical information from the internet, for example, or in patient support groups (Holmström & Röing 2010).

In Falvo's (2011, 39) description, the goal of patient teaching is to assist the patient in obtaining knowledge, skills or attitudes, which could maximize their potential for positive health effects. One interpretation is that the main goal for patient education is to support patients' decision making and that patient-centred education may be challenging for health care professionals and need new ways to meet patients' needs (Redman 2004). Patient education has changed over

[2] WHO 2018
[3] Dreeben et al. 2010

time from professional centeredness. Nowadays patient education is used in different health issues and environments as an important integral part of care and rehabilitation (Hoving et al. 2010). Personally tailored education, shared goal setting and planning with feedback are considered to improve outcomes in rehabilitation (Keating et al. 2011).

Patient education is a term related to counselling, as mentioned earlier. Counselling has been described as an interaction between two people – the counsellor and the person who is seeking counselling for troubles or needs help with life issues, with a typical example being psychology counselling. Counselling is also a part of the work of other health professionals or teachers. This is called embedded counselling when the helper is not a professional counsellor or psychotherapist. Learning is one of the expected outcomes of counselling. Learning in this situation could be new understanding, strategies and skills in handling life problems or better understanding of oneself (McLeod 2007, 10-19). Counselling, as broadly described, is a collaboration supporting and promoting people's learning, growth, work and problem-solving processes in a way that strengthen people's agency (Vehviläinen 2014, 12). In counselling which facilitates patients' learning, theories from counselling psychology and pedagogy could be applied.

2.1.3 Patient education in physiotherapy

An important part of physiotherapy is education of patient and family especially with regard to conditions to promote good quality of life (Higgs et al. 2001). As far as patient education in physiotherapy is concerned, there is not one global definition. Trede (2000) underlined that "education should be seen as an important part of effective physiotherapy management" and "education is much more complex than the application of technical knowledge and method". Traditionally, physiotherapists provide patient education, focused on information and technical skills (Lorig & Holman 2003). The education content should be useful for patients and focused on their problems and situation (Kidd et al. 2010). Applying adult learning theories, described earlier, physiotherapist's role could be seen as helping patient to become aware of own needs to know. In patient education in physiotherapy, for example, the patient can consider what is his/her mobility situation or physical ability, what it could be and what he/she would have to learn and practise to achieve that goal. Adults have a self-concept of being responsible for their own life and life choices. In a patient education situation this could appear as the adult possibly resisting if his/her will is ignored or forced.

Patient education in physiotherapy has not been a topic of study interest and most of the studies in this field have been published during the last ten years. For example, a search (10/2019) of Pubmed using the search terms "patient education" and physiotherapy/abstract produced 127 studies, 92 of which were published in the years 2010-2019. Patient education in physiotherapy has been studied from different perspectives: illnesses, contexts and roles. There are studies dealing with patient education in physiotherapy as a part of physiotherapy in different illnesses and conditions, for example in COPD (Puhan et al. 2016), in lymphedema after breast cancer surgery (Lu et al. 2015) or in pain management

(Moffett & McLean 2006). Patient education in physiotherapy has been studied in different situations and contexts: in primary care (McRae & Hancock 2017), in pre-operative and post-operative situations in hospitals (Boden et al. 2018) or nowadays via the internet (Hwang et al. 2017). Patient education has been explored not only from the perspective of patients, but also from the perspective of physiotherapists (Rindflesch 2009). Physiotherapists' and physiotherapy students' competencies in patient education have been studied and defined (Forbes et al. 2017; Forbes et al. 2018). The interaction between the patient and physiotherapist, which is in generally considered a key component of successful patient education (Hall et al. 2010), has similarly been studied (Stenner et al. 2015; Solvang & Fougner 2016).

Using a survey, McRae and Hancock (2017) studied reasons important for patients seeking physiotherapy in primary care. All five aspects (diagnosis, treatment to improve function, information and education, treatment for pain relief, and prevention) were considered extremely or quite important. Treatment to improve function were valued most (93 %), diagnosis (65%) and information and education (68%) were valued less. Pain relief was considered to be highly important by patients with spinal pain and by female patients. Patients with a lower educational level rated diagnosis and information and education as important (McRae & Hancock 2017). This study was carried out in primary care indicating that physiotherapists should be aware of the reasons for seeking physiotherapy, of individuality in treatment and of physiotherapists' role and ability in every dimension, for example in patient education. Patients' perceptions of physiotherapy in other health care situations could be different.

Patient education in physiotherapy from physiotherapists' viewpoint has been explored by Rindflesch (2009) using physiotherapists' focus group interviews and evaluating physiotherapy in practice. The results for patient education in physiotherapy showed: 1. physiotherapists could not separate patient education from exercise intervention, 2. patient education aimed to empower the patient in self-management and prevention, 3. the patient's need and situation determined the content of patient education, 4. physiotherapists assessed the outcome of patient education through function or demonstrations (Rindflesch 2009). Physiotherapists may not consider themselves educators even though physiotherapists commonly instruct home programs or demonstrate a new way to do things or facilitate motor learning (Resnick & Avers 2012). Interaction with patients (Solvang & Fougner 2016) has been studied using physiotherapists' focus group interviews. Three categories were found: teaching self-management as an educator, the close relationship with the patient and coaching for everyday life. Teaching self-management meant that patients worked with their bodily problems applying evidence-based techniques and exercises. A relational match resulted in close relationship, which facilitated the relationship during the treatment process. The importance of knowing patients' previous and present living conditions was theme coaching for everyday life.

Forbes et al. (2018) compared a single training intervention, involving video observation, simulated patient practice and structured feedback, in patient education among final year physiotherapy students. The results indicated that intervention enhanced physiotherapy students' self-efficacy and performance in patient education. A survey of novice and experienced physiotherapists showed that experienced physiotherapists used more one-to-one discussion, personalized hand-outs and novice physiotherapists perceived more barriers in patient education (Forbes et al. 2017 a). Forbes et al. have also studied competencies in patient education in physiotherapy using the Delphi method (Forbes et al. 2017 b). They found 22 competencies in patient education in physiotherapy. Competencies in patient-centred practice included tailoring content, language and materials and seeking perceptions and concerns of patients. Communication was a major theme in competencies, including the use of questioning, effective explaining of the patient's condition and the ability to summarize. There were also competencies related to physiotherapists' ability to evaluate the education process, manage barriers in education and continue to develop their own educational skills.

Sharing the view that the main goal in patient education is to support patients' decision-making as described earlier, it is relevant to consider shared decision-making and patient opportunity for decision in physiotherapy. A qualitative study, using physiotherapy sessions with patients with non-specific lower back pain, concluded that there was power asymmetry in decision-making with little room for the voice of patients (Stenner et al. 2015). Physiotherapists may have positive attitudes towards shared decision-making, but they have reported having a lack of knowledge about shared decisions (Topp et al. 2018). In Topp et al's survey 60 % of physiotherapists had no knowledge about shared decision-making before the survey. Physiotherapists reported having positive attitudes towards shared decision-making, but two-thirds of participants used a paternalistic approach, so-called clinician-led decision-making. This discrepancy between attitudes and actions seems quite logical; to be able to share decisions in therapy, you have to have the knowledge and skills to do it. Harrison & Williams (2000) studied patients' and physiotherapists' perceptions about power balance and recognized that there was a power imbalance, which physiotherapists considered milder than patients. Patients considered the imbalance overwhelming with physiotherapists exercising control over processes and information. The authors pointed out that power can be used badly: restrictive and controlling, or wisely: facilitating and enabling therapeutic interaction (Harrison & Williams 2000).

Good patient education is one characteristic of patient-centred health care in hospitals and a recent review by Wijma et al. (2017) studied it in physiotherapy. It included 14 qualitative studies with 231 participants. In summary, it stated that patient centeredness in physiotherapy contains elements of individualized treatment, continuous communication (verbal and non-verbal), education, patient-defined goal setting, support and empowers patient and physiotherapist with pa-

tient-centred social skills, knowledge and confidence. An individualized treatment involved among other things a personal plan including exercise, advice and education that was formed in dialogical collaboration with the patient. Communication represented individualized dialogue. Education comprised primarily advice on problem, diagnosis, treatment and course of treatment Goal setting was physiotherapists' way to activate and motivate patients. Support was a combination of individuality, understanding, reassuring, empowerment and equal responsibility (Wijma et al. 2017).

2.2 Total hip arthroplasty (THA)

In order to understand the context and the patient education issues in total hip arthroplasty, it is relevant to briefly present the medical background of this condition. This part deals with the issue as explored from the natural science base. Hip osteoarthritis, hip arthroplasty and recovery after THA are examined next.

2.2.1 Hip osteoarthritis

The cause of osteoarthritis is multifactorial and the mechanisms underlying it are complex (Allen & Golightly 2015). There are many definitions of osteoarthritis and the Osteoarthritis Research Society International (OARSI) defined it as follows:

> Osteoarthritis is a disorder involving movable joints characterized by cell stress and extracellular matrix degradation initiated by micro- and macro-injury that activates maladaptive repair responses including pro-inflammatory pathways of innate immunity. The disease manifests first as a molecular derangement (abnormal joint tissue metabolism) followed by anatomic, and/or physiologic derangements (characterized by cartilage degradation, bone remodelling, osteophyte formation, joint inflammation and loss of normal joint function), that can culminate in illness. [4]

Worldwide estimates are that 10 % of men and 18 % of women aged over 60 years have symptomatic osteoarthritis (WHO 2018). Age is the strongest predictor of the development of osteoarthritis, increasing especially after 50 years in hip and knee. Osteoarthritis is more common in women (OECD/EU 2016). Approximately 6 % of people aged 65-80 have hip osteoarthritis, but the self-reported rates are much higher (van Schoor et al. 2016). The diagnostic of osteoarthritis is based on the symptoms described by the patient, clinical evaluation of joint status, radiographic findings and, if necessary, laboratory findings for differential diagnoses (Osteoarthritis in the knee and hip: Current Care Guidelines 2018).

Osteoarthritis of the hip is associated with low physical performance (Edwards et al. 2014). Explosive and maximal muscle strength asymmetries are found in all hip muscles, also in knee extensors in patients with hip OA before THA (Friesenbichler et al. 2018). Common symptoms of hip osteoarthritis are

[4] Kraus et al. 2015

pain, joint stiffness and decreased physical function. Functional limitations, such as difficulties in walking, putting on shoes/socks and climbing stairs, are common symptoms (Dreinhöfer et al. 2006).

2.2.2 The reasons for THA and the incidence of THA

Total hip arthroplasty is a surgical procedure where the hip joint is replaced by a prosthetic implant. Total hip arthroplasty (THA) is a widely used surgical treatment for patients with osteoarthritis of the hip who have unacceptable levels of pain and/or decreased physical function (Di Monaco & Castiglioni 2013). THA is also used in treat patients with hip fracture and severe physical joint damage (OECD/EU 2016). Osteoarthritis causes pain, and pain in rest, pain during activity and functional limitations are the most important criteria for orthopaedic surgeons. Walking distance is a simple measure to assess functional limitations and the need for the operation (Remes et al. 2004).

Almost 80 % of primary hip arthroplasties are made due to primary osteoarthritis (Mäkelä et al. 2010). Hip osteoarthritis is common and in Finland, over 9000 primary hip arthroplasties are performed every year (Tilastoraportti 2/2018). A register study of hip arthroplasties performed in Finland between 1998 and 2010 showed that the incidence of primary hip arthroplasty steadily increased annually up until 2006 and then showed slowing demand (Pamilo et al. 2013). Still in 2014 Finland was one of those countries with the highest rates of hip arthroplasties among EU countries (OECD/EU 2016).

2.2.3 Recovery after THA

The aim of THA is to relieve pain, to facilitate moving (Tsukagoshi et al. 2012) and to improve functional ability and quality of life (Räsänen et al. 2007; Di Monaco et al. 2009; Larsen et al. 2009; Mäkelä et al. 2010). Previous studies have found that some patients did not recover as expected, and functional limitations and pain could persist (Bertocci et al. 2004; Frost et al. 2004; Lungu et al. 2016). A large cohort study in Europe found that the majority of patients got symptomatic relief after THA, but there was a group of patients, about 14-36 %, who experienced little or no improvement one year after surgery (Judge et al. 2010). The amount of people with unfavourable long-term post-operative pain after THA ranged from 7 % to 23 % (Beswick et al. 2012).

The length of stay in hospital (LOS) has decreased over time (Cram et al. 2011, Pamilo et al. 2013) and in Finland hospitals with a higher surgery volume had lower length of hospital stay (Pamilo et al. 2013). Fast-track surgery is common in many hospitals (Pilot et al. 2006) and multidisciplinary fast-track protocols can reduce hospital stay (Raphael et al. 2011; Stambough et al. 2015). A recent study on recovering after fast-track surgery showed that pain and the use of pain medication decreased during the six weeks after operation and function and quality of life improved (Klapwijk et al. 2017). Patients who had pre-operative difficulties in climbing stairs or used walking aids needed to stay in hospital longer after THA (van Aalst et al. 2014)

According to Tilbury et al. (2016) patients who had pre-operatively more radiographic severity of osteoarthritis of the hip showed better outcomes regarding pain and function one year after THA. A systematic review from Lungu et al. (2016) included 22 studies of patient-reported pain and function surveyed from 3 months to 2 years after primary hip arthroplasty. The main findings from moderate to high methodological quality studies identified 6 pre-operative determinants of poor outcomes in pain and function: worse or better pre-operative levels of function and pain, a lower educational status, greater body mass index, greater level of comorbidity, worse general health and a lower radiographical osteoarthritis severity. Age and gender were not significant determinants (Lungu et al. 2016).

Muscle imbalance, i.e. lowered external rotation strength of the operated hip, was measured one year after operation (Häkkinen et al. 2010). Hip abductor weakness, muscle contracture and limb length difference have been found in physical testing in a study by Bhave et al. (2005). Hip flexor, extensor and adductor muscle explosive and maximal strength asymmetry persisted six months after THA (Friesenbichler et al. 2018).

According to a systematic review of physical recovery after THA, perceived physical functioning showed considerable recovery 6-8 months after surgery. Functional capacity to perform activities measured with gait analysis showed moderate recovery (Vissers et al. 2011). Gait functions, like speed, step length and stride length, improved early after THA, but there was a difference compared to healthy adults in speed, stride length and single limb support time at one year after THA (Bahl et al. 2018). According to patients' experiences 6-8 months after THA, patients were disappointed at the length of recovery time after THA (McHugh & Luker 2012). They felt disabled and had difficulties to perform some daily activities. Most of them had received very little information from health care professionals (McHugh & Luker 2012). Nagai et al. (2018) studied patients' fear of falling after THA. They found that fear of falling during activities of daily living decreased over time after THA, but some patients remained fearful one year after THA, for example in climbing stairs or walking around in the neighbourhood. Almost 33 % of patients after THA reported falling more than once during the first post-operative year (Levinger et al. 2017).

A review and meta-analysis explored patients' activity levels before and up to one year after total unilateral hip arthroplasty (Withers et al. 2017). It included 17 studies; nine were analysed in a meta-analysis and eight qualitatively. The methodological quality of those research studies was mostly low to moderate. The activity level was studied with an accelerometer or with cardiopulmonary exercise tests using a cycle ergometer or a treadmill. The results demonstrated that there was no statistically significant difference in physical activity before and up to one year after THA. The authors pointed out the need to develop methods or put more effort into encouraging patients to be more physically active after operation.

2.3 Physiotherapy and patient education in physiotherapy in THA

2.3.1 Physiotherapy in THA

The overall aim of physiotherapy during the THA process is to maintain and improve physical function before and after THA, decrease pain and fear before operation and promote rehabilitation after THA. The care of patients with osteoarthritis has three main aims: to control and decrease pain, to maintain and improve physical function and to prevent the worsening of osteoarthritis (Osteoarthritis in the knee and hip: Current Care Guidelines, 2018). Conservative non-pharmacological treatment is the basis of all care (Osteoarthritis in the knee and hip: Current Care Guidelines, 2018) and physiotherapy is an important part of conservative treatment including patient education, therapeutic exercising, use of aids, physical treatments and weight control (Polven ja lonkan nivelrikon fysioterapia: Hyvä fysioterapiakäytäntö -suositus, 2013). Patient education aims to promote self-care and exercising (Polven ja lonkan nivelrikon fysioterapia: Hyvä fysioterapiakäytäntö -suositus, 2013).

There are studies of physiotherapy at different stages: in osteoarthritis, before THA, at the perioperative phase and after the perioperative phase. A review of exercise therapy concluded (from nine trials with 549 participants) that exercise benefits people with hip osteoarthritis in the short term in reduction in pain, and improvement in physical function (Fransen et al. 2014). Sampath et al. (2016) showed the benefits of exercise in pain and physical function also in long-term (seven trials with 886 participants). A six-week physiotherapist supervised group including exercises and education showed short-term improvements in pain intensity in people with osteoarthritis of the hip/knee awaiting arthroplasty (Saw et al 2016).

A review with meta-analysis (Wallis & Taylor 2011) of twenty-three RCT (randomised control trial) studies and 1461 participants waiting for hip or knee arthroplasty concluded that pre-operative exercise reduced pain for patients with hip and knee osteoarthritis prior to arthroplasty. Furthermore, pre-operative exercise and education may improve activity after hip arthroplasty. Villadsen et al. (2014) compared a supervised neuromuscular exercise group (n=84) to a standard arthroplasty procedure group (n=81), people with OA in hip or knee scheduled for arthroplasty. Exercises lasted 8 weeks, twice a week for one hour. Follow-up times were six weeks and three months post-operatively. They concluded that pre-operative exercises might have short-term benefits after surgery. Cavill et al. (2016) studied a four-week, one hour, twice a week exercise programme (n=32) compared to none (n=32) among people with OA in hip or knee scheduled for arthroplasty. Follow-up was 8 weeks post-operatively. There were no significant differences between the groups, but there was a trend that exercise positively affected function and quality of life in patients with hip arthroplasty. A review of pre-operative rehabilitation by Wang et al. (2016) included 22 studies

with 1492 people waiting for hip or knee arthroplasty. In summary, it concluded that pre-operative rehabilitation had positive effects on pain and activities such as climbing stairs, toilet and chair use after arthroplasty.

The aim of immediate post-operative rehabilitation is that the patient achieves a sufficient level of independence in daily living activities with the help of early and intensive physiotherapy (Jones et al. 2005). An RCT (randomised control trial) study of multiple physiotherapy sessions showed a trend that patients with physiotherapy twice a day (n=37) achieved earlier functional milestones - bed transfers and mobility - compared to patients with once-a-day physiotherapy (n=20) (Stockton et al. 2009). Still there was no between-groups difference in LOS (length of stay) or in the Iowa Level of Assistance on post-operative day six. On the other hand, Smith et al. (2012) found that early rehabilitation on the surgery day and twice-a-day physiotherapy compared to once a day, decreased pain and shortened length of hospital stay. Multimodal pain control could enable patients' participation in progressive rehabilitation (Sharma et al. 2009) and early intensive rehabilitation after the operation could speed up recovery (Khan et al. 2008).

Larsen et al. (2008) compared accelerated perioperative care and rehabilitation procedure (n=45) to standard care (n=42) among patients with hip or knee arthroplasty. The rehabilitation procedure had daily goals in information, pain relief, nausea control, nutrition and elimination. Mobilization started on the surgery day and the amount increased so that on the first post-operative day the time out of bed was over four hours and mobilization over 8 hours on the second post-operative day and subsequently. Length of hospital stay was shorter in the intervention group and quality of life at three months after surgery was better. The enhanced recovery program after THA (Maempel et al. 2016) and physiotherapy starting on the operation day (Juliano et al. 2011, McCann-Spry et al 2016) shortened the length of hospital stay. The effect of early physiotherapy to decrease length of stay was also confirmed by a recent review of 17 studies with 26614 patients with hip or knee arthroplasty (Masaracchio et al. 2017). It also suggested that patients with early physiotherapy had lower medical costs and experienced no higher risk of adverse events.

Studies of exercise types have shown that bed exercises in addition to common physiotherapy (Jesudason & Stiller 2002) or in addition to standard gait re-education (Smith et al. 2008) at the hospital stage gave no advantage in recovery nor shortened the length of stay in hospital. Stepping exercises (n=15) facilitated the muscular recovery of the hip abductors and knee extensors compared to usual care (n=15) provided early post-operatively (Tsukagoshi et al. 2012). A perioperative supervised exercise program (n=15) focusing on gait demonstrated greater stride length and gait velocity at three weeks post-operatively, and greater gait velocity and six-minute walking distance at 12 and 24 weeks post-operatively than normal care (n=13) (Wang et al. 2002). Liebs et al. (2010) compared ergometer cycling (n=184) started two weeks after knee or hip arthroplasty, three times a week lasting at least three weeks, compared to standard post-operative physiotherapy (n=178). Standard physiotherapy included a range of motion

exercises, exercises to improve muscle strength, venous return, balance, gait and coordination and instruction in activities of daily living. Ergometer cycling improved early (three months) and late (24 months) post-operative quality of life after hip arthroplasty.

Home exercises should be intensive and specific, including muscle strength exercises and walking exercises (Jan at al. 2004). Physiotherapist-guided training of the walking skill (n=35) compared to none (n=33) had positive effects on walking distance and stair climbing that persisted one year after surgery (Heiberg et al. 2012). Husby et al. (2009) studied early maximal strength training and conventional rehabilitation (n=12) compared to standard conventional rehabilitation (n=12). Maximal strength training for the operated leg was leg press and abduction, five times a week, starting one week after the operation and lasting four weeks. Conventional rehabilitation was with low or no resistance five times a week. After five weeks muscular strength was better in the strength training group. At the six-month and twelve-month follow-ups work efficiency was better in the strength training group (Husby et al. 2010). The exercising could be center-based with supervision or home-based without supervision (Galea et al. 2008). Nevertheless, some patients needed supervision to perform intensified exercises (Mikkelsen et al. 2012). The usefulness of rehabilitation protocols is debated (Brander & Stulberg 2006) and variation of rehabilitation protocols exists (Jones et al. 2016). Standardised practices and clear guidelines are missing in physiotherapy after hip arthroplasty, and practices are inconsistent all over the world (Di Monaco et al. 2009). In summary, Di Monaco & Castiglione (2013) concluded that exercise therapy varied both in type and timing and sufficient evidence did not exist to form a detailed exercise protocol based on evidence at that time.

Minns Lowe et al. (2015) summarized the situation, stating that high quality studies with long-term follow-up were lacking to find sufficient evidence of the effectiveness of post charge physiotherapy. Austin et al. (2017) compared unsupervised home exercises and physiotherapy lasting ten weeks after THA. The following period was one year and there was no difference between groups in functional outcomes. Based on that they concluded that unsupervised home exercising was safe and efficacious for most of the patients after THA.

2.3.2 Patient education in physiotherapy in THA-literature review

Studies of patient education in THA have mainly focused on pre-operative education and its effectiveness. Physiotherapy studies in THA generally deal with exercising studies. The Ovid Medline, Cinahl and Scopus databases were searched (03/2018) for studies of patient education in physiotherapy using the search terms: "Prosthesis/or Arthroplasty, Replacement, Hip/ or hip arthroplasty" and "Physical Therapy Modalities/ or physiotherapy" and "patient education or advice or information or instruction". The results were limited to the English language and the years 1998-2018. The different phases of this search are summarized in Figure 1.

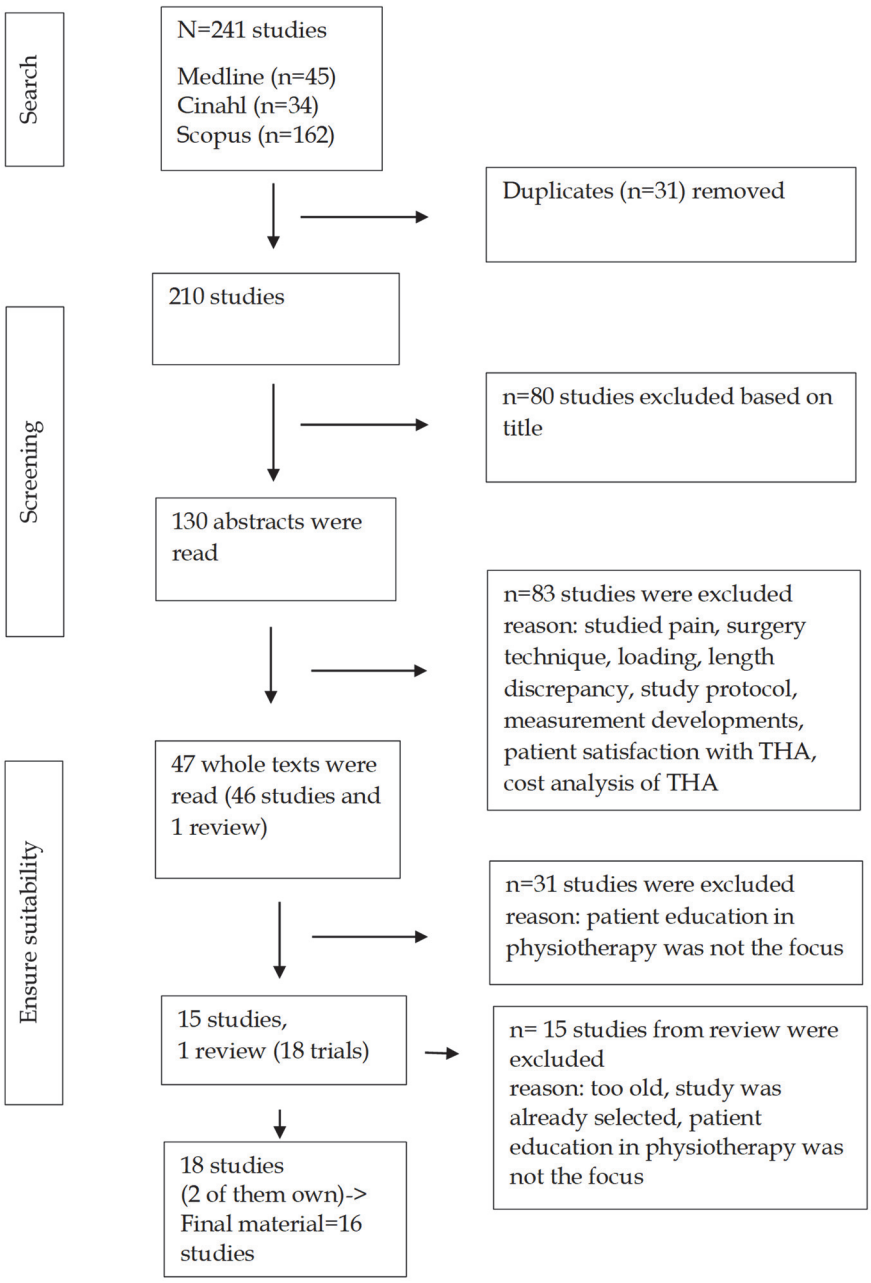

FIGURE 1 Flow diagram to summarize the selection of studies in this review

A total of 16 studies were found, which handled patient education in physiotherapy in THA and could be included in this review. The studies included were selected by two independent researchers (AMJ, AP) and the quality of studies (Tong et al.2007; Furlan et al. 2009) was also evaluated separately. If there was a disagreement, then the researchers discussed in order to reach a compromise. The selected studies are described in Table 1.

TABLE 1 Extracted data of original studies with quality assessment

Study **Country**	**Participants**	**Patient education** **Intervention**	**Method** **Follow up**	**Quality**	**Main outcomes**
Patient education in OA waiting for THA					
Gill et al. 2009 Australia	N= 82 Land-based n =40 or pool-based n=42 exercises before. People with OA in hip or knee.	6 weeks programme: Education programme first, lasting one hour. Education content: pathogenesis of OA, disability, principles of healthy exercises. Then exercises twice a week.	RCT Before, after and 8 weeks after intervention.	9/12 (Furlan et al. 2009)	Pain and function improved in both groups, but there was no difference between groups. Pool-based group had less pain immediately after exercises.
Saw et al. 2016 South Africa	N=74, IG n=35, CG n=38 People with OA in hip or knee.	Physiotherapist led group intervention; exercises, education, relaxation compared to usual care. 6 weeks, 2 hours /a week. Education aimed to increase knowledge of OA, pain, and activity. Self-management skills, problem-solving, coping, goals, stress management, pacing. Educational work book.	RCT At baseline, week 6, week 12 and month 6.	8/12 (Furlan et al. 2009)	Pain severity-* and pain interference -. Long term and postoperative effect are going to be evaluated in later studies.
Patient education before THA					
Crowe & Henderson 2003 Canada	N=133, IG n=65, CG n=68. THA or TKA with complex needs (comorbid condition or limited social support)	Intervention group received multidisciplinary rehabilitation to optimize functional capacity, education about in-hospital phase and early discharge planning. Control group received a pre-operative clinical visit.	RCT No follow up after the hospital stay	5/12 (Furlan et al. 2009)	Patients in intervention group achieved discharge criteria earlier and length of hospital stay was shorter*.

Ferrara et al. 2008 Italy	N=23, IG n= 11, CG n=12 THA	Pre-operative exercises and education one month before surgery compared to no. Education content: information of avoided motions, prevention of dislocation, the use of advices, correct posture, lifting, carrying, bathing and washing.	RC 15 days, four weeks and three months after surgery	8/12 (Furlan et al. 2009)	Pre-operative education and physiotherapy improved SF-36 physical components one day before surgery, the hip external rotation + at all measure point, VAS- before surgery, 4 weeks and 3 months after
Giraudet-Le Quintrec et al. 2003 France	N=100, IG n=48, CG n=52 THA	A collective multidisciplinary information session in small groups, lasting half a day, 2-6 weeks before surgery compared to usual verbal information. Physiotherapist information: rehabilitation procedure, rehabilitation period, the role of social workers, bathing, driving, sports participation, sexual activities, patients' questions.	RCT Day before surgery, 1 and 7 days after surgery	8/12 (Furlan et al. 2009)	Anxious-* before surgery. Not significant difference after surgery.
Gocen et al. 2004 Turkey	IG n=29, CG n=30 THA	Preoperative exercises and educational programme about living with prosthesis compared to no. Education content: information of avoided motions, prevention of dislocation, the use of advices, correct posture, lifting, carrying, bathing and washing.	RCT One year	8/12 (Furlan et al. 2009)	No significant difference between groups
McGregor et al. 2004 Great Britain	N=35, IG n=15, CG n=20 THA	Information booklet and hip class 2 to 4 weeks before surgery compared to no=usual care. Information booklet: information on the surgery, preoperative and postoperative stages, rehabilitation, exercises and common questions. Preoperative hip class enforced booklet	RCT Preadmission, admission, discharge, 3 months	7/12 (Furlan et al. 2009)	Length of hospital stay -*, costs-*, higher levels of satisfaction at 3 months follow up*.

		and ensured that patients could do exercises and understood how to use aids and if they had to made some adaptations at home for the recovery period.			
Orpen & Harris 2010 Great Britain	N=10. THA	Not intervention study Home-based visits.	Phenomenology Interviews 3-5 weeks after surgery.	23/24 (Tong et al. 2007)	5 main themes: "preoperative equipment use increases independence, progress and confidence; individual needs are better met through timely visits; competent therapist home intervention offers reassurance regarding surgery; knowing one's home environment is suitable increases confidence in planning hospital discharge after surgery; levels of social support require preoperative assessment."
Siggeirsdottir et al. 2005 Iceland	N=50, IG n=27, CG n=23 THA	Preoperative and postoperative education program and home visits from outpatient team compared to conventional rehabilitation at rehabilitation centre. Preoperative education and training program given by physio or occupational therapist one month before operation. Education content: postoperative rehabilitation, exercises before and after operation, instructions of aids. Leaflet.	RCT 6 months	7/12 (Furlan et al. 2009)	Length of hospital stay -*, difference in Oxford Hip Score at 2 months postoperatively *
Vukomanović et al. 2008 Serbia	N=45 THA	Pre-operative physiotherapy and patient education compared to no. Education content: information of operation, caution, measures and rehabilitation through conversation with physiatrist. Written information. 2 practical	RCT Before and after surgery and follow up 15 months	7/12 (Furlan et al. 2009)	IG: function (walking stairs, using seats, toilet) earlier and needed less physiotherapy sessions. 0 difference in LOS, pain for example and later on in follow up.

		classes in physiotherapy about exercises and activities such as mobility, getting in and out of bed, sitting, toileting, walking, walking in stairs with use of aids.			
Patient education after THA					
Austin et al. 2017 USA	N=120, IG n= 60, CG n=60 THA	IG with self-directed home exercises compared to CG with physiotherapy. 10 weeks self-directed home exercises versus 2 weeks pt's home visits + 8 weeks outpatient physiotherapy. Education content: exercise program with leaflet with images and written explanations.	RCT 1, 6 and 12 months.	9/12 (Furlan et al. 2009)	At any point: HHS 0, WOMAC 0, SF-36 0 No difference between groups and both groups had a significant improvement in function measured by instruments.
Coulter et al. 2016 Australia	N=98, supervised n=56, unsupervised n=42 THA	Centre-based exercise or home-based exercise. 4 weeks outpatient rehabilitation or exercises independently according written and pictorial instruction. Education content: general education, not specified in the article. Exercise information with images and written explanations.	RCT 6 months postop.	9/12 (Furlan et al. 2009)	0 in any measures (WOMAC, SF-36, Los Angeles activity scale, TUG). Both groups improved in function.
Galea et al. 2008 Australia	N=23, center-based n=11 or home-based n=12. THA	Supervised centre-based exercise group compared to unsupervised home-based exercise. 8 weeks exercise	RCT 8 weeks	8/12 (Furlan et al. 2009)	0 difference between groups. In both groups quality of life*, stair climbing*, TUG *and 6 min walking test* improved over time.
Heine et al. 2004 Australia	N=5 THA	Not intervention study Normal information	Qualitative study Grouded theory	20/24 (Tong et al. 2007)	Readiness for discharge was studied. Four categories: confidence, family, friends, feeling safe

Lysack et al. 2005 USA	N=40, video n=18, control n=22. THA or TKA	Video based exercises at home compared to written and verbal instruction.	RCT Before discharge and four weeks after discharge	8/12 (Furlan et al. 2009)	0 difference between groups in patient compliance or satisfaction
Tappen et al. 2003 USA	N=82 THA and hip fracture	Individualized educational videos made in physiotherapy (walking, use of aids, transfers, exercise information ext.)	CT Three months	3/12 (Furlan et al. 2009)	Improvement in walking. Improvements in physical function did not transfer to perception of self-care ability or coping.

+=increase, - =decrease, 0 =no difference, * significant difference between the groups

IG=intervention group, CG=control group, RCT=randomised control trial, CT=control trial, OA=osteoarthritis, THA= total hip arthroplasty, TKA=total knee arthroplasty, LOS=length of hospital stay, WOMAC=Western Ontario and McMaster Universities Osteoarthritis Index (0-100, with higher score indicates worse outcome), SF 36=Short form 36 Health Survey, HHS=Harris Hip Score, TUG= timed Up and Go-test, VAS=visual analogue scale

There were studies investigating patient education in physiotherapy from different science perspectives; natural and humanistic. The perspective of natural sciences was emphasized. Studies of patient education in physiotherapy in THA can be divided as follows: studies of patient education in OA waiting for THA (n=2), studies of patient education before THA (n=8) and studies of patient education after THA (n=6). Most studies of patient education in physiotherapy in THA were RCT (randomised control trial) studies viewing the phenomena from a biomedical perspective; e.g. they include intervention exercising studies with patient education affecting physical functions like walking, walking on stairs, range of motions, sitting and pain. The length of the patient education session of those studies varied from one hour (Gill et al. 2009) to half a day (Giraudet-Le Quintrec et al. 2003), and the intervention could be a single education class (McGregor et al. 2004) or last up to ten weeks (Austin et al. 2017). In education they used different methods, such as educational workbooks (Saw et al. 2016) or video-based exercises (Lysack et al. 2005). The methodological quality of quantitative studies (Furlan et al. 2009) varied from 3/12 (Tappen et al.2003) to 09/12 (Gill et al. 2009; Austin et al. 2017; Coulter et al. 2017). The risk of bias is considered low ≥ 6/12, but we did not exclude any studies in this case. Two studies explored patient education with qualitative methods (Heine et al. 2004; Orpen & Harris 2010). The methodological quality of qualitative studies (Tong et al. 2007) varied from 20/24 (Heine et al. 2004) to 23/24 (Orpen & Harris 2010).

Two studies of patient education in OA waiting for THA could be identified (Gill et al. 2009; Saw et al. 2016). The content of patient education and its implementation varied. Patient education was studied as a part of physiotherapy, not separated from it. Gill et al. (2009) compared land-based and pool-based exercises combined with patient education in the beginning of the intervention. Education content included pathogenesis of OA, disability and principles of healthy exercises. Pain and function improved in both groups and there was no difference between groups (Gill et al. 2009). Saw et al. (2016) looked at physiotherapist-led group intervention; exercises, education, relaxation compared to usual care in the study by Saw et al. (2016). Education aimed to increase knowledge of OA, pain, and activity. Self-management skills, problem-solving, coping, goal setting, stress management and pacing were included. Pain severity and pain interference decreased in the intervention group.

Eight studies of patient education in physiotherapy before THA could be identified (Crowe & Henderson 2003; Giraudet-Le Quintrec et al. 2003; Gocen et al. 2004; McGregor et al. 2004; Siggeirsdottir et al. 2005; Ferrara et al. 2008; Vukomanović et al. 2008; Orpen & Harris 2010). The content of pre-operative physiotherapy and pre-operative patient education and information varied between studies. Pre-operative physiotherapy combined with patient education shortened length of hospital stay (Crowe & Henderson 2003), patients got functional steps earlier and needed fewer physiotherapy sessions (Vukomanović et al. 2008). A collective multidisciplinary information session 2-6 weeks before surgery decreased anxiety before surgery (Giraudet-Le Quintrec et al. 2003).

Physiotherapists' education included information on rehabilitation procedure, rehabilitation period, the role of social workers, bathing, driving, sports participation, sexual activities and patients' questions. Orpen & Harris (2010) studied pre-operative home-based visits before THA through patients' interviews using phenomenological methods. The patients identified pre-operative visits as valuable in preparing for THA, visits could decrease anxiety and increase confidence in planning discharge after THA. McGregor et al. (2004) studied pre-operative multidisciplinary hip classes with an information booklet. The booklet included information on the surgery, pre-operative and post-operative stages, rehabilitation, exercises and general questions and hip classes. It also reinforced the information and ensured that patients could do exercises and use aids. Pre-operative education shortened length of hospital stay, diminished costs and increased patients' satisfaction. Pre-operative and post-operative education program with home visits were compared to conventional rehabilitation (Siggeirsdottir et al. 2005). Physiotherapists' education content included information on post-operative rehabilitation, exercises before and after operation, instructions on aids. A leaflet was used. Length of hospital stay was shorter and function better at the follow-up. Ferrera et al (2008) indicated positive effects of physiotherapy and pre-operative patient education: larger range of motion in hip external rotation and decreased pain, which lasted up to three months after surgery. Education content was information on movements to avoid, prevention of dislocation, the use of advice, correct posture, lifting, carrying, bathing and washing. In the longer follow-up studies (Gocen et al. 2004; Vukomanović et al. 2008) there was no evidence of the positive effects of pre-operative patient education.

Six studies of patient education in physiotherapy after THA (Tappen et al. 2003; Heine et al. 2004; Lysack et al. 2005; Galea et al. 2008; Coulter et al. 2016; Austin et al. 2017) could be identified, most of them were RCT studies. The educational content and the way of guiding varied between studies. There were information leaflets about exercises with images and written information (Austin et al. 2017; Coulter et al. 2017). Two of those studies (Tappen et al. 2003; Lysack et al. 2005) used video-based education. Tappen et al. (2003) used individualized videos on walking, use of aids, transfers and exercise information, for example, and found improvement in walking. The video-based exercise group did not differ from the group with written and verbal exercise information (Lysack et al. 2005). There was no difference between the self-directed home exercise group and outpatient physiotherapy (Galea et al. 2008; Austin et al. 2017; Coulter et al. 2017).

To summarize the main findings of all the above studies, I conclude that patient education in physiotherapy, combined with exercises, was effective in decreasing pain and increasing function in OA in the short term. Patient education in physiotherapy alone or combined with exercises before THA decreased anxiety before operation, shortened length of hospital stays and enhanced patients' functional ability earlier, but there was no difference in long-term follow-ups. Patient education in physiotherapy after THA, aiming to teach and prepare the

patient for self-directed home exercises, had similar effects as individual physiotherapy or group physiotherapy after discharge. Patient education in physiotherapy was thus a central part of physiotherapy in patients' rehabilitation process in THA, but there was variation in education content, timing and its implementation. The scientific basis of most of the studies was natural: biomedical, comparing intervention and control groups using structured questionnaires or measurable physiological functions. Furthermore, only two of those studies described above was based on the humanistic approach and explored patient education from the patient perspective, which is the focus of the present dissertation study.

3 AIMS OF THE STUDY

The purpose of this dissertation was to explore patient education in physiotherapy in total elective hip arthroplasty. The research followed the patient's pathway and explored patients' views before and after the THA operation. This study explored patients' and physiotherapists' conceptions in an attempt to gain a deeper understanding and discover the hierarchical structure of the phenomenon, patient education in physiotherapy. The phenomenography approach was useful in finding the variation of conceptions and the hierarchical structure of the phenomenon (Marton & Booth 1997). The overall aim was to add to the knowledge base of patient education in physiotherapy, which was little studied earlier. This study is part of a wider research project "*Patient counselling in physiotherapy*" at the University of Jyväskylä.

The following research questions were set:

1. What are patients' conceptions of pre-operative patient education in physiotherapy in THA? (Study I)
2. What are patients' conceptions of post-operative patient education in physiotherapy in THA? (Study II)
3. What are physiotherapists' conceptions of patient education in physiotherapy in THA? (Study III)
4. What are patients' story models of patient education in physiotherapy after THA? (Study IV)

4 METHODOLOGY

4.1 Phenomenographic and narrative approach

In this study a qualitative approach was applied. The research questions 1, 2 and 3 were examined using phenomenographic methodology and in research question 4 a narrative approach was used. According to the study methodology of the humanistic science tradition, the phenomenographic method was used because it enables the finding of qualitatively different ways in which patients understand and experience patient education (Marton & Booth 1997). In this way we can gain a better understanding of the phenomenon, patient education in physiotherapy. The phenomenographic method (Åkerlind 2005) used in this study has developed in pedagogical research (Marton 1981). The focus in phenomenographic research is on the variation in human meanings, conceptions and awareness of experiencing a phenomenon (Marton & Booth 1997). Phenomenography initially emerged from an empirical basis and the first epistemological and ontological assumptions, a theoretical basis, appeared later in the mid-90s (Marton & Booth 1997). Phenomenography describes perceptions using the second-order perspective and central to it are people's perceptions of phenomena in the lived world (Marton & Booth 1997; Nordgren & Frilund 2001). Phenomenography can be described as being grounded by a non-dualist ontology, whereby the person and the world are viewed and studied in relation to each other (Pang 2003).

Phenomenography is a research approach and can assist with developing theoretical insights into people's experiences. Phenomenography is often described as a research specialisation that aims to map "the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of, and various phenomena in, the world around them" (Marton 1981). The variation in experience is said to represent 'collective consciousness' about phenomena (Marton & Booth, 1997). The advantage of using a phenomenographic method is the possibility to identify different conceptions and find out the hierarchical structure of the conceptions (Åkerlind 2005; Åkerlind 2007; Åkerlind 2008a; b). Åkerlind (2008a) describes this as one of the strong points of

phenomenography, because the collective experience of phenomena is looked at holistically, despite the fact that different people perceive it differently.

The narrative method was chosen because it emphasizes an interest in people's lived experiences in process and how they change over time (Elliot 2005). In this sub study what are the story models of patient education in physiotherapy, how patients' experiences of patient education change from hospital to home. The narrative method can be understood as constructing a story of the world (Lieblich et al. 1988; Hyvärinen 2008). In the narrative analysis the focus was on the way in which patients gave meaning to things through their stories. In the analysis the attention was on people's authentic stories (Lieblich et al. 1988), keeping in mind that narratives represented experience (Bold 2013, 18).

4.2 Study design and participants

The data of this thesis consists of transcriptions of interviews with the patients and the physiotherapists. The study design followed the patients' pathway from home to hospital and back home (Figure 2). Patients' osteoarthritis was commonly treated in primary care. The pre-operative visit included appointments with orthopaedist, anaesthetist, nurse and physiotherapist. The aim was that the patient would be discharged to home on the 3rd post-operative day. Patients were expected to rehabilitate themselves and follow-up physiotherapy was not a common practice.

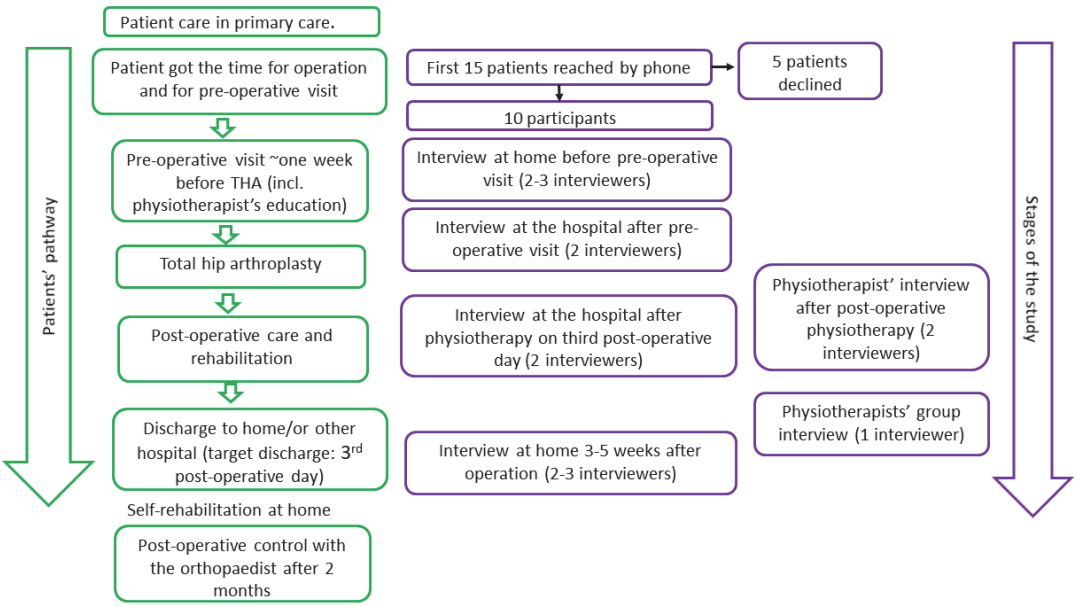

FIGURE 2 Patients' pathway and study design

The patients were selected from a hip arthroplasty operation list and the clinical team approached 15 patients by phone, of whom 10 were willing to participate in the study. To be able to analyse qualitative data, the number of patients (n=10) was decided in advance. The patients were selected in accordance with the following criteria: (1) Age between ≥60 and ≤80 years; (2) Finnish-speaking and (3) undergoing the first total hip arthroplasty in a Southern Finland hospital. The mean age of the patients was 69,7 years (range 63–79). There were two males and eight females living in the surrounding area. Patients were interviewed four times in the course of the operation and care process; at home before any procedure, after the pre-operative visit, at hospital after the operation and 3-5 weeks after the operation at home. Interviews at hospital were carried out in a separate quiet room. Interviews before and after the hospital phase were done at home because it was thought to be easiest for patients and the home surroundings might encourage them to speak freely.

Seven physiotherapists (six females and one male) took part in the study. Their mean age was 44 years and their mean work experience as a physiotherapist was 17 years. This data was collected in two stages: in a group interview (6 physiotherapists), and in individual semi-structured interviews (9 interviews and 5 different physiotherapists) after physiotherapy counselling on the third post-operative day. The individual interviews were conducted with physiotherapists who worked with those ten patients followed throughout this whole study, and the same physiotherapist could be interviewed multiple times. The group interview was open to physiotherapists who were on site and typically worked with patients undergoing hip arthroplasty.

4.3 Data collection

The data for this study was collected during the first half of 2010 in a Southern Finland hospital. Data collection for the whole study was carried out in collaboration with the University of Applied Sciences, the University and the Hospital. The interviewers were trained by the research group. There were mainly two or three interviewers present, with one responsible for the interview and the others asking supplementary questions at the end, if needed (see Figure 2). Two of the interviewers were experienced physiotherapists. The author of this dissertation was in charge of physiotherapy in the hospital where the data collection took place and therefore did not conduct interviews.

The patient data was collected using individual interviews. The interviews explored patients' views on physiotherapy and patient education, interaction, their experiences concerning their physical condition and expectations about going home and managing there after THA. The physiotherapist data was collected through individual and group interviews and explored physiotherapists' views on patient education in physiotherapy and physiotherapy regarding hip arthroplasty, self-evaluation of a physiotherapy session, interaction with the patient,

physiotherapists' experiences concerning patients' ability to go home and manage there. The query frames in the interviews can be seen in appendix 1.

The interviews were audio recorded and transcribed verbatim. The total amount of interviews was 19 hours and 17 minutes and 634 pages of transcriptions. The transcriptions were not returned to participants for remarks.

4.4 Data analysis

Data was collected on descriptions of the patients' and physiotherapists' individual experiences. It was analysed to achieve a picture of the patients' and physiotherapists' collective experience of patient education in physiotherapy. First, I read the transcriptions several times. In the beginning of the analysis, the focus was on identifying the patients' or physiotherapists' views and understanding of patient education in physiotherapy. Then differences and similarities were looked for with the aim of forming descriptive categories. The descriptive categories were organised hierarchically and inclusively. The critical aspects were central to further analyses. The variation of the themes formed by these categories expanded to the awareness of patient education in physiotherapy. During the analysis process, we evaluated the consistency between the original data and our findings to verify the results while trying to control the influence of our own viewpoints (Åkerlind 2005). The process of the phenomenographic data analysis is presented in Figure 3. Phases one and two were performed by the author of this dissertation (AMJ). She (AMJ) also carried out the preliminary work on developing categories. The verification was made collaboratively in the research team (AMJ, TK, AP).

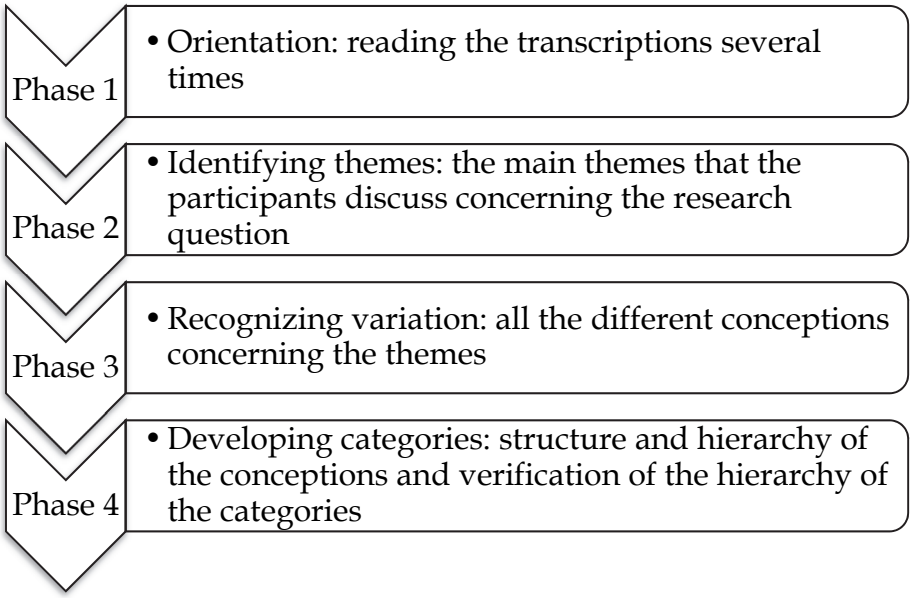

FIGURE 3 The process of phenomenographic analysis

The analysis of the narratives of patient education and counselling in physiotherapy consisted of three stages (Chase 2008). Initially a general view and descriptions of the stories were made (Chase 2008; Hyvärinen 2008). Secondly, the development of the plot was analyzed (Lieblich et al. 1988), the turning points were identified using the structural model of Labov and Waletzky, and differences and similarities in the descriptions were identified (Elliot 2005; Chase 2008). After that, three different story models of patients' narratives were formed (Elliot 2005). The story models were given names according to their recognizable characteristics (Polkinghorne, 1988).

5 FINDINGS OF THE STUDY

5.1 Patients' conceptions of pre-operative patient education in physiotherapy in THA (I)

The first purpose of this study was to explore the conceptions of patients' about to undergo hip arthroplasty of pre-operative patient education in physiotherapy in relation to the forthcoming operation. The analysis process produced four different categories of pre-operative patient education in physiotherapy regarding hip arthroplasty. These categories were arranged hierarchically so that the widest category contained all the other categories. The narrowest category was Readiness for the operation (I). Preparing for the rehabilitation (II) was next, followed by Actor within the hospital service system (III). The widest was the Independent actor (IV), which contained all the other categories. The categories and the variations in themes are described in Table 2.

TABLE 2 Patients' conceptions of pre-operative physiotherapy education before hip arthroplasty

	Hierarchy of categories			
	I Readiness for the operation	**II Preparing for the rehabilitation**	**III Actor within the hospital service system**	**IV Independent actor**
Variation of themes				
Knowledge about hip arthroplasty	Realization of the need for knowledge	Knowledge of the new joint, (permissions and restrictions)	Access to continuing information during the process	Applied information on effect of operation on daily life
Action skills	The vision of how to act	Practice confirming action skills	Confidence of continuing practicing after operation	Self-practicing as developing action skills
Body understanding	Restricted body	Hope of operation normalizing the body	Received support when body is changing	Body control
Trusting encounter	Beginning of trust regarding the operation	Beginning of trust in recovery	Increased confidence in the hospital service system	Deepening confidence in own rehabilitation

The descriptive categories were seen in the variation of themes the patients used in their interviews. The themes were: 1. Knowledge about hip arthroplasty, 2. Action skills, 3. Body understanding, and 4. Trusting encounter. Key aspects were found in the varying themes and they formed the critical aspects between the descriptive categories (Åkerlind 2005). Two critical aspects could be identified, as seen in Figure 4.

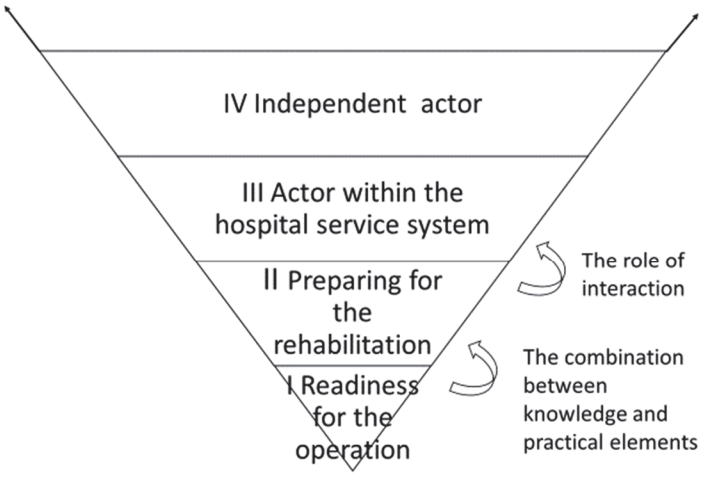

FIGURE 4 Patients' conceptions of pre-operative physiotherapy education and the critical aspects between the categories

The first critical aspect was how readiness for operation (category I) could shift towards preparation for rehabilitation (category II). At that point knowledge of hip arthroplasty and practicing of action skill were the most important issues in order to understand the new situation. The second critical aspect was in widening the perspective from preparing for rehabilitation (category II) to being an actor within the hospital service system (category III). The central issues were to realize the situation and get support when the body is changing and to have confidence in the hospital's services. The perception of the trustworthiness of the health care services was also important.

5.2 Patients' conceptions of post-operative patient education in physiotherapy in THA (II)

The second aim of this study was to explore post-operative patient education in physiotherapy. It was first explored in the interviews on the third post-operative day. Four different categories of post-operative patient education in physiotherapy after hip arthroplasty were produced and constructed hierarchically. The narrowest was Trust while at hospital. Preparing for going home was the second category, and the third was Managing at home. The widest category, Getting fit, contains all other three categories. The categories of post-operative patient education in physiotherapy were seen in the variation of themes that the patients used in the interviews. These themes were: 1. Moving, 2. Exercising, and 3. Interaction between the patient and the physiotherapist. The categories and the variations in themes are described in Table 3.

TABLE 3 Patients' conceptions of post-operative physiotherapy education

	Hierarchy of categories			
	I Trust while at hospital	**II Preparing for going home**	**III Managing at home**	**IV Getting fit**
Variation of themes				
Moving	Confidence in moving and acting in the correct way	Confidence in recovering in a predictable way	Getting advice for managing at home	Guidance from physiotherapist to support getting fit
Exercising	Vision of how to practise/exercise properly	Getting home, exercise programme	Written instructions to support exercising at home	Confidence in exercise in order to recover.
Interaction	Physiotherapist's listening skills	Individualistic interaction	Interaction and guidance adding to self-confidence	Encouragement to practice

Two critical aspects between categories could be identified (Figure 5). The first critical aspect was how the role of moving could shift towards preparing for going home (category II). The second critical aspect was in widening the perspective from preparing for going home (category II) to managing at home (category III). At this stage the key issues were exercising and getting written instructions to support exercising at home and receiving such guidance from the physiotherapist that added to patients' self-confidence. Advice and tips were mentioned as potential supports for managing at home.

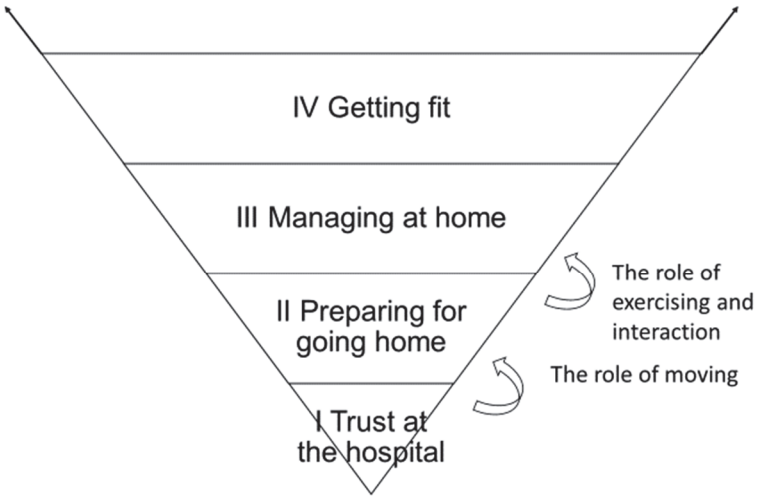

FIGURE 5 Patients' conceptions of post-operative physiotherapy education and the critical aspects between the categories

5.3 Physiotherapists' conceptions of patient education in physiotherapy in THA (III)

Three hierarchically constructed different categories of patient education in physiotherapy in hip arthroplasty were produced. The narrowest was Schematic physiotherapy complying with the protocol. Identifying individual rehabilitation needs was the second category, and the third was Coaching home rehabilitation, which was the widest category containing the other two categories. The categories and the variations in themes are described in Table 4.

TABLE 4 Physiotherapists' conceptions of patient education in physiotherapy in hip arthroplasty

	Hierarchy of categories		
	I **Schematic physiotherapy complying with the protocol**	**II** **Identifying individual rehabilitation needs**	**III** **Coaching home rehabilitation**
Variation of themes			
Moving	A certain pattern in guiding movement	The patient's condition in determining progress	Encouraging patient in self-motivated moving
Exercising	Written exercise instructions made collectively	Suitable exercises based on individual evaluation	Exercise advice based on discussion with the patient
Interaction in relation to patient	Natural relationship	Responsive relationship	Physiotherapist as a key person in preparing patient for the future
Health care system	Awareness of patient managing at home	Identifying the rehabilitation need	Concern about patient's managing at home and vision of an ideal situation supporting patient's coping

The categories of physiotherapeutic education were seen in the variation of themes that the physiotherapists expressed in the interviews. These themes were: 1. Moving, 2. Exercising 3. Interaction in relation to the patient, and 4. Health care system. Two critical aspects in physiotherapy counselling could be identified (Figure 6).

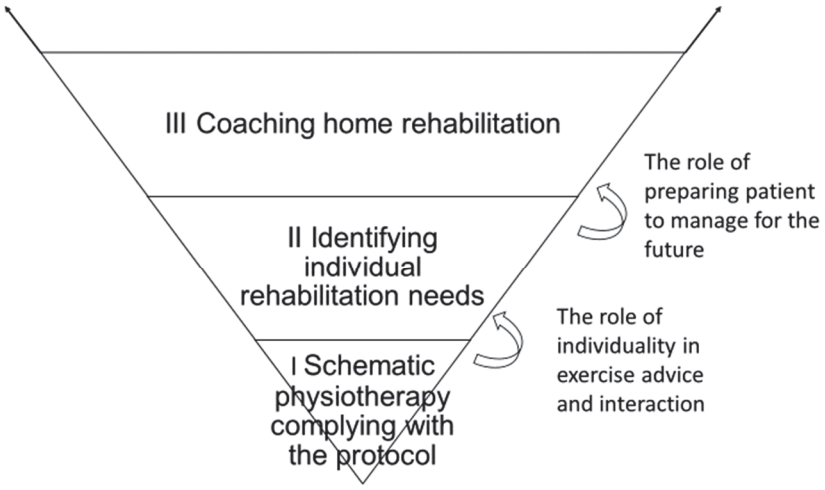

FIGURE 6 Physiotherapists' conceptions of patient education in physiotherapy in hip arthroplasty and the critical aspects between the categories

The first critical aspect was how schematic physiotherapy (category I) could shift towards physiotherapy identifying individual rehabilitation needs (category II). The central issue was to increase individuality in exercise counselling and interaction. The second critical aspect was in widening the perspective from identifying individual rehabilitation needs (category II) to coaching home rehabilitation (category III). Thus, the point in the counselling was to prepare the patient to manage for the future, and a vision of an ideal situation supporting the patient's coping at home.

5.4 Patients' story models of patient education in physiotherapy in THA (IV)

Post-operative patient education was also studied through patients' narratives from interviews on the third post-operative day and interviews at home 3-5 weeks after operation. The aim was to emphasize the patient's lived experiences in process and how experiences change over time, from hospital to home. This is the part of the process that working physiotherapists did not access because the follow-up with a physiotherapist was not a common practise. Nevertheless, the patient education in physiotherapy in the hospital aimed to support patients' ability to cope at home.

Three story models of patient education in physiotherapy were identified: Supportive patient education in physiotherapy, Co-operative patient education in physiotherapy and Contradictory patient education in physiotherapy. Trust in guidance was the narrative emphasis in the first story model, functioning interaction in the second and insufficient counselling in the third. The story models and turning points are described in Table 5.

TABLE 5 Patients' story models of patient education in physiotherapy

Story model	Themes	Acute phase In the hospital	Recovery phase At home	Plot progression
Supportive patient education in physiotherapy	Trust in the guidance	Importance of written and oral instruction Guiding aids coping at home Knowledge of how to move	Importance of written and oral instruction Doing the guided exercises	Progressive narrative. There is a turn for the better at home
Co-operative patient education in physiotherapy	Functioning interaction	Being heard Mutual understanding Receiving answers	Being heard	Stable narrative. The story continues in the same way, there are no turns
Contradictory patient education in physiotherapy	Insufficient counselling	Clear instructions and interaction	Uncertainty Lack of more difficult exercises Lack of follow-up physiotherapy	Regressive narrative. There is a turn for the worse at home

5.5 Summary of the results

The four studies of the dissertation explored patient education from different perspectives and timeframes. Study I elucidate patients' conceptions of pre-operative patient education in physiotherapy. In that phase of the pathway the combination of knowledge and practical elements was important as well as the role of interaction in supporting body changes and confidence in the hospital services. Study II illustrates patients' conceptions of post-operative patient education, where the role of moving in helping patients to prepare to go home was central. Widening the perspective to managing at home, issues like exercising, written home exercise instructions and physiotherapists' guidance to add patient's self-confidence were relevant. Study IV shows how after THA patients' narratives of

patient education change over time from hospital to home, which was the part of pathway physiotherapy was not normally involved in. The story models of those narratives indicated that there were some needs for more information, progression in the training program and follow-up physiotherapy. Study III presents patient education in physiotherapy from physiotherapists' viewpoint. First the role of individuality in exercise advice and interaction, then the role of preparing the patient to manage for the future, were central to how home rehabilitation was coached. The results of the synthesis of the three sub-studies (Study I, II, III) were four main patient education issues: knowledge, practical skills, body understanding and interaction. The results of this dissertation are summarized in Figure 7

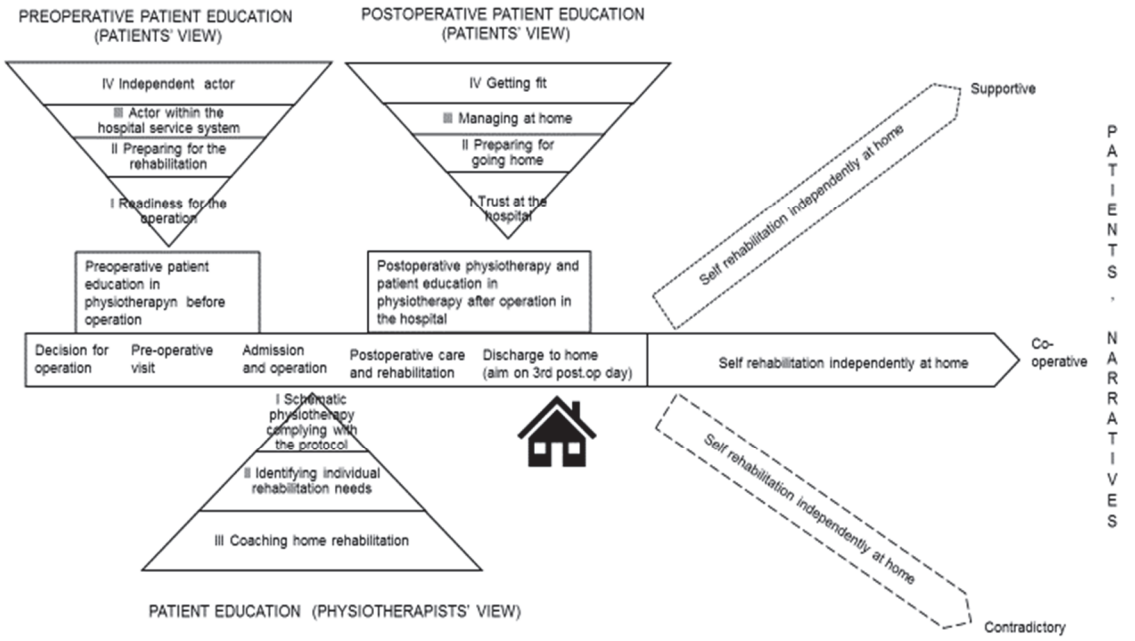

FIGURE 7 Summary of the results placed in the patient education process

In Figure 7 the patient's pathway from the decision on the operation and from home to hospital for the operation, short hospital period and discharge to home are illustrated in the middle of the diagram. Patient education in physiotherapy is placed separately just to illustrate it graphically. Although it was a part of the multi-professional treatment. The patient's path is illustrated as a seesaw where patient education is the seesaw's support, but the path can seesaw up or down after hospital discharge, something which was seen in patients' story models.

6 DISCUSSION

6.1 A brief overview of the key findings

The aim of this dissertation was to explore patient education in physiotherapy in total elective hip arthroplasty. The research followed the patient's pathway, defined in the health care district, exploring patients' views before and after the THA. Patient education in physiotherapy was also studied from the physiotherapists' point of view. So, the findings of this dissertation form a holistic picture of the patient education phenomenon in physiotherapy in THA.

The results showed that a combination of knowledge and practical elements was important at the pre-operative phase. In post-operative patient education, the role of moving in helping patients to prepare to go home was central. Patients' narratives of patient education changed over time after THA from hospital to home and there was some need for more information, progression in the training program and follow-up physiotherapy. From physiotherapists' viewpoint the role of individuality in exercise advice and interaction, then the role of preparing the patient to manage for the future, were central in the method of coaching home rehabilitation. Patients' conceptions indicated that patient education in physiotherapy could promote the knowledge and skills patients needed, empower patients in self rehabilitation and add self-efficacy in managing at hospital and at home.

If we place the findings of these sub-studies in a larger frame, we can see that there were four main patient education issues: knowledge, practical skills, body understanding and interaction (See Figures 7, 8). Knowledge became an important issue in the first sub study (Study I) and it was not just giving information but realized in interaction between patients and professionals (Study I, II, III). Practical skills involved a mixture of action skills in the second sub-study (Study II) and moving and exercising in the third sub-study (Study III). Body awareness was reflected from the first sub-study (Study I) but was connected to moving and exercising themes (Study II, III). Interaction could be seen as a basis

for trust, thus integrating the trusting encounter theme from study I with the interaction theme from the second and third sub-studies (Study II and III). These main elements; knowledge, practical skills, body understanding and interaction, could be seen as equal, but their relevance shifted in line with the patients' pathway. Knowledge and body understanding were weighted at the pre-operative phase and practical skills at the post-operative phase. Interaction was an important part of patient education in the course of the education process. In the light of learning theories, I would propose some perspectives related to andragogy and the principles of adult learning. In this study patients had a need to know and internal motivation: the forthcoming operation and the need to gain knowledge and skills related to recovery and managing at home. Need to know is the focus of learning theories. The results also highlighted practical skills, body understanding and interaction. So, these three issues are also part of integrative pedagogy, which is based on the humanistic science tradition and socio-constructivist view of learning (Tynjälä et al. 2016). Patients had learning and recovery tasks, which were also affected by the health care system. The learning content could be applied immediately in the practicing situation with the possibility of feedback in the interaction with the physiotherapist. Patients had their life-experience and their earlier knowledge and skills underlying any new learning, but this perspective maybe received little attention. Patients' individual needs to learn what is new and acquire learning skills may have been difficult to recognize, and this could be observed through those narratives.

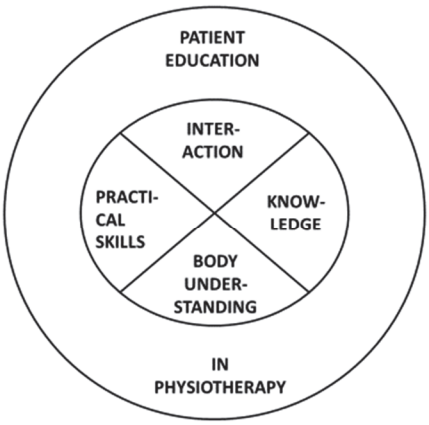

FIGURE 8 Main issues in patient education in physiotherapy

6.2 Main issues in patient education in physiotherapy

6.2.1 Knowledge

In the pre-operative part of the patients' pathway, the combination of knowledge and practical elements focusing on recovery after THA was essential. Patient education in physiotherapy was one source of the information patients faced. Written materials, voluntary information lectures and patient education from other professionals existed. On the basis of experiences, the knowledge needed in this study included theoretical knowledge of osteoarthritis, especially joint condition, arthroplasty, issues affecting recovery, rehabilitation schedule, knowledge about precautions and information about assistive devices.

At the pre-operative phase, the importance of knowledge from patients' viewpoint is quite natural. Other research results have similarly shown that the forthcoming operation is a new situation, which could be frightening, and pre-operative patient education could decrease anxiety before the operation (Giraudet-Le Quintrec et al. 2003). In a multicultural survey study Klemetti et al. (2015) compared the difference between received and expected knowledge of patients going for arthroplasty. It was shown that there was a difference between expectations and realization, so patients did not receive as much knowledge as they expected. The results of earlier research showed that patients have different educational needs (Soever et al. 2010). According to the review by Louw et al. (2013) pre-operative education is usually performed by nurses or physiotherapists, timing and duration differ, education usually occurs one-on-one or in small groups with written booklets. The variation in education was also found in our literature review described in chapter 2, with variation being seen in the content, duration, timing and method.

In this study we found that the step to be an actor within the hospital service system was integral to achieving the image of an independent actor. This result could be understood in the light of previous studies, where it was stated that pre-operative physiotherapy combined with patient education shortened the length of hospital stay (Crowe & Henderson 2003), patients recovered earlier functionally and needed less physiotherapy (Vukomanović et al. 2008). Nowadays, in the period after this study, the digitalization of healthcare and the use of new technologies in patient education are being studied. It has been noticed that a pre-operative information session could be conducted entirely through the internet or adding one-to-one information (Kennedy et al.2017). In Finland there are national internet-based services like Terveyskylä (www.terveyskyla.fi) that offer information. These services have developed after the data for this dissertation was collected. Interactive tele technology can nowadays fill the gaps that short hospital periods omit (Vesterby el al. 2017). Telerehabilitation should also be considered for THA patients so as to carry on rehabilitation after THA. After knee or hip replacement, the evidence has been shown to be strongest in the orthopaedical field (Pastora-Bernal et al. 2017). As the results of patients' narratives in our

study showed, there are increased needs for more education after THA, which could possibly have been fulfilled if digital services had been available at that time.

The main information and patient education process took place during the short period before and after THA, and patients were supposed to manage themselves with the guidance from the hospital. The results of patients' narratives highlighted the need for more education after THA. Patients did not have a clear understanding of what to do at home. The results of this study confirm the Bidstrup et al. (2018) study of patients with spinal surgery. They used interviews and ethnographic observation finding that patients reject or adopt information based on experience, expectations and confidence in the patient's own ability. So, knowledge is not a linear outcome of information; it is an interaction process between professionals and patients. In our study interaction was an important element in patient education and parallel to knowledge. When considering learning theories, social learning theories (Wenger 2009) and andragogical learning theories (Lindeman 1926) emphasize the interaction between learner and environment, or teacher/supervisor.

In the view of physiotherapists knowledge was not as focused as it was in the patients' perceptions. Physiotherapists' education was linked to moving information about locomotion, range of motion in the joint, permissions and restrictions, assistive device information, guidance on how to manage in daily life: getting out of bed, sitting, standing up, walking with crutches and on stairs. Education was a part of exercise prescription and information about physical activity such as leisure and sport activities. The findings are in line with an earlier study which concluded that physiotherapists typically have difficulties in separating patient education from exercise intervention (Rindflesch 2009). Caladine's (2013) results have some resonance with Rindflesch (2009), but Caladine found that physiotherapists identified their role as a patient educator. The importance of preparation for the role of patient educator, teaching and learning structures and the therapeutic relationship was recognized. The lack of other studies of the physiotherapist as a patient educator was recognized. Patient education is integrated in the whole of physiotherapy and there seems to low interest in studying it. Even though physiotherapists may have difficulties to recognize their role as an educator, education skills are part of a physiotherapist's core competencies (ENPHE 2017; World Confederation of Physical Therapy 2019).

6.2.2 Practical skills

In this study theoretical knowledge is linked to practical knowledge and skills. In pre-operative patient education in physiotherapy patients had the opportunity to practice skills such as walking with crutches or how to use other aids or how to perform exercises. In our study the skills were more related to moving and exercising from patients' perspective. An interesting observation was that daily activities were seldom recognized as an issue with THA patients. The result of this study is in line with Grotle et al.'s study (2010), in which they concluded that little attention was paid to patients' activity at home or at work. They assumed

that this could be connected to the fact that rehabilitation teams were seldom involved with occupational therapists and social workers, who are most familiar with daily problems in their work. So, perhaps daily activities were not raised by the physiotherapist as a topic of patient education.

In the post-operative phase, the importance of practical skills like moving and exercising was highlighted both by patients and physiotherapists. In the post-operative patient education in physiotherapy in THA the broadest descriptive category from the patients' viewpoint was Getting fit, which was in accordance with McHugh and Luker's (2012) research results showing that all patients had the need to get fit. Increasing age, lower education and living alone have found to be associated with a physically inactive lifestyle after THA (Stevens et al. 2007). However, in our study the patients' need to get fit somehow contradicts a review study of patients' activity levels before and up to one year after THA (Withers et al. 2017). The results of that study indicated that there was no difference in physical activity before and up to one year after THA. After that review Almeida et al. (2018) studied physical activity level before and after total joint arthroplasty, both knee and hip. They found a slight increase in physical activity after one year, but the evidence was too limited to draw definitive conclusions. In the light of earlier studies and of the results of our study, the patients' need to get fit could be a hope or vision. In this dissertation patients' efforts to get fit were not followed and so we have no knowledge of whether this hope changed into action. We know that changing health behaviours, such as increasing physical activity, is difficult and slow. According to the results of this study, in order to promote the patient's need to get fit and benefit pain relief from THA, the physiotherapist should consider physical activity promotion in patient education in hospital after surgery, with the aim of avoiding symptoms, like other long-term diseases, caused by an inactive lifestyle. The need to change the scope from illnesses to health and wellbeing is urgent (Bezner 2015). It is important to keep in mind that activity in life is a wider phenomenon than physical activity and it is related to social-cultural factors (Webster et al. 2015).

In this study physiotherapists emphasized moving. As earlier studies stated, a key factor in recovery is the ability to fast regain an adequate level of functional independence in daily activities during the short hospital stay (Jones 2005; Brander & Stulberg 2006). This enables patients' fast discharge to home, which is one of the general aims of hospitals and lowers the cost of care (Williams et al 2005). In this study post-operative patient education in physiotherapy also focused on teaching precautions concerning the range of motions and weight-bearing and on how to use aids. Also, earlier studies highlight that patient education should meet the patient's learning needs, ensure that the patient has not only enough knowledge but also the skills to go home (Montin et al. 2011) and add to the patient's confidence level (Heine et al. 2004). At the same time, it is important to identify the patient's individual goals (Brander & Stulberg 2006; Grant et al. 2009) and guide their functional training (Louw et al. 2013; Şendir et al. 2013). All of the demands that patient education should comply made me wonder how physiotherapists could carry them out. Fortunately, patient education is multi-

professional (Van Citters et al. 2014) and the potential of patients themselves as active learners, of family and spouses, of peer support and other well-being organizations is maybe still underutilized and should be taken into account when dealing with patients with THA. The integrative pedagogy learning approach (Tynjälä et al. 2016; Kettunen & Tynjälä 2018) could be an answer for further development, where the integration of theoretical knowledge, practical knowledge and sociocultural knowledge are important parts of learning.

6.2.3 Body understanding

In this study the pre-operative patient education in physiotherapy revealed conceptions of body understanding, i.e. the changing body. In the area of body understanding, pre-operative physiotherapy education helped with the confirmation of osteoarthritis and with visualizing the changes to movement and behaviour resulting from the new joint. Also, Nicholls & Gibson (2010) highlighted that in physiotherapy a bodily dimension is characteristic, but the body is often viewed from a narrow biomechanical perspective. However, experiences are lived in and through bodies, and life history is not the same as illness history (Thornquist 2018).

The results of this study found the body dimension from patients' viewpoint, even though physiotherapists did not emphasize it. Physiotherapists' ability to view the body and whole person from all aspects of human life, i.e. embodiment, has been questioned (Nicholls & Gibson 2010). During the last decade Basic Body Awareness Therapy (BBAT) has been implemented also in somatic health care (Skjaerven & Mattson 2018), which might have expanded the perception of body awareness and movement awareness. The body working in physiotherapy is orientated towards awareness of using the body in function, behaviour and relation with self and others (Gyllesten et al. 2010). The physiotherapist's embodied presence and own movement awareness promotes patients' movement quality. The ability to be in a mental and physical presence creates the basis of professional communication (Skjaerven et al. 2010) .

Patients had long-term pain, they had changes in their body and function, and they were receiving a new joint into their body. During the short hospital stay and the few contacts between patient and physiotherapist, it is quite challenging to work on body dimensions diversely. Still, patients expressed the view that education in physiotherapy helped them to identify changes in their body, to become aware of those changes and how THA affects them.

6.2.4 Interaction

In this research we could notice that the viewpoint in interaction differs between patient and physiotherapist. Both patients and physiotherapists raised the importance of mutual interaction in patient education. Interaction could be seen as a basis of trust. In the patients' data the physiotherapist's listening skills, individualized interaction, self-confidence boosting interaction and encouragement

were highlighted. In the physiotherapists' data the main issues were a natural relationship, the patient's responsiveness and the physiotherapist's role.

Earlier studies have also demonstrated that interaction to relate to patients' satisfaction with physiotherapy (Oliveira et al. 2012) is a part of patient-centeredness (Kidd et al. 2010; Wijma et al. 2017). Key elements in patient satisfaction in physiotherapy are responsiveness to patients' biopsychosocial needs and patients' expectations of physiotherapy (Hills & Kitchen 2007). Patient-centred communication is also connected to the patient's communication skills (Ishikawa et al. 2013). Shared trust, an active common understanding, and a common language between patients and physiotherapists are important in the rehabilitation process (Piirainen 2006).

A narrative review by Schoeb & Bürge (2012) explored patient participation from patients' and physiotherapists' viewpoints. Patient participation was an activity which included information exchange and dialogue, goals and decisions, exercise training. Participation was influenced by the power relation between patient and physiotherapist and there could be difficulties in sharing power and responsibility. In the earlier study of physiotherapists' interaction with patients, physiotherapists recognized their role in practise as an educator for self-management, as well as the importance of a close relationship to the patient and coaching for everyday practise (Solvang & Fougner 2016). Communication was one of the central competence items in patient education in physiotherapy in the Delphi study made among specialist physiotherapists in Australia (Forbes et al. 2018). Patient-centred practise included accommodating education and language and exploring patients' perceptions. In the study of spinal cord injury rehabilitation teams, participants raised the patient as a team member and viewed the patient-professional relationship as a partnership (Melin et al. 2018). I was unable to discover this viewpoint in physiotherapists' conceptions (see original paper III).

Patient education, which can take account of different learning themes, is important in physiotherapy. It would be useful to further develop the integrative pedagogy approach (Tynjälä et al. 2016, Kettunen & Tynjälä 2018) for application in patient education in physiotherapy. The body understanding point of view should be added, not only as an emotional foundation, but also in experiencing, seeing and understanding. Combined together, the patient's experiential learning and physiotherapist's perception could create a new kind of body understanding.

Summarizing the content of these main issues with the variation of descriptive categories and the critical aspects between the categories in the sub-studies, I try to elaborate the hypothetical structure of patient education in physiotherapy (see Figure 9). This structure, which highlights patients' learning that patient education fosters, has been influenced by the theoretical perspective used in this dissertation. Patient education in physiotherapy could be viewed through knowledge, practical skills, body understanding and interaction. Patient education in physiotherapy towards image of counselling that promotes learning contains four expanding levels. First, it emphasizes theoretical and practical learning, which could be seen as the narrowest level. A practical example of this is the

general information and practise required for safe movement. Individual learning is the next level, where individual interaction and body understanding are stressed. A practical example of this is customization of exercise instructions and education content. Enabling patients' reflective learning is the third level, where attention is on critical points in learning. A practical example of this is the counselling discussion, where patients verbalize their learning needs, performance and gaps in their skills. The widest level is learning to promote agency in the rehabilitation process, where patients' learning continues throughout the rehabilitation process. Additionally, the potential of different service systems and the interaction with the patients' community are considered as support for rehabilitation. Following the phenomenography approach used in this study, learning to promote agency in the rehabilitation process is the widest description in this structure and includes all other levels.

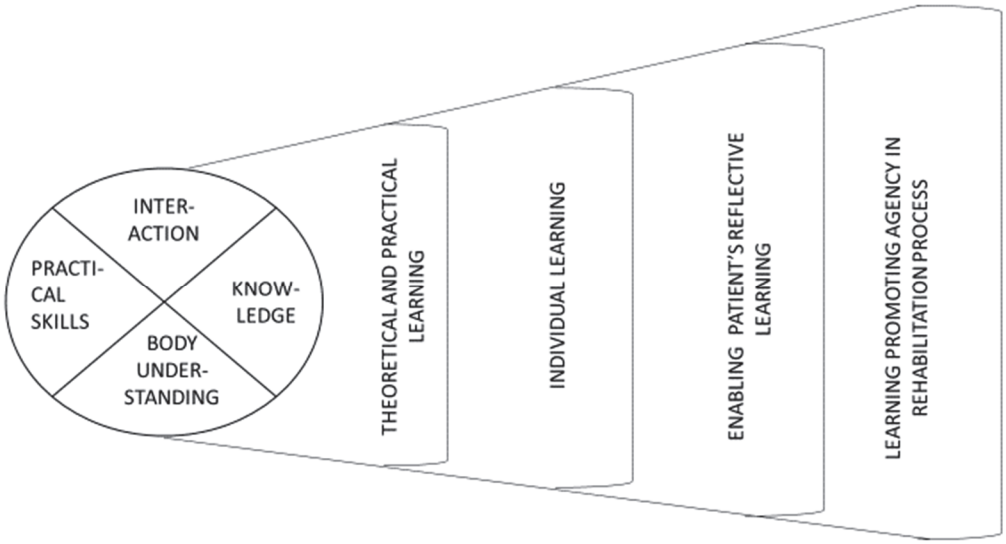

FIGURE 9 The structure of patient education in physiotherapy towards image of counselling that promotes learning in people-centered health services

6.3 Trustworthiness

After a discussion of the main findings of this study it is relevant to consider the trustworthiness of this study. The qualitative method was a useful way of studying patient education in physiotherapy, an area which has been little studied. The power of the biomedical model for knowledge development in physiotherapy has been recognized (Grönblom & Lundström 2008) and there have recently been widespread studies from patients' perspective. Studies of physiotherapy in THA commonly deal with intervention exercise studies, which is of course an important area to study. In real-life patients have to manage and rehabilitate by themselves with the help of advice from the hospital. It was therefore important

to explore patient education in physiotherapy in THA in an effort to understand patient education phenomena and to identify elements which could facilitate patients' learning and rehabilitation. The advantage of using a phenomenographic approach was the ability to explore patients' and physiotherapists conceptions and their hierarchy structure. The results of this study are capable of elicit the different ways of experiencing the phenomenon and lead to a deeper understanding or better understanding of certain aspects of it. Even though the question is to find similarities and differences with every transcript considered separately, the aim is to discover collective meaning. This collective meaning can be the basis for formulating theory. The phenomenographic approach was developed in the educational context and can be used in other fields too, in this case the educational situation in health care. The disadvantage in phenomenographic research is that there is no single universal, precise method or guide for analysing the data. The trustworthiness of narrative research can be viewed as asking questions, if the results have value in the context of patient education in physiotherapy (Riessman 2008, 189-196). The various story models gave us important information to involve in the patient education process.

Transparency, transferability and reflexivity are the domains which are evaluated in qualitative studies. In this doctoral thesis, the process of collecting and analysing the data has been described in detail to enhance the transparency and reflexivity of the research process, thus offering the possibility to evaluate the authenticity and relevance of the results. I as an author of this dissertation was responsible for the research design. I carried out the basic preliminary work of the analysis process: finding the themes, similarities and differences, variation in themes, forming the descriptive categories. The verification of the descriptive categories was made collaboratively in the research team (AMJ, TK, AP). I was a learner myself in using these qualitative approaches in analysing the data and this could have impacted on the results. To confirm the results and to check my own viewpoints in the analysis process, collaboration with experienced researchers was important. It is relevant to keep in mind that phenomenography describes perceptions using the second-order perspective (Marton & Booth 1997; Nordgren & Frilund 2001). Instead of questioning how the findings of this study represent the phenomenon in reality, we should evaluate how well these descriptive categories correspond to the way patients perceive the phenomenon: patient education in physiotherapy (Stenfors-Hayes et al. 2013). An attempt was made to describe the analysis process at a certain level that is possible to follow, but some ambiguity may exist. The process is transferable when the reader can evaluate how the researchers obtained the findings. The direct citations from the interviews have been used to demonstrate the analysis process. In the phenomenographic analysis each transcript was considered separately, but the aim was to find the collective meaning of patient education. Transcriptions were compared to each other in an attempt to find similarities and differences, i.e. variation in conceptions. For this reason the findings of this study were not checked by participants.

The limitations of this study are multi-level. First, the research was carried out in Finland and the findings are related to the regional and national context of the Finnish healthcare system. The number of patients was ten and they were 60-80 years of age. With reference to Åkerlind (2005), reasonable restrictions on the number of interviews had to be made in the phenomenographic analysis in order to handle the data and identify the logical structure within the context of different meanings. Those ten patients were interviewed several times along their operation and caring pathway, so the amount of data is large. A wider age range of patients would probably enrich the vocabulary of the data because patient education supporting a return to work was not discussed, or this could have been an issue handled with the doctor. The patients were selected systematically in one time period, they were volunteers and they probably had positive expectations of patient education in physiotherapy and of their recovery. The physiotherapists, who were also volunteers, were selected according to the patients they met at that time in physiotherapy.

The interviews were carried out by higher education physiotherapy students at Bachelor's and Master's level and trained and supervised by the research group. The students' inexperience of interviewing could have affected the richness or depth of the interviews. The duration of the interviews varied, which could be interpreted as incomplete interviews. On the other hand, interviewers respected patients' busy schedules and tried to conduct interviews on patients' and the hospital's terms. Could we access the variation that existed in patients' and physiotherapists' views? This is a question that cannot be overlooked, so this could have affected the data and consequently the results. On the other hand, we considered it easier for the patients to express their views to interviewers who were not involved in their caring process. The students were not working in the hospital, which could also facilitate interviews with physiotherapists. The author of this dissertation was the head of the physiotherapy department at that time, which may have had some effect. In turn, all the physiotherapists were volunteers, they had the possibility to withdraw at any point and to take part only in the group interview, if desired. None of the physiotherapists withdrew. Several of the participant physiotherapists also took part in a further study in this field after the author's period of management ended so we assume that participation was not felt to be compulsory.

One limitation worth mentioning is language. First, in Finnish there is the term "potilasohjaus", literally 'patient guidance', which to our ears sounds more equal and wider than the English term patient education. What is the correct definition and concept in Finnish and English? This was an issue we discussed in the course of this research process. Since the participants in this study were Finns and the interviews were conducted in Finnish, maybe some nuance has been lost in the translation process.

6.4 Ethical issues

In this dissertation and its four studies good ethical principles were followed. Ethical approval for the study was obtained from the Ethical Committee (Register number 323/13/03/02/2009) and the Department of Surgery approved this study. All the patients and physiotherapists were informed about the aims of the study orally and in writing, and they provided written consent for interviews and for the use of the data in publications. They were free to withdraw from the study at any time.

The anonymity of the participants has been ensured throughout the study process and in the scientific reporting (Silverman 2011). Only letter codes were used in quotations. The electronic data material, stored on a portable hard drive, the written transcripts and other written materials were kept in a personal locked closet in a locked room in my workplace. Finally, when the last article is published, the data will be disposed of in a proper way.

6.5 Conclusions and challenges for future research

In this study patient education in physiotherapy contained four main issues: knowledge, practical skills, body understanding and interaction. The importance of these issues fluctuated along the patients' pathway; knowledge and body understanding were weighted at the pre-operative phase and practical skills at the post-operative phase. Interaction was an important part of patient education throughout the education process, which was also seen in the critical aspects (see Figure 4 and Figure 5). Optimally pre-operative patient education in physiotherapy could prompt the patient to be an independent actor with post-operative patient education supporting patients to get fit by means of individualized coaching. Individuality was also recognized in the critical aspects (see Figure 4 and Figure 6). The integrative pedagogy approach (Tynjälä et al. 2016) supplemented by the dimension of body understanding could be a useful approach to patient education in physiotherapy.

The findings of this study can be used as a mirror by the physiotherapist when she/he is reflecting on her/his own way of guiding a patient or acting person-to-person in an education situation. In the light of this study and the journey that this dissertation has involved, I am wondering what the basis is: how can physiotherapists improve their educational skills? The relevance for this issue is also the fact that patients are increasingly responsible for their own rehabilitation and condition, something which should be supported by the content and methods in physiotherapy patient education. Physiotherapists' patient education skills should also be developed in a tele-technology context, keeping in mind that there is a need and place for manual guidance and a therapeutic touch. In the light of the results of this study, patients' self-assessment of reflective learning

and continuing rehabilitation at home related to everyday practices should be taken into account when developing tele-technology services and guidance skills.

The findings are related to a special context but can also be used as background material in defining the phenomenon of patient education in physiotherapy, and in promoting it in the physiotherapy field and understanding how patient education in physiotherapy can facilitate the rehabilitation process. The results of this study can be utilized in physiotherapists' workplace education or in the education of physiotherapy students. In physiotherapists' continuing education at workplaces the structure of patients' education in physiotherapy could be applied. It is important for physiotherapists to view patient education holistically, to recognize individual needs and recognize the importance of correct timing for education and to collaborate with other health professionals in planning educational processes in hospital and at home.

The results of this study also showed that patients' narratives changed over time and that the knowledge and skills received from patient education in physiotherapy were not so clear at home. As we see from the patients' pathways at that time, patient education took place at the beginning of the patient's recovery process. It is relevant to consider how to meet educational needs after hospital discharge. Or is there a need to change the point of patient education in physiotherapy to a later phase?

The data in this study was gathered almost ten years ago. Subsequently changes in the health care and digital services have been made. It would be interesting to explore if patient education in physiotherapy has the same features recognized in this study and how digital services are perceived from patient perspectives. Patients in this study were interviewed before, during and after their hospital period, but there was no long-term follow-up. How would patient education in physiotherapy and its relevance in coping have been perceived one year after THA? This viewpoint remained unstudied in this dissertation.

YHTEENVETO (SUMMARY IN FINNISH)

Potilasohjaus fysioterapiassa lonkan tekonivelleikkauksessa -potilaiden ja fysioterapeuttien käsityksiä

Potilasohjaus on osa potilaskeskeistä terveyspalvelua ja tärkeä, olennainen osa fysioterapiaa. Fysioterapeuttien on kuitenkin vaikeaa tunnistaa rooliaan potilaiden ohjaajina ja opettajana. Lonkan nivelrikko on yleinen ja Suomessa tehdään yli 9000 primaaria lonkan tekonivelleikkausta vuodessa. Tekonivelleikkauksella pyritään kivun lievittymiseen, liikkumisen ja toimintakyvyn kohentumiseen sekä elämänlaadun parantumiseen. Nopeutetut hoitoprotokollat ovat yleisiä lonkan tekonivelleikkauksissa, jolloin sairaalassaoloaika lyhenee ja siten terveydenhuollon kustannukset pienenevät. Aikaisemmat tutkimukset ovat muun muassa todenneet, että pre-operatiivinen fysioterapia ja potilasohjaus lyhentävät potilaiden sairaalassa olo aikaa, potilaiden toiminta kohentuu aiemmin ja postoperatiivista fysioterapiaa tarvitaan vähemmän. Potilasohjauksella fysioterapiassa lonkan tekonivelleikkauksen jälkeen on todettu olevan samoja vaikutuksia kuin fysioterapian avokuntoutuksella kotiutumisen jälkeen. Potilasohjaus on tähdännyt kotiharjoittelun ohjaukseen. Suuri osa potilaista toipuu siis ohjauksen ja ohjeiden avulla, mutta eivät kaikki. Lyhyet sairaalajaksot ja usein puuttuva seuranta fysioterapiassa haastavat fysioterapeuttien potilasohjauksen ja fysioterapeuttien potilasohjaustaidot.

Tämän väitöskirjatutkimuksen tarkoituksena oli tutkia potilasohjausta fysioterapiassa lonkan tekonivelleikkauksessa potilaiden ja fysioterapeuttien näkökulmasta. Potilasohjaus-ilmiötä on vähän tutkittu fysioterapiassa ja lonkan tekonivelleikkauksessa. Tutkimukseen osallistui kymmenen potilasta ja seitsemän fysioterapeuttia. Tutkimuksessa seurattiin potilaiden hoito ja kuntoutuspolkua kotoa sairaalaan ja takaisin kotiin, jonka aikana potilaita haastateltiin neljä kertaa: ennen pre-operatiivista käyntiä kotona, pre-operatiivisen käynnin jälkeen sairaalassa, 3. postoperatiivisena/leikkauksen jälkeisenä päivä sairaalassa ja 3-5 viikkoa leikkauksen jälkeen kotona. Fysioterapeutteja haastateltiin sekä ryhmässä että yksilöllisesti. Haastatteluaineistoa muodostui 19 tuntia 17 minuuttia, joista litteroitaessa muodostui 634 sivua tekstiä.

Väitöskirjan neljän osatutkimuksen tutkimuskysymykset olivat seuraavat: 1) minkälaisia käsityksiä potilaille oli pre-operatiivisesti ohjauksesta fysioterapiassa lonkan tekonivelleikkauksessa, 2) minkälaisia käsityksiä potilailla on postoperatiivisesti ohjauksesta fysioterapiassa lonkan tekonivelleikkauksessa, 3) minkälaisia käsityksiä fysioterapeuteilla on potilasohjauksesta fysioterapiassa lonkan tekonivelleikkauksessa 4) minkälaisia ovat potilaiden tarinamallit potilasohjauksesta fysioterapiassa lonkan tekonivelleikkauksen jälkeen.

Tässä väitöskirjatutkimuksessa käytettiin laadullisia tutkimusmenetelmiä. Aineisto analysoitiin hyödyntäen fenomenografista analyysiä (Osatutkimukset I-III) ja narratiivista lähestymistapaa (Osastutkimus IV). Väitöskirja sisältää neljä erillistä artikkelia.

Fenomenografisten analyysien tarkoituksena oli kartoittaa ja kuvata potilaiden käsityksiä potilasohjauksesta fysioterapiassa ennen ja jälkeen lonkan tekonivelleikkauksen. Lisäksi potilasohjaus-ilmiötä tutkittiin fysioterapeuttien käsitysten kautta. Fenomenografia on laadullinen tutkimusmenetelmä, jonka tavoitteena on kuvailla, analysoida ja ymmärtää erilaisia käsityksiä sekä käsitysten välisiä suhteita tutkittavasta ilmiöistä, joka oli potilasohjaus fysioterapiassa lonkan tekonivelleikkauksessa. Fenomenografian etuna oli se, että sen avulla oli mahdollista löytää käsitysten hierarkkinen rakenne.

Analyysiprosessi tuotti neljä kuvauskategoriaa pre-operatiivisesta potilasohjauksesta fysioterapiassa lonkan tekonivelleikkauksessa. Nämä kuvauskategoriat rakentuivat hierarkkisesti siten, että laajin kuvauskategoria sisälsi muut kategoriat. Ensimmäinen eli suppein kuvauskategoria oli Valmius leikkaukseen, toinen oli Valmistautuminen kuntoutukseen, kolmas oli Toimija sairaalan palvelujärjestelmässä ja neljäs eli laajin oli Itsenäinen toimija. Leikkausta edeltävässä ohjauksessa tiedon ja käytännön yhdistäminen oli tärkeää, samoin kuin vuorovaikutuksen rooli kehon muutosten tukemisessa sekä luottamus sairaalapalveluihin.

Leikkauksen jälkeisestä ohjauksesta muodostui neljä hierarkkista kuvauskategoriaa, joista suppein oli Luottamus sairaalassa. Seuraavana oli Valmistautuminen kotiutumiseen ja kolmantena oli Selviytyminen kotona. Laajin, kuvauskategoria Tulla kuntoon, sisälsi kaikki kolme edellistä kuvauskategoriaa. Leikkauksen jälkeisessä ohjauksessa ilmeni tulosten mukaan kaksi kriittistä kohtaa. Ensinnä, miten liikkumisen ohjaus valmisti kotiutumista. Toisena, miten näkökulma laajeni kotiutumisesta kotona selviytymiseen. Tärkeää olivat harjoittelu, kirjalliset ohjeet harjoittelun tueksi kotiin sekä niiden ohjaus itseluottamuksen lisäämiseksi.

Fysioterapeuttien käsityksistä potilasohjauksesta lonkan tekonivelleikkauksessa muodostui kolme kuvauskategoriaa. Suppein oli Kaavamainen protokollan mukainen fysioterapia, toinen oli Yksilöllisten kuntoutustarpeiden tunnistaminen ja laajin kuvauskategoria oli Kotona kuntoutumiseen valmentava. Fysioterapeuttien näkökulmasta yksilöllisyys harjoittelun ohjauksessa ja vuorovaikutuksessa, sitten potilasohjauksen merkitys potilaan valmentamisessa selviytymään tulevassa, olivat keskeisiä valmentamassa kotona kuntoutumiseen.

Narratiivisessa analyysissä tutkittiin potilaiden kertomuksia potilasohjauksesta fysioterapiassa lonkan tekonivelleikkauksen jälkeen. Tutkimustuloksina muodostui kolme erilaista tarinamallia: 1) tukeva potilasohjaus fysioterapiassa, 2) yhteistyö potilasohjauksessa fysioterapiassa ja 3) ristiriitainen potilasohjaus fysioterapiassa. Tarinamallit osoittivat, että lisätietoa, harjoitusohjelman progressiota ja seurantafysioterapiaa tarvitaan.

Tutkimustulokset osoittivat, että potilasohjaus fysioterapiassa rakentui neljästä pääelementistä: tieto, käytännön taidot, kehon ymmärtäminen ja vuorovaikutus potilaan ja fysioterapeutin kanssa. Kun tämän väitöskirjan tutkimustulokset sekä teoreettinen tausta yhdistettiin, niin lopuksi muodostettiin potilasohjauksen hypoteettinen konstruktio fysioterapiaan. Tämä konstruktio korostaa

potilaan oppimista, jota fysioterapeuttinen ohjaus tukee. Suppeimmillaan potilasohjaus tähtää teoreettiseen ja käytännölliseen oppimiseen ja sitten yksilölliseen oppimiseen. Kolmantena on potilaan reflektiivisen oppimisen mahdollistaminen ja laajimpana potilaan oppiminen edistämässä itsenäistä kuntoutumisprosessia.

Tämän väitöstutkimuksen tulokset tuovat uutta tietoa potilasohjaus-ilmiöstä, sen rakenteesta, sisällöstä ja ajoituksesta kuntoutusprosessissa niin potilaiden kuin fysioterapeuttienkin näkökulmasta ja siten syventää ymmärrystä fysioterapeuttisesta ohjauksesta.

Tuloksia ja lopussa esitettyä potilasohjauksen konstruktiota voidaan käyttää potilasohjaus käytäntöjen, ohjaustaitojen ja fysioterapeuttien koulutuksen sekä täydennyskoulutuksen kehittämisessä. Tärkeää on, että fysioterapeutit suhtautuvat potilasohjaukseen kokonaisvaltaisesti, pyrkivät tunnistamaan potilaiden yksilölliset tarpeet, oikean ajankohdan potilasohjaukselle sekä toimivat yhteistyössä muiden terveydenhuollon ammattilaisten kanssa potilasohjauksessa ja toiminnan kehittämisessä.

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APPENDIX 1 Query frame in the interviews

Patients' interviews

At home before pre-operative visit: Query frame

1. Describe your performance?
    - how do you move and act - what is easy, difficult, safe?
    - are you satisfied with you walking ability, describe it more?
    - do you use aids?
    - describe your pain?
2. Describe how you manage at home?
3. Describe your need of help?
    - in what situations, has it changed?
    - do you need help outdoors, for example shopping?
    - if you use aids, describe how these help your daily life
4. Expectations of the operations and its effect on performance?
5. Describe your feelings towards the operation
6. Describe your expectations towards physiotherapy?
    - how have you prepared for the operation?
    - describe your home-exercises
    - have you got advice from the hospital, have you got guidance from a physiotherapist?
7. What else do you want to say?

After pre-operative visit: Query frame

1. Describe the content of patient education
2. Describe the interaction
3. How did you feel about the guidance and situation? Was it clear and consistent?
4. Did you get written information, was the content suitable and enough for you?
5. What was important in guidance?
6. How this visit changed your expectations towards the operation?

At 3rd postoperative day: Query frame

1. Tell me about your feelings and situation now compared to situation before the operation
2. Describe the content of physiotherapy education as whole and in this session?
3. What were your expectations of guidance and education? Were they fulfilled? What about the usefulness of advice?
4. Describe exercises and home-exercises
5. Tell me about interaction. - how were you taken into consideration?
6. Do you want to change something in guidance?
7. Expectations of managing at home

3-5 weeks after operation at home: Query frame

1. Tell me about managing at home and about advice from physiotherapy
2. Do you feel that the advice was supportive when you came home?
3. How do advice and instructions support your own goals?
4. Tell me about written instructions
5. Tell me about your performance now
6. Tell me about your need for help
7. What are your perceptions about continuing practising and home exercises?
8. Do you use physiotherapy services? Tell me about them
9. What else do you want to say?

Physiotherapists' interviews

Group interview: Query frame

1. Describe the content of physiotherapy in hip arthroplasty
2. Describe patient education in physiotherapy in hip arthroplasty
   You can imagine and tell about it with a sample patient you have recently faced
3. Describe how you decide the content of patient education in physiotherapy
4. Tell me about goals and how these are formed
5. Tell me about patient education in different phases; pre-operative, post-operative
6. How patients learn, describe it

7. Tell me about exercises, what kind, how these are advised and when?
8. Do you have some protocol? Tell me more about it. Tell me more about your own manners.
9. Managing at home, how do you evaluate that? What about work and hobbies? Tell me more
10. Describe your interaction between patients
11. Are you satisfied with the current model of care?

Individual interview at 3rd postoperative day after physiotherapy: Query frame.

8. Describe the content of physiotherapy with this patient as whole and in this session?
9. Tell me about patient education in physiotherapy with this patient
10. Tell me about exercises, what kind, how you advised and when
11. Tell me about home exercises?
12. How did you experience your latest therapy session which we followed?
13. Tell me what you think about what patient's perceptions might be
14. Is there something, you might want to change?
15. Managing at home, do you think that this patient can manage and why?

ORIGINAL PAPERS

I

PATIENTS' CONCEPTIONS OF PREOPERATIVE PHYSIOTHERAPY EDUCATION BEFORE HIP ARTHROPLASTY

by

Anna-Maija Jäppinen, Harri Hämäläinen, Tarja Kettunen & Arja Piirainen 2015

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Abstract

Aims

In Finland, over 7500 hip arthroplasties are made annually. While the mean age of the patients has increased, the length of hospital stay has decreased; this challenges patient education. The aim of this study was to explore patients' conceptions of pre-operative physiotherapy education.

Methods

This qualitative study included ten hip arthroplasty patients. The data was collected using individual interviews at home before collecting pre-operative information and at the hospital, afterwards. The interviews were tape-recorded and analysed using the phenomenographic method.

Results

Four hierarchically constructed categories of pre-operative physiotherapy education were identified: Readiness for the operation, Preparing for the rehabilitation, Actor within the hospital service system and Independent actor. These categories were analysed through the following themes: knowledge about hip arthroplasty, action skills, body understanding, and trusting encounter.

Conclusion

According to the patients' conceptions, in pre-operative physiotherapy education, gaining knowledge is the key element which should be combined with practical elements. This requires a trusting relationship between the patient and the physiotherapist. Two critical aspects can be identified: how the readiness for the operation could shift towards preparation for rehabilitation, and widening the perspective from preparing for rehabilitation, to be the actor within the hospital service system.

Keywords: patients' conceptions, pre-operative physiotherapy education, hip arthroplasty, phenomenography

Introduction

Osteoarthritis of the hip is common and in Finland, over 7500 primary hip arthroplasties are performed every year (1). Total hip arthroplasty (THA) is a widely accepted treatment for patients with osteoarthritis of the hip who have unacceptable levels of pain and/or decreased physical function. Previous studies have shown improvements in quality of life for recipients after THA and it is also a cost effective treatment (2, 3, 4).

Osteoarthritis causes pain and there is no consensus regarding objective indication criteria for THA. Pain in rest, pain during activity and functional limitations are the most important criteria for orthopaedic surgeons, which refer to the physicians' points of view. Functional limitations, such as difficulties in walking, climbing stairs, and putting on shoes/socks, are common symptoms (5). Walking distance is a simple measure to evaluate functional limitations when assessing the need for the operation (6).During the past few years, the mean age of patients' undergoing primary THA has increased and the length of stay (LOS) in hospitals has decreased (7). Joint arthroplasty clinical pathways recommend preadmission education (8) and physiotherapy is part of that.

Education and teaching has been theoretically described as follows: "Education is a concept describing an organized, structured process or program with the goal of imparting information to facilitate learning. Teaching, on the other hand, is an active process of facilitating and enhancing the individual's ability to apply what he or she has learned" (9). Trede (2000) underlines that "education should be seen as an important part of effective physiotherapy management" and "education is much more complex than the application of technical knowledge and method" (10). Traditionally, physiotherapists provide patient education, focused on information and technical skills; these skills, combined with self-management education, can improve patients' problem-solving abilities (11).

In order to develop our education practices, it is important to view education from the patients' perspective. This information from patients and theoretical knowledge about learning can be useful, if combined. For example, in the model of integrative pedagogy, key elements of learning are brought together, which is where reflection is linked with the use of theoretical and practical knowledge. This link is called 'self-regulative knowledge' and the integration theory, practice, and self-regulation can be viewed as problem solving process (Fig. 1) (12).This model has been specifically designed for use in the educational context and can be a useful framework to view patients' education regarding THA. Patients self-regulate their theoretical knowledge and practical knowledge of THA, which leads to a problem-solving process. The physiotherapist aims to facilitate this process by offering training and education. However, shortened hospital stays and independent home rehabilitation can challenge this philosophy.

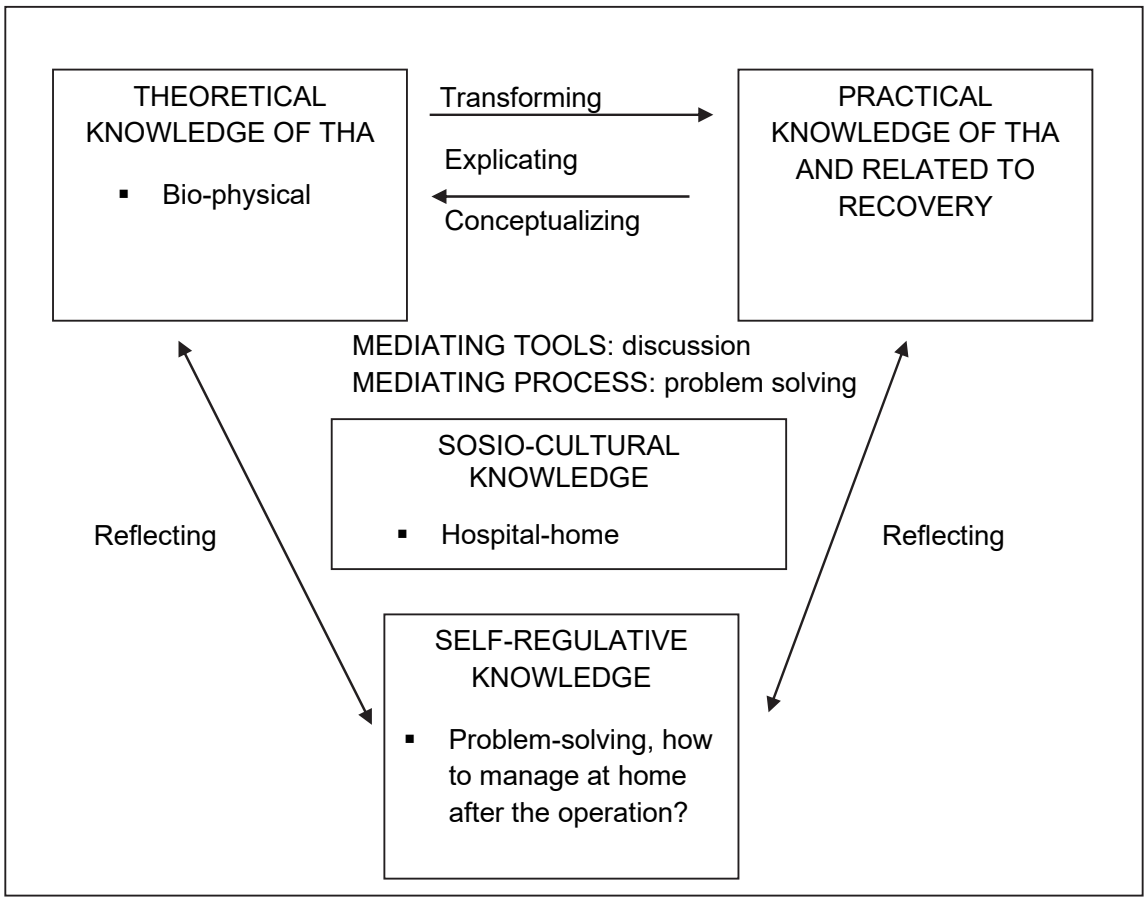

Figure 1
Pre-operative physiotherapy education in the model of integrative pedagogy (Adapted from Tynjälä & Gijbels 2012)

Earlier studies claim that pre-operative education before hip arthroplasty lowers the length of hospital stay (13) and has beneficial cost implications (14). Pre-operative patient education affects that patients feel to be better prepared for surgery and are able to control their pain after operation (15). Pre-operative patient education has positive impacts in patients' knowledge level (16). However, a recent review affirms that pre-operative education may not offer additional benefits over the usual care in patients undergoing hip arthroplasty. The benefits, which were evaluated, were a reduction of anxiety and surgical outcomes such as pain, function, and adverse events (17). Nevertheless, the pre-operative education is commonly offered as preparation for surgery. The opportunity to learn relevant skills for post-operative recovery is part of pre-operative education (18). These skills, like learning to walk

with crutches or using other aids are also commonly provided as part of pre-operative physiotherapy education. A qualitative study found out that patients have many different and also specific educational needs. Educational needs can relate to practical aspects of activities of daily living, such as preparing food ahead of time. Issues related to health care system, such as access to physiotherapy and follow-up by the surgeon need to be informed. Patients also need information about pain relief and ability to walk (19).

In relevant literature, there are many terms related to patient education in hospitals: patient education, health education, patient counselling, and health counselling, for example (20). In this article, we use the term “pre-operative physiotherapy education”, because it is a part of the education process provided pre- and post-operatively by the physiotherapist. Pre-operative physiotherapy education has been little studied although it is common and requires physiotherapy resources at the hospital. The aim of this study is to explore patients’ conceptions of pre-operative physiotherapy education before hip arthroplasty.

Methods

Patients

The data of this qualitative study were consecutively collected during 2010. Patients were selected in order from weekly operation lists (Fig.2). Initially, 15 patients were approached by phone by the clinical team, out of which, 10 were willing to participate in the study. After patient permission was granted, researchers contacted them. The amount of patients (n=10) was decided in advance by the research team, in order to analyse qualitative data. The inclusion criteria were: (1) Age ≥60 and ≤80; (2) Finnish-speaking; (3) Undergoing a first total hip arthroplasty in a Southern Finnish hospital.

The mean age of the patients was 69, 7 years (range 63–79). There were two males and eight females, living in the surrounding area. Two of them lived alone. (Tab.1)

Ethical approval for the study was obtained from the Ethical Committee of the Healthcare district where the data collection took place and the Department of Surgery from the hospital approved this study. All patients provided written consent for interviews and for the use of data in publications.

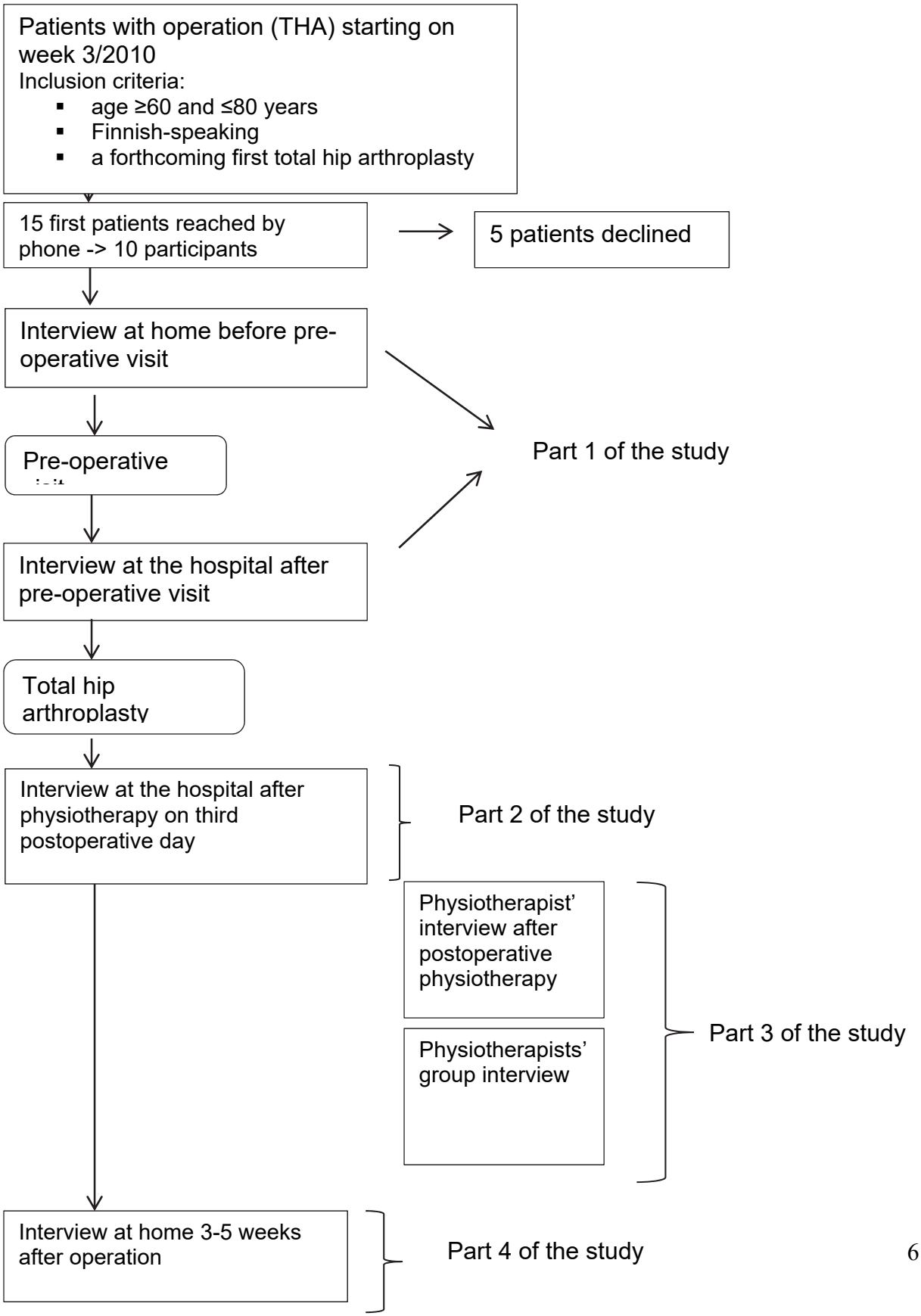

Figure 2
Study design and sampling flow chart

Table 1
The sociodemographic characteristics of the patients

Patient	Gender	Age	Marital / living status		Work status		
	F/M	Years	Together	Alone	At work	Retired	Caregiver
A	F	65	x			x	
B	F	63	x		x		
C	F	79	x				x
D	M	67	x			x	
E	F	70		x		x	
F	F	72	x			x	
G	F	66	x				x
H	F	74	x			x	
I	M	70	x			x	
J	F	71		x		x	

Procedure

Data were collected from two separate interviews per patient. One was conducted at the patient's home, prior to any surgical procedure, and the other – at the hospital, after the pre-operative visit. At the particular hospital, it was a common practice that every patient received individual pre-operative physiotherapy education during the pre-operative visit, before hip surgery. Pre-operative physiotherapy education included information about the timetable and course of the rehabilitation process, information about aids and the exercise program, and an opportunity to practice skills such as walking with crutches. Discussions about home circumstances and the possibility to go home after the operation were also part of the content.

This study is the first part of the whole research, which is based on the entire patients' pathway from home to the hospital and back, after the operation. Other parts of the study will be reported later on. Data collection was carried out in collaboration between students from university and university of applied sciences.

The first and the last author were responsible for the study design, research process, and guided interviews.

Ten patients were interviewed and 19 out of 20 interviews were made in total (one patient was interviewed once, due to scheduling problems). Three students carried out the interviews. There were mainly two students involved in the situation, but one student conducted the interview. The main themes of the interviews were: patients' experiences with disease, moving and performance in daily living, expectations and experiences with pre-operative physiotherapy education sessions, in relation to the operation. The interview themes were wider than the research question, in order to receive a broader picture and to collect data for other studies. The interviews were tape-recorded and transcribed. The duration of interviews varied from 5 to 65 minutes.

Data analysis

Data were analysed using the phenomenographic method (21), which has been specifically designed for use in the educational context (21, 22). Phenomenographic research focuses on the variation in human meaning, the conceptions, and the awareness of experiencing a phenomenon; the phenomenon, in this case, is the pre-operative physiotherapy education. Different ways of understanding the phenomenon can be categorized according to the awareness shown by key aspects of the phenomenon (23). The set of categories based on the analysis are not determined in advance (24). Data are collected according to the descriptions on individual experiences; however, the aim is to emphasize the collective experience. In phenomenography, each interview is considered, but a comparison is used to emphasize similarities and differences between the transcripts. The aim, in phenomenography, is to identify the different conceptions and to analyse the relationships and structure of the conceptions. The outcomes are presented as the themes and the variation within the themes is shown in the categories. The categories therein describe the hierarchical structure of conceptions in the phenomenon (21, 24).

In the beginning of this analysis, the focus was to identify and describe patients' view on pre-operative physiotherapy education in relation to their operation. The first author read transcripts several times, looking for similarities and differences and identifying the overall themes. In further analysis on the ways of experiencing pre-operative physiotherapy education, we focused on the critical aspects of the findings and the variation within themes, which formed these four categories; this process expanded the awareness of pre-operative physiotherapy education. During the analysis process, we analysed the consistency between the original data and our findings, to confirm the results and minimize the influence of our own viewpoints (21). The process of phenomenographic data analysis is presented in Figure 3. Phases one and two were performed by the first author. Phases three and four were performed in collaboration between the research team.

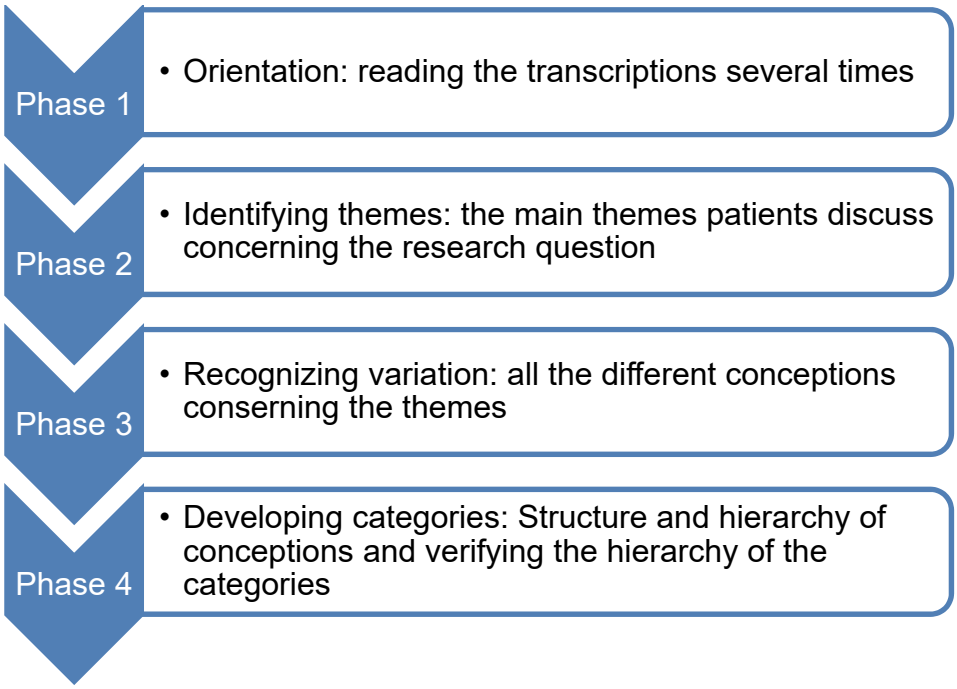

Figure 3
Process of phenomenographic data analysis

Results

The categories of pre-operative physiotherapy education were seen in the variation of themes the patients used in the interview. The themes were: 1. Knowledge about hip arthroplasty, 2. Action skills, 3. Body understanding, and 4. Trusting encounter (Tab. 2). In the "Knowledge about hip arthroplasty" theme, patients expressed their

expectations and perceptions of knowledge, the content of knowledge, as well as the amount and the quality of knowledge. The content comprised medical information, such as joint condition, range of motion, artificial joints, and information about assistive devices, knowledge about permissions and restrictions, and the rehabilitation schedule. The “Action skills” theme indicated the activities affected by the operation and activities the patients were required to practice such as getting out of bed, walking, walking with crutches, and walking up stairs. Home exercises were also mentioned. The “Body understanding” theme comprised osteoarthritis at the hip and its effects on the body, and the expectations of the likely outcome of the operation. In the “Trusting encounter” theme, patients described their trust regarding the success of the operation, recovery, the service system, and themselves.

Four different categories of the pre-operative physiotherapy education regarding hip arthroplasty were produced. These categories were arranged in a hierarchy, so that the widest category contained all the other categories. The narrowest was Readiness for the operation (I). Preparing for the rehabilitation (II) was next and the one following was Actor within the hospital service system (III). The widest was the Independent actor (IV).

Table 2
Patients’ conceptions of pre-operative physiotherapy education before hip arthroplasty

	Hierarchy of categories			
	I Readiness for the operation	**II Preparing for the rehabilitation**	**III Actor within the hospital service system**	**IV Independent actor**
Variation of themes				
Knowledge about hip arthroplasty	Realization of the need for knowledge	Knowledge of the new joint, (permissions and restrictions)	Access to continuing information during the process	Applied information of effect of operation in daily life

Action skills	The vision of how to act	Practice confirming action skills	Confidence of continuing practicing after operation	Self-practicing as developing action skills
Body understanding	Restricted body	Hope of operation normalizing the body	Received support when body is changing	Body control
Trusting encounter	Beginning of trust regarding the operation	Beginning of trust in recovery	Increased confidence in the hospital service system	Deepening confidence in own rehabilitation

The Description of the Categories

Readiness for the operation (Category I)

The focus of this category was on the surgery. The effects of osteoarthritis on the body and function, and the willingness to undergo the operation were included, as were patients' knowledge and their ability to learn the necessary skills, after the operation.

In this category, the knowledge about hip arthroplasty showed up as realization for the need for knowledge. The interviews identified particular expectations regarding the content of knowledge before the pre-operative patient education visit. Some of the patients gather information by themselves prior to the visit, during participated information lectures about hip arthroplasty. They also gain information from relatives, friends, and through information booklets. The relevance of knowledge and information was described as confirming prior knowledge, giving an overview, or enhancing knowledge, as shown in the following example:

> "It increased my own knowledge—so I know what the situation is." (I)

The action skills theme in this category could be described as the vision of how to act. The view of practicing skills, such as walking with crutches, before the operation,

varied from necessary to unnecessary. Some patients considered practicing to be very important, whilst others thought it could be difficult to apply in a real life situation.

> “I think it is better to see and practice afterwards. Now, when I am “healthy”, it is not the same, as when I am recovering after the operation.” (G)

Physiotherapy education could add to patients’ understanding of their own body by visualizing the position and the way of moving. Patients also mentioned joints and joint restrictions, changes in the range of motion and the walking style. They described how they coped with osteoarthritis, how they associated pain, and how it changed their body. They also mentioned that pre-operative physiotherapy education helped them perceive the change and confirmed their positive attitude towards surgery.

> “The joint movement is interesting and how little these osteoarthritic joints move. I have noticed it partly by myself, but you can`t evaluate it that way by yourself.” (C)

Pre-operative physiotherapy helped patients to perceive the changes osteoarthritis had made as mentioned earlier and at the same time possible affirmed patients need for surgery and belief in it. Patients expressed their trust regarding the surgery and they commented on their awareness of positive outcomes following these operations. Patients were ready for the operation and only some were concerned on the timing of the surgery. A few patients discussed nervousness. One patient expressed that the pre-operative visit increased anxiety.

> “I have heard that operations are very successful, so you have to had really bad luck, if something goes wrong” (G)

Preparing for the Rehabilitation (Category II)

The focus of the second category was the rehabilitation, immediately following the operation. The theme of knowledge about hip arthroplasty was essential. Many

patients felt that they were given new information. The content of the education was important to them and they were particularly interested in knowing about the new joints and what they could and could not do.

> ” I got an answer about when I can sit without a higher seat cushion and what I am not allowed to do, like rotations in the hip, that’s most important.” (A)

Pre-operative physiotherapy education was identified as an opportunity to practice action skills. Practicing was also related to the information provided. Patients talked most about practicing movements like walking.

> “..This observation that my walking is like rotating, I compensate it. So, I immediately realized it by myself too, and she [the physiotherapist] indicated just what movements and muscles I needed to practice.” (B)

When preparing for rehabilitation, patients hoped the operation would help normalize the body and physiotherapy could help them use it properly. Expectations about pain relief, better body position, and walking were also mentioned.

> ”I got hope for walking position and that I can get my hip straight ...and I can lie with my both legs straight without having pain in my back and thigh.” (B)

The encounter with the physiotherapist was seen as the beginning of trust in recovery. Pre-operative education staff were described as factual, competent and sympathetic, which helped create a positive atmosphere.

> “The meeting was quite pleasant. She/he was a very kind young person. I remember the positive impression it made on me.” (E)

Actor within the Hospital Service System (Category III)

The focus of this category, the actor within the hospital service system, was on the aspects of how to utilize the service systems; in other words, how to be a healthcare consumer. Patients discussed about a way to access information during the course of treatment. The amount of information was large and difficult to absorb, but patients were unconcerned by this. They believed they would get additional information afterwards, as well.

> “When so much information comes at the same time, it is difficult to put it all in my old head. But information gaps are filled after operation. So, it is very good to have this information before the operation and supplement it after the operation.” (G)

Patients were confident that physiotherapists would guide them to continue practising after the operation and that they would retain their action skills. Patients expressed their trust that it would happen. They also hoped for follow-up check from the physiotherapist after the hospital stage or even a follow-up physical therapy. Some of them required it, even if it was not a routine practise.

> “I hope I will have good practise instructions and the so-called follow up check…so, everything is going in the right direction. “(H)

Pre-operative physiotherapy education was seen as support during the time of bodily change. Some patients were concerned about the management of the new joint and that even the possibility of dislocation existed.

> “I am going to be careful, so I don’t want to spoil the operation and the good result of it.” (G)

The face-to-face communication was important in building a positive impression of the hospital service system. Patients mentioned their appreciation of the physiotherapist’s guidance skills and the continuity of service. The provision of support, empathy, and assurance that you are not left alone were also mentioned.

> “She/he said to me that she/he is going to show me and guide me again after the operation. So, it was good to hear that they are not going to forget me there.” (A)

The physiotherapists’ guidance skills were described as professional, comprehensible, and coherent. Comprehensibility, in this context, referred to simple content, delivered using common, readily understandable language.

Independent Actor (Category IV)

The fourth hierarchical category was defined as independent actor where the role of the hospital and physiotherapy professionals decreased and the importance of the patients’ own actions increased. The focus then shifted to applying the gained knowledge to everyday life. The education content included movement information intended to help patients cope with everyday life. Patients discussed activities such as getting out of bed, the ability to use the leg, and the possibility to go outside. They were worried about slipping during winter and intended to only walk indoors, at first.

> “If I can put weight on the other leg… it is easier for me to walk and I might go outside, too.” (F)

Exercises promoting performance were key components and locomotion was important, as well. Daily activities, such as dressing and bathing, were considered only by a few patients. Patients made preparations at home, in order to manage themselves after the operation, for example cleaning, shopping and general house work was done in advance or by extra help. Many patients hoped and expected to recover and continue their earlier hobbies, like skiing, dancing, and cycling, as well as leisure activities, like picking berries, but the focus was first to walk and manage at home.

> “So, what is the rehabilitation, what have I to do myself to be in good condition?”(D)

The theme of body understanding could be described as ‘body control’ when patients can control their activities and their bodies on their own. Patients expressed having received this facility once walking became easier and they could manage themselves independently.

> “After that pre-operative education, you should know your own responsibilities and make sure that you take responsibility for rehabilitation.” (D)

The encounter with the physiotherapist facilitated a deepening self-confidence. It included informative elements, as information provides certainty and interactive elements such as encouragement.

> “It gives me a more positive frame of mind, so that I am not so afraid of recovery.” (F)

The results showed that patients’ conceptions of pre-operative physiotherapy education was constructed hierarchically. The conceptions widened from the narrowest; support of patients’ readiness for the operation and continued to the widest; enable them to take the role of an independent actor in their daily life. The combination of knowledge and practical elements, focused on recovery after the operation, was essential.

Discussion

This study explored patients’ conceptions of pre-operative physiotherapy education before hip arthroplasty. Patients’ conceptions of pre-operative physiotherapy education appeared in four consistent themes. In this study, gaining knowledge through information was highlighted. The needs of information for surgery patients’ have been studied earlier and reported a knowledge expectation inter alia on the bio-physiological and functional dimension (25). Preadmission education can be effective, when it focuses on empowering patients with knowledge and uses written

materials and appropriate methods (26). Our study described the challenge of how patients understand information, their own body, what kind of action skills they possessed, and which new ones they needed to learn. Therefore, it is relevant to know how patients perceive their situation with respect to pre-operative physiotherapy education. If we consider the patient education as an integrative pedagogy (12), this model could show that patients' reflections of conceptual/ theoretical knowledge of arthroplasty and practical/experiential knowledge about their action skills related to arthroplasty and the understanding of their bodies formed self-regulative knowledge; this promoted communication based on trust. The reflection of theoretical, practical, and sociocultural knowledge could create new self-regulative knowledge, so that patients' perception could develop towards the image of an independent actor (Fig. 1).

Pre-operative physiotherapy education was one of the varied sources of information as well as the acquisition of written materials and participation in information lectures. However, patients also gathered information from relatives and friends, which was in accordance with earlier studies, that family and friends serve as an important source of knowledge (27, 28). Earlier research stated that advice and information related to the disease and the forthcoming operation was limited and, therefore, family members and friends were considered invaluable (29). Pre-operative physiotherapy education took place around one week before the operation, which could be late, when information is concerned. Therefore, the timing for education should be revalued to promote the patients' agency.

In the area of body understanding, pre-operative physiotherapy education helped with the verification of osteoarthritis visualizing the changes to movement and behaviour with the new joint. Movement is an essential part of physiotherapy and it can be seen, among other things, as emotional or psychological (30). In our study, interaction between action skills, such as movement, body, and mind, were considered.

Our study revealed that patients had wide-ranging conceptions regarding pre-operative physiotherapy education. Key aspects were found in the varying themes

and they formed the critical aspects between the descriptive categories (31). Two critical aspects could be identified (Figure 4). The first critical aspect was how the readiness for operation (category I) could shift towards preparation for rehabilitation (category II). The most important issues were the knowledge of hip arthroplasty and the practicing the action skill, in order to understand the new situation.

The second critical aspect was in widening the perspective from preparing for rehabilitation (category II) to be the actor within the hospital service system (category III). Then, the key issues were to realize and get support when one's body is changing and to have confidence in the hospital's services. The perception of the trustworthiness of the services was also important. This allowed patients to enhance their understanding of their body and movements in a new situation.

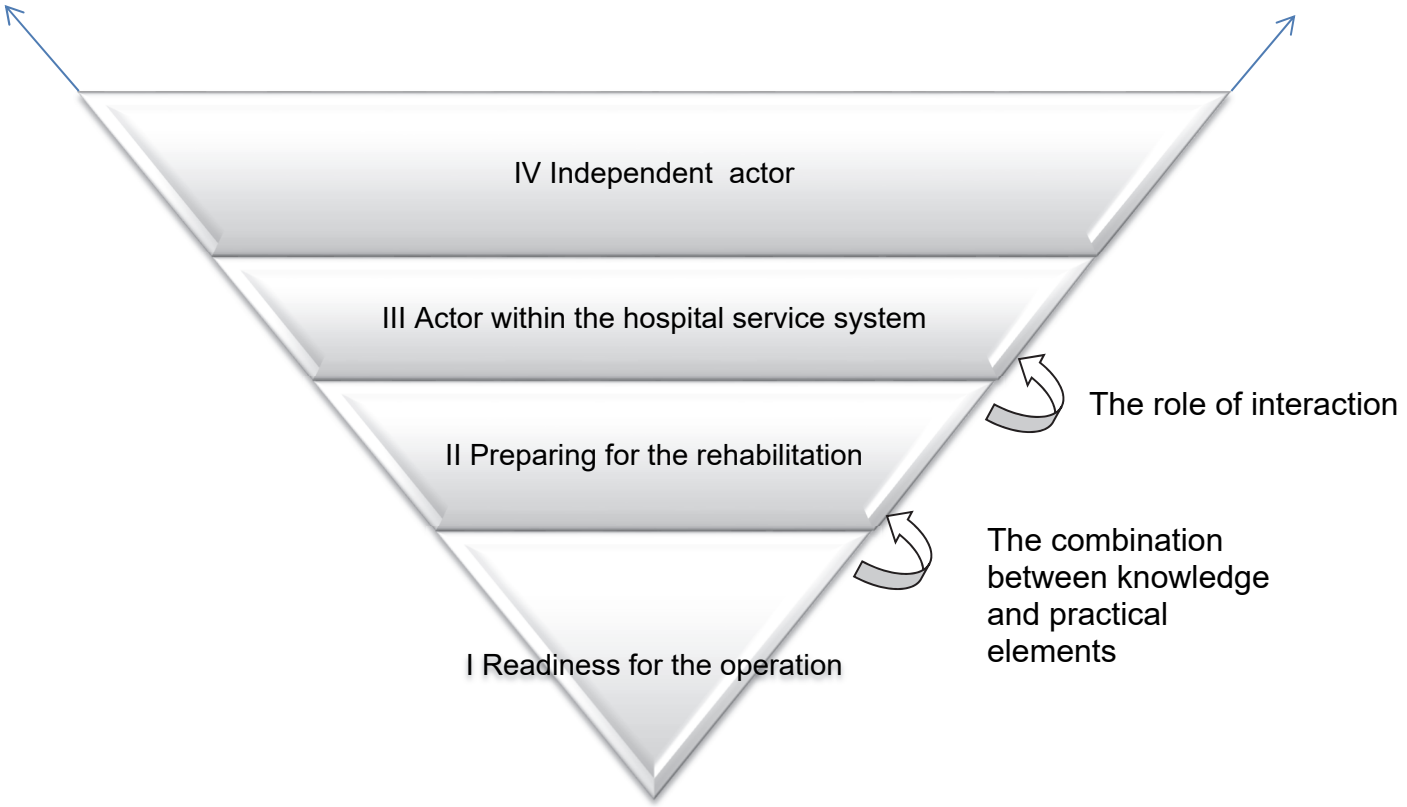

Figure 4
Patients' conceptions of pre-operative physiotherapy education and the critical aspects between the categories.

The relationship between the patient and the physiotherapist, was also valued, as in earlier studies (32). This was a central finding because the interaction between the patient and the physiotherapist is known to influence the outcome of rehabilitation (11). Communication is an essential part of patient-centred physiotherapy (33) and the physiotherapists' communication skills (32), enthusiasm for the treatment, and knowledge are important (34). Patients also tended to view the relationship with an emphasis on personal attention, warmth, and empathy; particularly, if they felt free to express themselves (35). Shared trust, an active common understanding, and common language between patients and physiotherapists are important in the rehabilitation process; integrative pedagogy can give a new perspective from which to regard it (36).

A review of exercise adherence and osteoarthritis showed that poor adherence was a common explanation for the declining impact of the benefits of exercise. The conclusion was to enhance the patients' adherence to working out by building patients' confidence, showing concern, and involving them in the decision-making process (37). To achieve this goal during one pre-operative education session and a short hospital stay after surgery, physiotherapists are required to have good communication and motivational skills. In order to increase patients' participation in healthcare discussions and contributing to the decision making process, both patients and physiotherapists need to practice their communication skills (38). According to patients' conceptions, in our results, physiotherapists had the opportunity to enhance patients' adherence to exercise and self-efficacy.

Trustworthiness of the results

The qualitative approach is a good way of exploring patients' experiences of pre-operative physiotherapy education. It has been little studied and this research brings knowledge about the pre-operative physiotherapy education from patients' perspective, and can be utilized in developing physiotherapy. The advantage of using phenomenographic method is to identify the different conceptions and find out the hierarchical structure of conceptions (21,24).

This study natural has its limitations. This study was comprised of only ten patients, who were interviewed twice, which was a conscious choice. According to Marton and Booth, when asking people about their conceptions, there is a limited number of qualitatively different ways of conceiving the phenomenon (23). Reasonable restrictions on the number of interviews can be made in phenomenographic analysis, in order to handle data and identify the logical structure within the context of different meanings (19). During the analysis process, the amount of new meaning units decreased, which indicates some level of saturation. The advantage of making two interviews was the possibility to identify pure expectations before any procedure. We also felt that patients could express themselves freely in the home environment. The duration of the interviews varied and those interviews at home were longer than the interviews at the hospital. It could have been wiser to make second interviews also at home in a little while after the pre-operative visit. Patients met many professionals during the pre-operative visit. Patients' experiences can also reflect education from other professionals even though interviews were focused on pre-operative physiotherapy education.

The limitation of this study is also that the findings are related to the specific regional and national context of the Finnish healthcare system and patients of 60-80 years of age, which is a typical age range for hip arthroplasty. The variation of descriptions, however, could have been wider. For example, issues about work and workability were little discussed, because of the inclusion criteria. We can assume that working age patients would mention pre-operative advices from physiotherapist in order to return to work after operation. Nevertheless, we believe that we achieved the essential conceptions in those categories. Further research is needed to examine the conceptions of pre-operative physiotherapy education by patients in different cultures and ages.

Conclusion

The aim of this study is to explore patients' conceptions of pre-operative physiotherapy education before hip arthroplasty. The system of categories used to

describe the patients' conceptions of pre-operative physiotherapy education has given a new insight into the different conceptions patients have of pre-operative physiotherapy. The four categories of pre-operative physiotherapy education reflect broad and differing views. According to the patients' conceptions, in pre-operative physiotherapy education, gaining knowledge is the key element which should be combined with practical elements. This requires a trusting relationship between the patient and the physiotherapist. According to our results, two critical aspects can be identified: 1. How the readiness for the operation could shift towards preparing for rehabilitation, and 2. Widening the perspective from preparing for rehabilitation, to be the actor within the hospital service system. These findings can be used as a basis for planning pre-operative physiotherapy education in rapid discharge situations.

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II

POST-OPERATIVE PATIENT EDUCATION IN PHYSIOTHERAPY AFTER HIP ARTHROPLASTY: PATIENTS' PERSPECTIVE

by

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Postoperative patient education in physiotherapy after hip arthroplasty at the hospital stage.

Patients' perspective

Abstract

Objective

The objective of this study was to explore postoperative patient education in physiotherapy from THA patients' perspectives. It is has been a little-studied area of research. The usefulness of rehabilitation protocols after THA has been debated over years, and clear guidelines are partly missing for physiotherapy after hip arthroplasty.

Methods

The data for this qualitative study was collected from nine patients with hip arthroplasty by using individual interviews at the hospital after surgery. The interviews were audio-recorded and analysed by using a phenomenographic method.

Results

Four different categories of postoperative patient education in physiotherapy after hip arthroplasty were produced: Trust while at hospital, Preparing for going home, Managing at home and Getting fit. These categories were analysed through the following themes: moving, exercising and interaction between the patient and the physiotherapist.

Conclusion

The postoperative patient education in physiotherapy was constructed hierarchically. According to the patients' conceptions, the combination of moving and exercising elements that focused on recovery at home after the operation was essential. This requires a trusting relationship between the patient and the physiotherapist. Two critical aspects can be identified: 1. How the role of moving could shift towards preparing for going home and 2. Widening the perspective from preparing for going home to managing at home.

Keywords: postoperative patient education in physiotherapy, hip arthroplasty, phenomenography, patients' perspectives

Introduction

Total hip arthroplasty (THA) is a widely used surgical treatment for patients with osteoarthritis of the hip. The mean age for patients undergoing primary THA has increased, and their length of stay (LOS) in hospital has decreased during the last decade (Cram et al., 2011). It is a challenge to patient education and professionals' education skills. Rehabilitation conducted at home by a health professional after the operation may be insufficient (McHugh and Luker, 2012), and patients are left with the responsibility to exercise by themselves in accordance with the instructions they get from the hospital.

Although hip arthroplasty has positive effects in terms of pain relief and functioning, some patients do not recover as expected, and limitations in functioning may exist (Bertocci et al., 2004; Frost et al., 2006). According to a systematic review of physical recovery after THA, perceived physical functioning showed considerable recovery 6-8 months after surgery. Furthermore, functional capacity to perform activities measured with gait analysis showed moderate recovery (Vissers et al., 2011). According to patients' experiences 6-8 months after total hip arthroplasty, patients were disappointed at the time when recovery was taking place (McHugh & Luker 2012). They felt disabled and had difficulties to perform some activities of daily living. The majority of them had received very little information from health care professionals.

The immediate postoperative rehabilitation goal is to achieve a sufficient level of independence in daily living activities with the help of early and intensive physiotherapy (Jones et al., 2007). Multimodal pain control can improve patients' participation in progressive rehabilitation (Sharma et al., 2009). Earlier studies have shown that early intensive ambulation and rehabilitation after the operation can speed up recovery (Khan et al. 2009; Larsen et al 2009). However, bed exercises in addition to common physiotherapy at the hospital stage do not add value to recovery nor shorten the length of stay in hospital (Jesudason and Stiller, 2002). Instead, stepping exercises after THA may facilitate the muscular recovery of the hip abductors and knee extensors in the early postoperative phase (Tsukagoshi et al., 2012). According to Husby et al. (2009), early maximal strength training starting one week postoperatively is an efficient way to regain muscular strength compared with conventional rehabilitation.

There are only few studies about physiotherapy at the hospital stage. Studies do not provide evidence about the effectiveness of later physiotherapy at home on the outcome of surgery. Physiotherapeutic exercise after discharge has the potential to benefit patients, but studies fail to evaluate the value of post discharge exercise programs (Minns Lowe et al., 2009). The usefulness of rehabilitation protocols is debated (Brander and Stulberg, 2006), standardised practices and clear guidelines are missing in physiotherapy after hip arthroplasty, and practices are inconsistent all over the world (Di Monaco et al., 2009).

There is also a lack of studies focusing on hip arthroplasty patients' perspectives on physiotherapy. The aim of this study is to find out patients' conceptions of patient education in physiotherapy after hip arthroplasty at the hospital stage. The main goal of this study is to produce information to develop physiotherapy to meet the needs of patients with hip arthroplasty.

Methods

Design and patients

This study is the second part of a research project that explores patient education in physiotherapy (Jäppinen et al, 2015). It is a qualitative study using a phenomenographic method.

The patients were selected direct from a hip arthroplasty operation list and initially approached by a clinical team. (Fig.1). First, the clinical team approached 15 patients by phone. A total of 10 patients were willing to participate in the study. After patient permission was granted, the researchers contacted them. In order to analyse qualitative data, the number of patients (n=10) was decided in advance by the research team. The patients were selected in accordance with the following criteria: (1) Age between ≥60 and ≤80 years; (2) Finnish-speaking and (3) undergoing the first total hip arthroplasty in a Southern Finnish hospital.

The mean age of the patients was 69, range 7 years (63–79). There were two males and eight females, all of whom lived in the surrounding area.

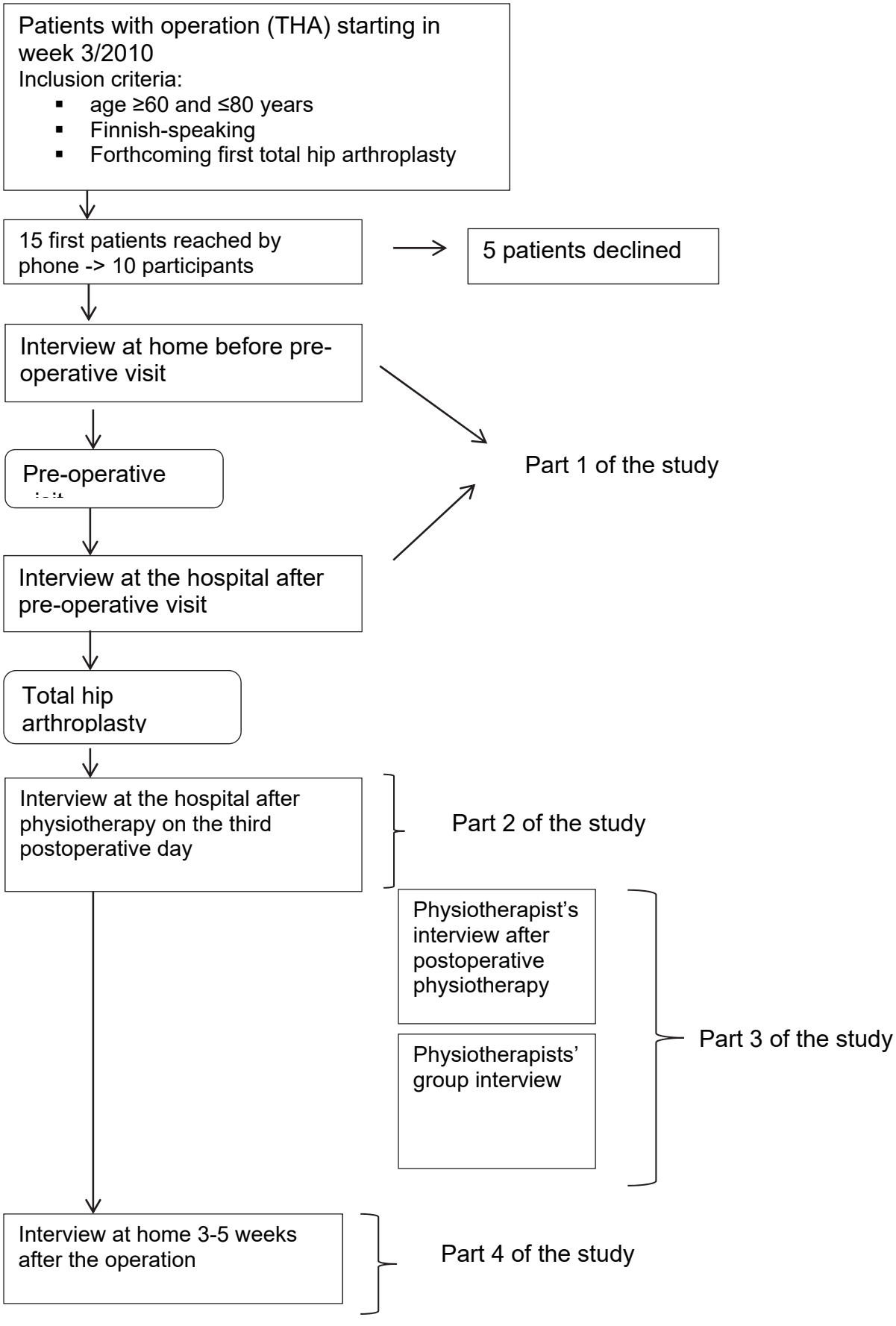

Figure 1
Study design and sampling flow chart

Ten patients (patient identification A-J) agreed to participate in the whole study. All patients provided a written consent for interviewing and for the use of the data in publications. They were interviewed four times along the operation process; home before any procedure, after pre-operative visit, at hospital after the operation and 3-5 weeks after the operation at home.

This study contains the interviews of nine patients at the hospital on the third postoperative day (one patient had left home on the second postoperative day and could not be interviewed).

Data collection

The data for this qualitative study was collected during spring 2010. Data collection for the whole study was carried out in collaboration with higher education students. The first and the last author were responsible for the study design, research process, and guided interviews.

The data was collected using individual interviews. The interviews explored the patients' views on what postoperative physiotherapy and physiotherapeutic patient education meant to them, their experiences concerning their physical condition and expectations about going home and managing there after THA. The interviews were audio recorded and transcribed verbatim. The data consisted 68 A 4-pages of transcriptions (font=Times New Roman 12, spacing =1.5).

Data analysis

The data was analysed by using a phenomenographic method (Åkerlind, 2005a), which has its roots in pedagogical research (Marton, 1986). The focus in phenomenographic research is on the variation in human meanings, conceptions and awareness of experiencing a phenomenon (Marton and Booth, 1997). The advantage of using a phenomenographic method is the possibility to identify different conceptions and find out the hierarchical structure of the conceptions (Åkerlind, 2005a; Åkerlind, 2008). Data was also collected on descriptions of the THA patients' individual experiences, and it was analysed to achieve a picture of the patients' collective experience of postoperative patient education in physiotherapy.

In the beginning, the focus was to identify the patients' views and understanding of postoperative patient education in physiotherapy in relation to the operation and recovery. Then we looked for differences and similarities in order to form descriptive categories. These categories were organised hierarchically and inclusively. In further analyses, we focused on the critical aspects and the variation of the themes formed by these four categories that expanded to the awareness of postoperative patient education in physiotherapy. During the analysis process, we analysed the consistency between the original data and our findings to confirm the results and minimise the influence of our own viewpoints (Åkerlind, 2005a). The process of the phenomenographic data analysis is presented in Figure 2. Phases one and two were performed by the first author. Phases three and four were performed in collaboration between the members of the research team.

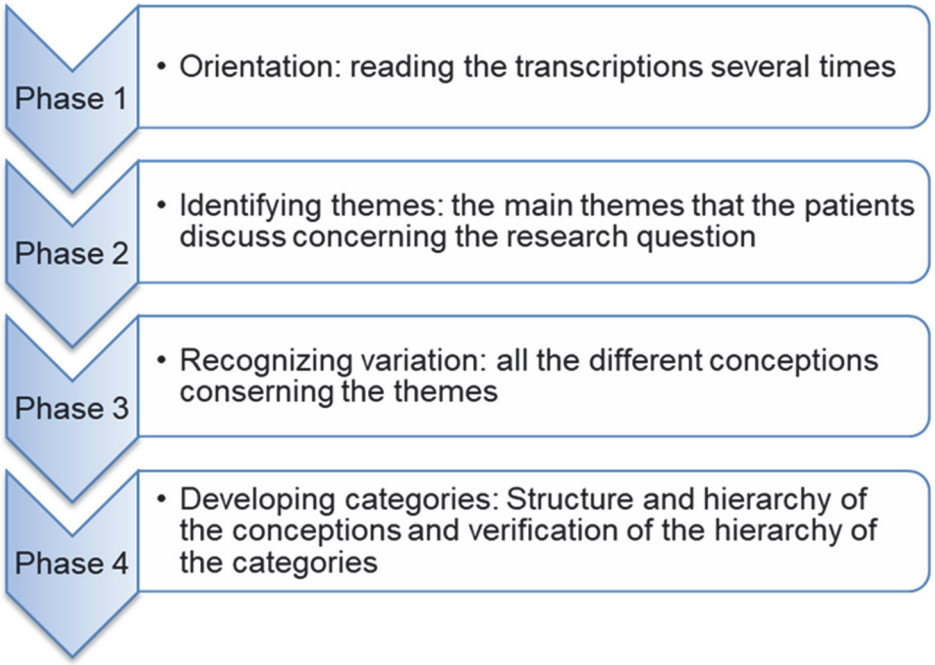

Figure 2
Process of phenomenographic data analysis

Ethical issues

Ethical approval for the study was obtained from the Ethical Committee of the healthcare district where the data collection took place, and the Department of Surgery of the hospital also approved this study. All the patients were informed about the aims and objectives of the study orally, and they provided written consent for interviews and for

the use of the data in publications. The patients were informed that they could withdraw from the study at any time and that the anonymity of the patients was ensured.

Results

Categories and themes

The categories of postoperative patient education in physiotherapy were seen in the variation of themes that the patients used in the interviews. These themes were: 1. Moving, 2. Exercising 3. Interaction between the patient and the physiotherapist.

In the “Moving” theme, the patients expressed their perceptions on moving during the hospital stay and guidance for that, follow-up at the hospital stage and ensuring that their bodies were working as expected before going home. This theme also included advice on how to manage at home and get fit. The “Exercising” theme indicated the patients’ views on the exercises during the hospital stay and at home, the amount and type of exercises, guidance for doing them correctly and encouragement to exercise by themselves. In the “Interaction between patient and physiotherapist” theme, the patients described their relationships to their physiotherapists and the physiotherapists’ skills, such as listening skills, feed-back and encouragement skills, and their ability to treat patients as individuals.

Four different categories of the postoperative patient education in physiotherapy after hip arthroplasty were produced. These categories were constructed hierarchically. The narrowest was **Trust while at hospital. Preparing for going home** was the second category, and the third was **Managing at home**. The widest category, **Getting fit,** contains all other three categories (Table 1).

Table 1
Patients' conceptions on postoperative patient education in physiotherapy after hip arthroplasty at the hospital stage

	Hierarchy of categories			
	I Trust while at hospital	**II Preparing for going home**	**III Managing at home**	**IV Getting fit**
Variation of themes				
Moving	Confidence of moving and acting in the correct way	Confidence of recovering predictable way	Getting advice for managing at home	Guidance from physiotherapist to support getting fit
Exercising	Vision of how to practise/exercise properly	Getting home, exercise programme	Written instructions to support exercising at home	Confidence in exercise in order to recover.
Interaction	Physiotherapist's listening skills	Individualistic interaction	Interaction and guidance adding to self-confidence	Encouragement to practice

Description of the categories

Category I: Trust while at hospital

The focus of this category was on the hospital stage, immediately after the operation. In this category, the moving was shown as confidence to move in a correct way. The interviewers emphasised that it was important to be certain that you could move and act and also to be guided by the physiotherapist how to move normally. Good follow-up during the postoperative days at the hospital stage was also valued:

> 'They have followed me up very well and I have been informed about every stage. I would not need anything more.'(A)

The exercising theme in this category could be described as the vision of how to practise/exercise properly. The patients talked about gaining knowledge on how to use muscles and do stretching, what is the optimal position of the joint and the whole upright body:

> ‘The main thing is that you do it in the right way.’ (B)

In the “Interaction” theme, the focus was on the relationship between the patient and the physiotherapist. The patients mentioned physiotherapists’ listening skills and clear advice on how to move and what they were allowed to do, for example precautions about the range of motions and weight-bearing. Unhurried interaction was also mentioned:

> ‘Very restful, and the physiotherapist easily realises what the patient needs and notices if the patient cannot do something or does it in a wrong way or if the patient finds it difficult to understand all.’
> (C)

Category II: Preparing for going home

The focus of the second category concerned preparations for going home after the postoperative hospital stage. In the “Moving” theme, the patients experienced that they gained confidence concerning their ability to recover in the predictable way. They saw themselves as competent to manage for example on the stairs, and this gave them a good feeling about going home:

> ‘I have a confident feeling now that I am going home.’(J)

In the “Exercising home” theme, an exercise programme with good guidance was essential. The patients especially talked about in-depth guidance. They felt that physiotherapists had time and knowledge to teach them and to give feedback on their performance. They valued the fact that the physiotherapists showed them how to do the exercises, corrected them if they did it in a wrong way or gave positive feedback if they did it right. Advice was given repeatedly during the hospital stay. Some patients felt that the exercise programme was not progressive enough or that there should have been more stages or alternatives in it:

> ‘To be heard first and then get good guidance. You are monitored to ensure that you are doing the exercises exactly in the right way, not halfway or so-and-so.’(E)

The interaction between the patient and the physiotherapist was seen as individualistic. The patients mentioned that it was important that the physiotherapists paid attention to a patient as a unique person. For example, pain, other musculoskeletal problems and fears were taken into account:

> ‘I told her that I have “stairs phobia”, and she took that into account. She did not despise it verbally like you can’t have that. So I give her points for that.’(B)

Category III: Managing at home

The focus in this category was on the confidence to act in order to manage at home by oneself after the short hospital stay. In the “Moving” theme, the patients talked about getting tips and advice that supported support managing at home. Advice on how to travel in a car, walk on stairs, control balance when standing and take things from a locker were mentioned. The patients told that they had made arrangements in order to handle difficult activities such as shopping, cleaning and taking out rubbish during the winter time. Help from relatives was essential. In this theme, the awareness of what you are able and allowed to do at home was still important:

> ‘...so these small tips that will help me then to manage at home.’(C)

In the “Exercising” theme, written instructions like how to facilitate muscle recovery or to stretch muscles and joints were relevant as supporting exercising at home. The patients felt that guidance helped them believe that they could manage and cope in the future:

> ‘Those written instructions are very clear. You can find everything in them.’(D)

The “Interaction” theme comprised the interaction and guidance. Adding self-confidence and repairing feed-back was appreciated. Feed-back on their actions and conceptions

extended the patients' understanding, and the time that the physiotherapist could offer in order to give feed-back were valued:

> 'I would not go home without this last guidance. I realised that my leg was working as it should work at this point of time and I got some small exercises too.....so it was a catch-all encounter and you feel good when going home, because she told me that this and that are going well' (A)

Category IV: Getting fit

In the fourth, wider category "Getting fit", the focus continued to be on managing at home and on the importance of patients own actions, such as moving and practising and one's own responsibility for recovery. In the "Moving" theme, the patients talked about the importance of physiotherapeutic patient education and guidance in order to become independent and get into a good condition:

> '…so I am not going to be helped by others. I have to manage by myself. If I am going to live ten more years, I do not want to walk with crutches. I mean, no way.'(F)

In the "Exercising" theme, the patients expressed their confidence in the exercises provided by physiotherapists and the type and amount of exercises to recover from THA. They also mentioned their confidence and ability to exercise by themselves in the future in order to become as healthy and normal as before:

> 'The goal is that you will be in a good condition, able to walk and be healthy, that you can be as you were in the past or as near it as possible.'(F)

The "Interaction" theme could be described as encouragement to do exercise and manage in the future. The patients talked about getting support for aiming high in the recovery process, but still the important thing was the patients' own motivation:

> '…and just that you got verification that you can do more than being 'rigid as tree'.' (J)

Summary of the results and key aspects

Our study revealed that the patients had wide-ranging conceptions on postoperative education in physiotherapy. The key aspects were found in the varying themes, and they formed the critical aspects between the descriptive categories (Åkerlind, 2005b). Two critical aspects could be identified (Figure 4). The first critical aspect was how the role of moving could shift towards preparing for going home (Category II).

The second critical aspect was in widening the perspective from preparing for going home (Category II) to managing at home (Category III). Then, the key issues were exercising and getting written instructions to support exercising at home and such guidance from physiotherapist that added to self-confidence.

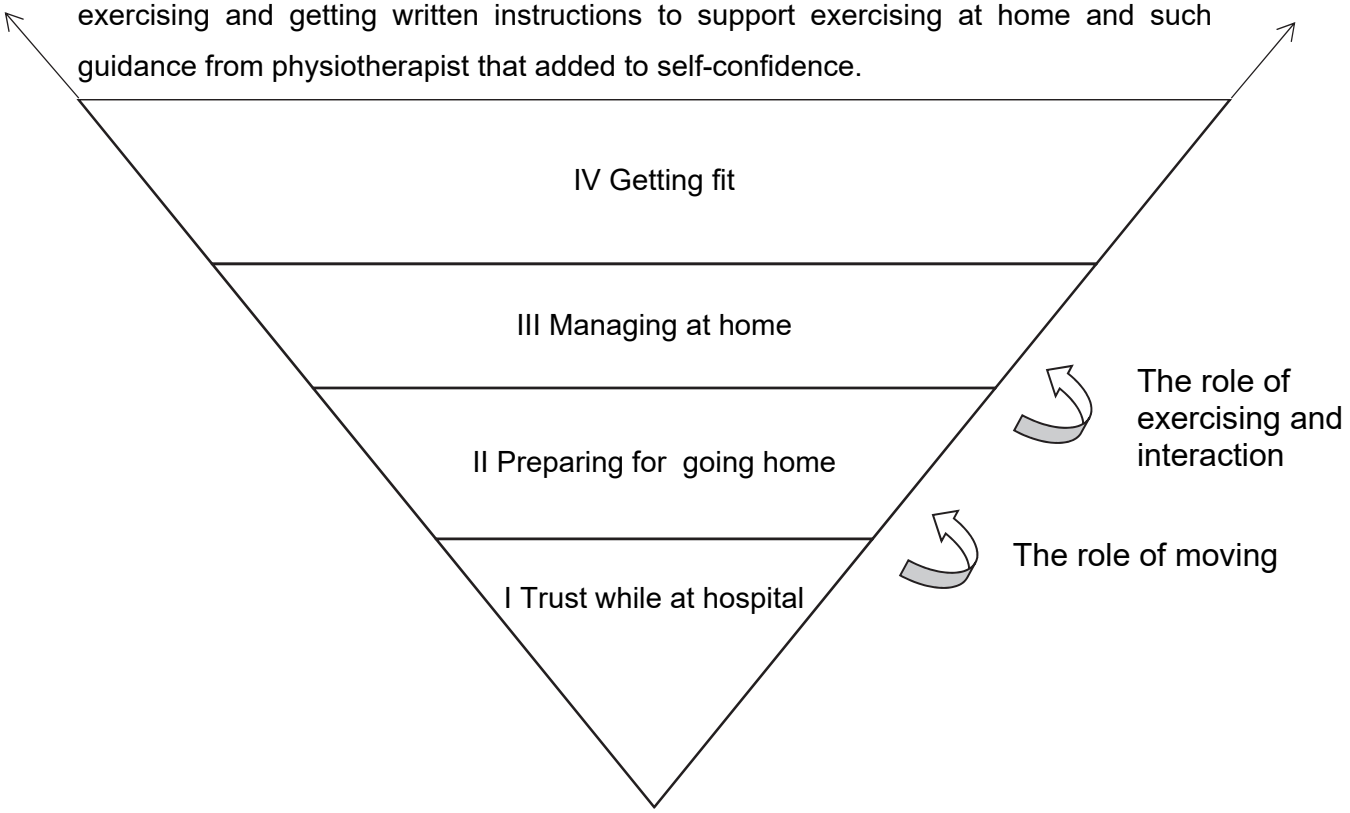

Figure 3
Patients' conceptions on postoperative patient education in physiotherapy and the critical aspects between the categories.

Discussion

The results showed that postoperative patient education in physiotherapy was constructed hierarchically starting from the support of the patients' trust while at hospital and continuing to enable them to get fit/normal. The patients' conceptions on postoperative physiotherapy highlighted the role of moving in order to go home, and after that, the focus was on interaction and exercising. As other studies state, a key factor in

recovery is the ability to rapidly regain an adequate level of functional independence in daily activities during the short hospital stay (Brander and Stulberg, 2006; Jones 2007). Postoperative rehabilitation also focuses on teaching precautions concerning the range of motions and weight-bearing and on how to use aids as well as on patient and family counselling (Brander and Stulberg, 2006).

In this study, the important aspect is how patients can achieve the third category, managing at home. What elements can confirm that impression in the patients' minds? In our study, physiotherapists' tips and advice were mentioned as potential support for managing at home. Guidance during physiotherapy sessions was perhaps more focused on the home situation. In our study, the patients talked little about activities in daily living (ADL), which was somewhat unexpected for us. The result is in line with Grotle et al's study (2010) in Norway, in which they concluded that little attention was paid to patients' activity at home or at work despite the reality that patients had problems with ADL at home. They found out that rehabilitation teams were mainly involved with physiotherapists and nurses and seldom with occupational therapists and social workers. This can also be the one reason why the patients in our study talked little about problems at home. The cultural context of the hospital differs from home and probably does not encourage the patients to discuss problems in daily living. The results support the idea that we need to enhance physiotherapeutic patient education after discharge and to increase co-operation with other professionals working at patients' homes, even though many patients are supposed to manage by themselves at home. In future, technology solutions and the use of information and communication technology (ICT) must be made available to physiotherapists to allow them to complete patient education after the hospital stage.

An earlier study on patient satisfaction with physiotherapy following THA reported that about 67 % of patients were satisfied, and among other things, they valued hands-on time spent with the physiotherapist (Issa et al., 2013). This time is limited when early and safe discharge is the cost-effective target. According to Husted et al. (2011), the median length of stay after THA in the fast-track surgery was 2 days. Patients with walking aids and difficulties in climbing stairs before the operation needed to stay at hospital for a longer time (van Aalst et al., 2014). The patients in our study talked about the time and knowledge that physiotherapists offered them during the counselling and practising

sessions. Similarly, Montin et al. (2002) stated that patients appreciated the time that nurses spent with patients and nurses' ability to listen to them.

Getting fit was the widest category in our study. McHugh and Luker (2012) found out that all patients in their study had also this need. On the other hand, increasing age, lower education and living alone have found to be associated with a physically inactive lifestyle after THA (Stevens et al., 2007). Therefore, patient education in physiotherapy and follow-up should be directed specifically to these THA patients in order to avoid symptoms caused by an inactive lifestyle.

The patients in our study valued written instructions on how to exercise at home. A review from Coulter et al. (2013) identified benefits in gait speed and strength due to physiotherapeutic rehabilitation, but it could not find a difference between physiotherapist-guided programmes and physiotherapist-prescribed home exercise programmes performed independently. Therefore, they recommend either of them. In our study, the patients looked for more progressive home exercise programmes and wondered how to get them as having a follow-up with a physiotherapist was not a common practice. For example, Husby (2010) stated that rehabilitation programmes are often inefficient in improving muscle strength and aerobic endurance performance in patients with THA. This made us wonder if exercise programmes would be demanding enough in the future. The emphasis on walking ability derives from the hospital's caring process in which the aim is early discharge.

Limitations and strengths

This study has its limitations. The sample is only nine patients. Reasonable restrictions on the number of interviews can be made in a phenomenographic analysis in order to handle data and identify the logical structure within the context of different meanings (Åkerlind, 2005a). The findings are related to the regional and national context of the Finnish healthcare system and patients of 60-80 years of age. The patients were volunteers and they probably had positive expectations towards patient education in physiotherapy, the operation and their recovery. With these limitations in mind, it is important to note that this qualitative study explored postoperative patient education in physiotherapy from patients' viewpoint. It has been a little-studied area of research, and this research brings in-depth knowledge about the postoperative patient education in physiotherapy from patients' perspective and can be utilised in developing physiotherapy.

Conclusion

The objective of this study was to produce useful insights regarding postoperative patient education in physiotherapy after hip arthroplasty. The four categories of postoperative patient education in physiotherapy reflect broad and differing views. According to patients' conceptions, a combination of moving and exercising elements that focused on recovery at home after operation was essential. This requires a trusting relationship between the patient and the physiotherapist. According to our results, two critical aspects can be identified: 1. How the role of moving could shift towards preparing for going home and 2. Widening the perspective from preparing for going home to managing at home. These findings can be used as a basis for planning postoperative patient education in physiotherapy to enable safe discharge, further exercise and active lifestyle at home.

Acknowledgements

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III

PATIENT EDUCATION IN PHYSIOTHERAPY IN TOTAL HIP ARTHROPLASTY (THA) – THE PERSPECTIVE OF PHYSIOTHERAPISTS

by

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Abstract

Background and purpose: There is limited knowledge about patients' and physiotherapists' conceptions of physiotherapy counselling in hip arthroplasty. The aim of this study was to describe physiotherapists' conceptions of the physiotherapy counselling needed by patients undergoing total hip arthroplasty.
Methods: The data for this qualitative study was collected using group (n=1) and individual (n=9) semi structured interviews. Totally seven physiotherapists were interviewed. The research data was analyzed by using a phenomenographic method.
Results: Three different categories of physiotherapy counselling at hip arthroplasty were produced and these categories formed a hierarchy. The narrowest descriptive category was Schematic physiotherapy comply with the protocol. Physiotherapy identifying patients needing individual rehabilitation was the second category, and the third was Coaching physiotherapy supporting rehabilitation at home, which was the widest category. The differences between the categories were described in four themes: 1. Moving, 2. Exercising 3. Interaction in relation to patient and 4. Health care system.
Conclusion: Education and counselling skills are part of a physiotherapist's core competencies. The categories and the variation of themes in our study can help the physiotherapist with self-evaluation of counselling in physiotherapy. These findings resulting from descriptive categories can be utilised in determining education tools in developing physiotherapy counselling.

Keywords
Phenomenography, physiotherapist, hip arthroplasty

INTRODUCTION

There is limited knowledge about patients' and physiotherapists' perceptions of patient education in physiotherapy in hip arthroplasty. To support patients' rehabilitation process through patient education in physiotherapy and to develop physiotherapists' education, there is a need to be aware of these perceptions. Education and movement are essential factors in physiotherapy. According to the World Confederation of Physical Therapy WCPT, physiotherapy aims to develop, maintain and restore maximum movement and functional ability throughout the lifespan. It involves the interaction between the physiotherapist and patients/clients and their families, care givers and other health professionals and communities. This interaction is a process where movement potential is assessed, goals are set by working together and by using knowledge and skills special to physiotherapists (World Confederation of Physical Therapy 2015).

The purpose of total hip arthroplasty, THA, is to relieve pain and to facilitate moving (Tsukagoshi et al., 2012), hence to improve functional ability and quality of life (Di Monaco, Vallero, Tappero and Cavanna 2009). However, some patients do not recover as expected, and pain and functional limitations may persist (Bertocci et al., 2004; Frost et al., 2006 Lungu, Maftoon, Vendittoli and Desmeules 2016). According to patients' experiences, patients were disappointed at the length of recovery time after THA, they felt disabled and had difficulties performing some daily activities (McHugh and Luker 2012).

Joint arthroplasty clinical pathways recommend preadmission education (Van Herck et al 2010). Many professionals such as surgeons, nursing staff and physiotherapists guide patients to manage with the physical changes after surgery (Grant, St John and Patterson 2009). The physiotherapist is a key professional in the caring team for patients undergoing THA (Minns Lowe, Barker, Dewey and Sackley 2009). The immediate postoperative rehabilitation goal is to achieve a sufficient level of moving and independence in daily activities with the help of early physiotherapy (Jones, Beaupre, Johnston and Suarez-Almazor 2007). Early intensive mobilization and rehabilitation can speed up recovery

(Khan et al. 2009; Larsen et al 2009). The enhanced recovery program after THA (Maempel, Clement, Ballantyne and Dunstan 2016) and physiotherapy starting on the operation day (Juliano et al 2011) shorten the length of hospital stay.

Studies of physiotherapy practices have found that stepping exercises may facilitate muscular recovery after the operation (Tsukagoshi et al., 2012). However, bed exercises do not add value to recovery nor shorten the length of stay in hospital (Jesudason and Stiller, 2002). Home exercises should be intensive and specific, including muscle strength exercises and walking exercises (Jan at al 2004). Physiotherapist-guided training of walking skill had positive effects on walking distance and stair climbing that persisted one year after surgery (Heiberg, Bruun-Olsen, Ekeland and Mengshoel 2012). Early maximal strength training, starting one week postoperatively, promotes regaining muscular strength (Husby et al. 2009). The exercising can be centre-based with supervision or home-based without supervision (Galea et al 2008). Nevertheless, some patients need supervision to perform intensified exercises (Mikkelsen, Mikkelsen and Christensen 2012). So there are a need for (Minns Lowe, Davies, Sackley and Barker 2015) long term, high quality follow up studies to find sufficient evidence of the effectiveness of post discharge physiotherapy (Mikkelsen, Mikkelsen and Christensen 2012).

Even if the evidence is limited about postoperative physiotherapy after discharge, the need for physiotherapy and physiotherapist advices in the hospital is recognized. There are many terms related to patient education in hospitals: patient education, health education, patient counselling, and health counselling, for example (Poskiparta, Kettunen and Liimatainen 2000). In this article, we use the term patient education in physiotherapy. Patient education is a part of physiotherapy practice (Frerichs, Kaltenbacher, van de Leur and Dean 2012) aiming to offer professional knowledge and helping the patient to apply information in everyday life (Trede 2000; Falvo 2011). According to previous studies, patients undergoing THA valued physiotherapist education for gaining knowledge about rehabilitation, functional recovery, beneficial physical activity,

written exercise advice, movement precautions and the opportunity to learn skills relevant to post-operative recovery (Heine, Koch and Goldien, 2004; Johansson, Hupli and Salanterä, 2002; Soever et al., 2010; Jäppinen, Hämäläinen, Kettunen and Piirainen 2017; Shuldham 1999).

Physiotherapists have difficulties differentiating patient education from interventions (Rindflesch 2009) and there is a lack of studies on patient education in physiotherapy from the physiotherapist's perspective. The aim of this study is to describe physiotherapists' conceptions of patient education in physiotherapy needed by patients undergoing total hip arthroplasty. Awareness of physiotherapists' perspectives on patient education in physiotherapy can be used in developing patient education to facilitate the rehabilitation process, in developing physiotherapy students' education and physiotherapists' education at workplaces.

METHODS

Design and participants

This study is a part of a wider research project, which explored ten patients' views before the THA operation, at hospital after the operation and at home during convalescence (Jäppinen, Hämäläinen, Kettunen and Piirainen 2015). The participants in this sub-study were physiotherapists working with patients undergoing total hip arthroplasty at the hospital where the research took place. They were volunteers, free to withdraw from the study at any point and provided written consent for being interviewed and for the use of the data in publications.

Data collection

The data for this qualitative study was collected during spring 2010 in collaboration with higher education students. The first and the last author were responsible for the study design, research process, and guided interviews.

The data was collected in two stages: in a group interview (6 physiotherapists), and in individual semi-structured interviews (9 interviews and 5 different physiotherapists) after physiotherapy counselling on the 3rd postoperative day. The individual interviews were conducted with physiotherapists, who worked with those ten patients followed throughout this wider research study, and the same physiotherapist could be interviewed multiple times. The group interview was open to physiotherapists who were on site and worked with patients undergoing hip arthroplasty. All the physiotherapist were volunteers and they had the right to participate in individual or group interview or both.

The interviews explored physiotherapists' views on physiotherapy and patient education in physiotherapy with regard to hip arthroplasty; contents, forms and aims in physiotherapy and patient education, self-evaluation of a physiotherapy session, interaction between patient, physiotherapists' experiences concerning patients' ability to go home and manage there. The interviews were audio recorded and transcribed verbatim. The data consisted of 48 A4 pages of transcriptions (font=Times New Roman 12, spacing =1.5).

Data analysis

The research data was analysed by using a phenomenographic method (Åkerlind, 2005a), which has been developed in the field of pedagogical research (Marton, 1986). The focus is on the variation in conceptions (Marton and Booth, 1997) and it offers the possibility of identifying differences and the hierarchical structure of the conceptions (Åkerlind, 2005a; Åkerlind, 2008). At the beginning of the analysis our focus was on identifying physiotherapists' views of patient education in physiotherapy in hip arthroplasty. Then we identified differences and similarities in order to form descriptive categories which were organised hierarchically and inclusively. We collaboratively considered the consistency between the original data and our findings during the analysis process. Our aim was to confirm the results and to minimise the influence of our own viewpoints (Åkerlind, 2005a). The data analysis process is presented in Figure 1. The first

author performed phases one and two and phases three and four were performed collaboratively in the research team.

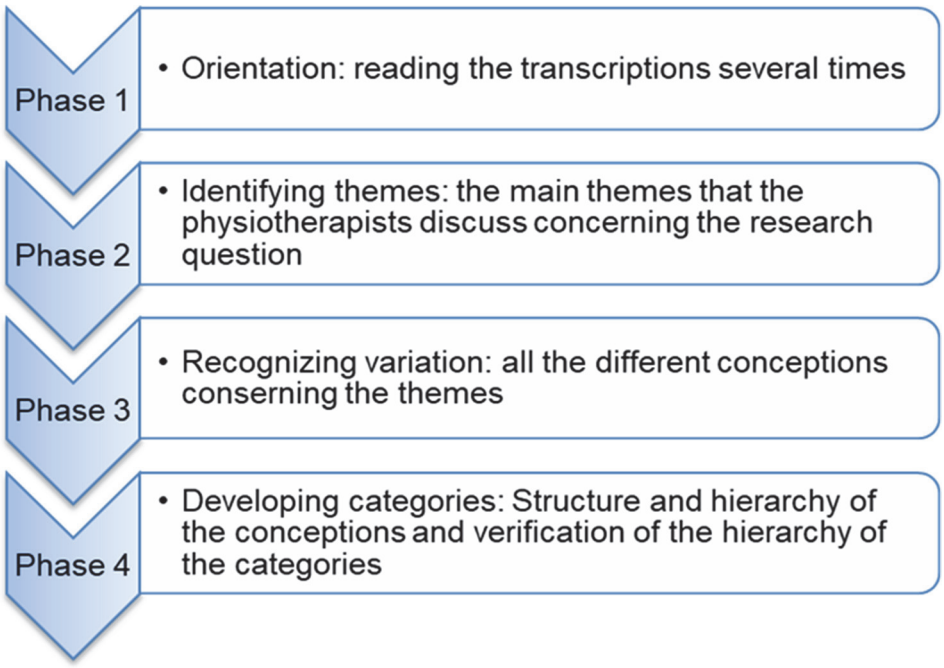

Figure 1
Process of phenomenographic data analysis

Ethical issues

Ethical approval for the study was obtained from the Ethical Committee (Dnumber 323/13/03/02/2009) and the Department of Surgery also approved this study. All the physiotherapists were informed about the aims of the study orally, and they provided written consent for interviews and for the use of the data in publications.

RESULTS

A total of 7 physiotherapists (six female and one male) took part in this study Their mean age was 44 years and their mean work experience as a physiotherapist was 17 years.

Categories and themes

The categories of patient education in physiotherapy were seen in the variation of themes that the physiotherapists expressed in the interviews. These themes

were: 1. Moving, 2. Exercising 3. Interaction in relation to patient and 4. Health care system

In the “Moving” theme, the physiotherapists expressed their perceptions on evaluating patients’ locomotion and range of motion before and after operation and on providing guidance in them, permissions and restrictions concerning operation and movement and information about assistive devices. This theme also included how physiotherapists teach patients to manage in daily life; for example, getting out of bed, sitting, standing up, walking with crutches and on stairs. The “Exercising” theme indicated the physiotherapists’ views on how patients should exercise before and after operation, during the hospital stay and at home, guidance for doing it correctly and information and encouragement to start physical activity after operation, for example swimming or gym. In the “Interaction in relation to patient” theme, the physiotherapists described their relationships to their patients, how patients are individuals and their own persons and how to interact and create trust during the short stay in hospital. In the theme “Health care system” physiotherapists expressed their views about the short hospital stay and rapid discharge and how this shortens time for patient education. The quotations cited are from the physiotherapists’ (PT 1 - PT 7) individual interview (I) or group (G) interview.

Three different categories of patient education in physiotherapy in hip arthroplasty were produced. These categories were constructed hierarchically. The narrowest was Schematic physiotherapy complying with the protocol. Identifying individual rehabilitation needs was the second category, and the third was Coaching home rehabilitation**,** which was the widest category containing other two categories (Table 1).

Table 1
Physiotherapists' conceptions of patient education in physiotherapy in hip arthroplasty

Variation of themes	**Hierarchy of categories** **I** **Schematic physiotherapy complying with the protocol**	**II** **Identifying individual rehabilitation needs**	**III** **Coaching home rehabilitation**
Moving	A certain pattern in guiding movement	The patient's condition in determining progress'	Encouraging patient in self-motivated moving
Exercising	Written exercise instructions made collectively	Suitable exercises based on individual evaluation	Exercise advice based on discussion with the patient
Interaction **in relation to patient**	Natural relationship	Responsive relationship	Physiotherapist as a key person in preparing patient for the future
Health care system	Awareness of patient managing at home	Identifying the rehabilitation need	Concern about patient's managing at home and vision of an ideal situation supporting patient's coping

<u>Description of the categories</u>

Category I: Schematic physiotherapy complying with the protocol

The focus of this category was on the protocol physiotherapists followed in order to ensure rapid discharge directed by professional team work in the health care

organization. In this category, the moving was shown as a certain pattern in which patients were instructed. This pattern included the same content and main guiding principles and it has been created over the years in collaboration with physiotherapists based on their daily experiences concerning THA patients. However, the schedule order and personal way of patient education varied among physiotherapists, but the aim was the same for every patient: the patient can move and walk safely, manage independently and knows his/her restrictions and home exercises.

> ‘It is a certain protocol that we have in a sense developed and created for that specific patient group over time.’ (PT1, I)

The exercising theme in this category could be described as written exercise instructions made collectively by physiotherapists. The physiotherapists talked about the contents of the instructions and that the instructions are based on their experience and the exercises target functionality and activation of muscles.

> ‘Exercises should be as functional as possible. The aim is that the joint works as well as possible in everyday life.’ (PT1, G)

In the “Interaction in relation to patient” theme, the focus was on the natural relationship between the patient and the physiotherapist. The physiotherapists mentioned that cooperation is easy with these patients because they are usually motivated. It was rewarding for physiotherapists because patients recovered fast, understood easily and they were thankful for getting guidance.

> ‘Interaction is very rewarding in my view. I can see great progress in the patient in a few days.’ (PT3, G)

In the fourth theme, “Health care system”, physiotherapists discussed the system where every patient has the same goal; early discharge on a certain postoperative day and their awareness that patients mainly manage well at home after operation.

> ‘So, all the patient education and everything else has to be done in a shortened time to make a compact package. And the aim is still the same as it has been earlier; so, that they manage independently and safety at home. (PT2, G)

Category II: Identifying individual rehabilitation needs

The focus of this category was on the individual differences in patients and how these affected patient education in physiotherapy, i.e. what things the physiotherapist should take into consideration and how to customize education. The theme “Moving” contained physiotherapists’ views on how to estimate the patient’s condition and, according to that, guide moving. Physiotherapists discussed taking into account the patient’s earlier performance and activity, age, other illnesses, individual aids and home conditions. The physiotherapist’s experience in evaluating these things was also mentioned.

> ‘We take notice of the patient’s individual situation; so, what is the home situation, does the patient have other illnesses which can affect managing at home. Is the patient altogether able to go home or does he/she need follow-up care in some other hospital? Or does the patient need some special aids other than what is routine.’ (PT6, G)

In the “Exercising” theme, an exercise programme, from which individual exercises were picked, was essential. The physiotherapists talked about how exercises are focused according to the patient’s postoperative condition, earlier physical activity and the type of exercises. The patient’s earlier operation experiences and experiences of friends and relatives could also affect guiding. The patient’s right to refuse exercising was mentioned.

> '…and how quickly the patient can start physical training again. The exercise guiding is totally different for an active sporting patient than a patient needing basic mobility' (PT2, G)

In the "Interaction in relation to patient" theme physiotherapists talked about how they accommodate their interaction and guiding while being sensitive to the patient's cues and condition. Some patients needed encouragement and some restraint, and different patients enrich the work.

> 'The patient had undergone big surgery and the physiotherapist should be "awake". The physiotherapist should observe the patient's general condition and wellbeing and not demand too much. This patient in this case is the kind that is moving and exercising at the limits of his/her resources.' (PT4, I)

In the fourth theme, "Health care system", physiotherapists discussed identifying patients for whom they booked a follow-up check by the physiotherapist. The physiotherapist mentioned that it is not possible for every patient.

> 'And I booked a follow-up outpatient physiotherapy check six weeks after the operation. So, she/he comes for the appointment and I hope that she/he has got rid of the crutches during that time or at least at that appointment' (PT6, G)

Category III: Coaching home rehabilitation

In the third, wider category "Coaching home rehabilitation", the focus was on coaching and stimulating the patient to be prepared for and capable of self-motivated and long rehabilitation. This was considered in guiding moving, exercising and in relationships.

The theme "Moving" contained physiotherapists' views on how they orally motivated patients to move and practise. Patients had the possibility to phone the physiotherapist, if they had questions concerning the physiotherapist's working

area, for example moving and permissions and restrictions. Patients were reminded to talk with the doctor at the follow-up check about the possible difference in lower limb lengths or the need for rehabilitation.

> ‘It is not impossible that there are matters the patient thinks about; what they can do and what about other activity. I am certain that something remains unclear. On the other hand, they have the number to phone and ask, if there is something on their mind’ (PT5, I)

The “Exercising” theme in this category could be described as the physiotherapist, through discussion with the patient, advising exercise and physical training and this discussion was motivational. Physically inactive patients were encouraged to exercise and be active.

> ‘We talked a lot about her/his further rehabilitation and exercising, when she/he can start to train at the gym and go swimming’ (PT1, I)

In the “Interaction in relation to patient” theme physiotherapists talked about patients’ trust in their physiotherapist and that patients valued the time the physiotherapist can offer them. Physiotherapists also expressed a positive attitude towards later phone contacts so that patients could get advice during their own rehabilitation process at home.

> ‘Many patients were surprised that they got so much guiding and the physiotherapist came to be some kind of trusted professional since the pre-operative visit.’ (PT2, G)

In the fourth theme, “Health care system”, physiotherapists discussed what defects could follow from this rapid discharge and how these defects could be avoided from physiotherapists’ perspective. Physiotherapists highlighted their concern about some patients managing at home and their vision of an ideal

situation supporting the patient's coping. Physiotherapists mentioned home visits before discharge to ensure patients could manage at home and be able to exercise outdoors. A few more days at the hospital could allow time for practising and strengthening patients' knowledge and ability to move and manage activities in daily life. Follow-up controls, early exercise instruction before operation, use of the internet and reliable web pages to get information, and training in the water after the operation were mentioned. The lack of physiotherapy resources and the increased number of patients prevented this ideal model being realized.

> 'the timetable is too tight for some patients. A few more days in the hospital or at least one day could be useful for them' (PT 3, G)

DISCUSSION

The results showed that patient education in physiotherapy in hip arthroplasty was constructed hierarchically, starting from schematic physiotherapy complying with the protocol and continuing to coaching for home rehabilitation. The key aspects were found in the varying themes. They constructed the critical aspects between the descriptive categories (Åkerlind, 2005b). Two critical aspects in patient education in physiotherapy could be identified (Figure 2). The first critical aspect was how schematic physiotherapy (Category I) could shift towards patient education in physiotherapy identifying individual rehabilitation needs (Category II). The key issue was to increase individuality in exercise advices and interaction. The second critical aspect was in widening the perspective from identifying individual rehabilitation needs (Category II) to coaching home rehabilitation (Category III). Thus, the point in the patient education was to prepare the patient to manage for the future, and a vision of an ideal situation supporting the patient's coping at home. In the future, patient education could be easier in this aspect when there is the possibility to guide using tele technology. Tele technology can also shorten the length of stay in hospital with no changes in re-admission and complications (Vesterby el al 2017).

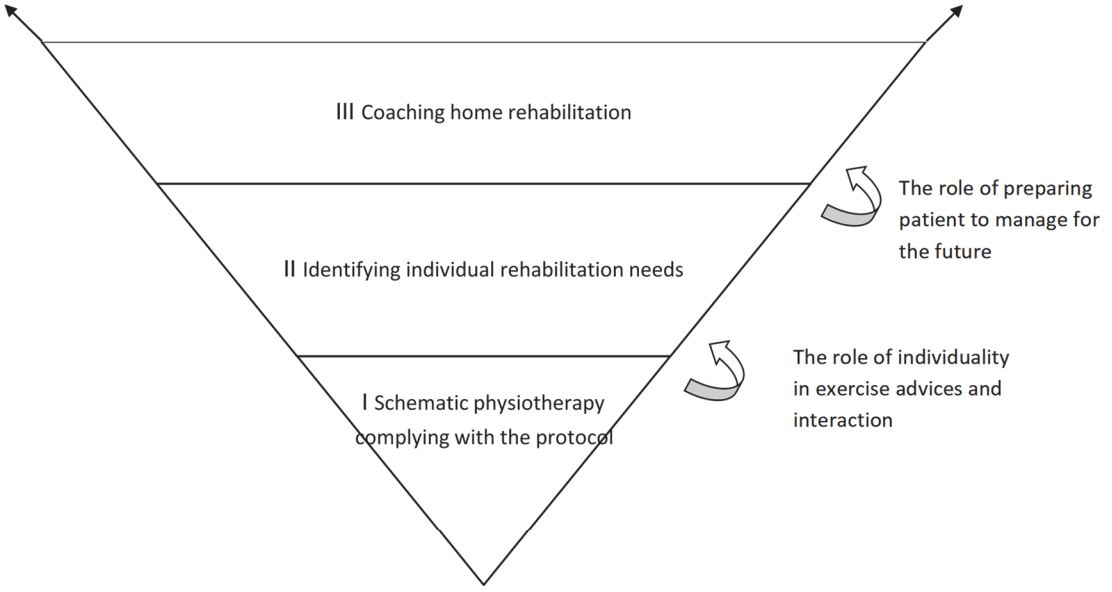

Figure 2
Physiotherapists' conceptions of patient education in physiotherapy in hip arthroplasty and the critical aspects between the categories.

Schematic physiotherapy complying with the protocol was identified in physiotherapists' discussion. The perception of an increasing amount of operations, shortened time for patient education and demand for enhancing the work made us wonder how a physiotherapist can carry out individual patient education. The focus in physiotherapy is to guide functional training and there is limited time for analysing and guiding specific movement due to the shortened length of stay in hospital (Louw, Diener, Butler and Puentedura 2013; Şendir, Büyükyılmaz and Muşovi 2013). Nevertheless, the patient education should meet the patient's need for learning and ensure that the patient has enough knowledge and skills to go home (Montin et al 2010). It is important to identify the patient's individual goals (Brander and Stulberg 2006, Grant, St John and Patterson 2009), so that the physiotherapist could guide the patient in managing at home.

The patient education in physiotherapy in this first category could be seen partly as professional- or organization-centred rather than patient-centred. Our results are in line with those in the study of Mudge, Stretton and Kayes (2014), in which they found that physiotherapists' clinical practice was dominated by the

biomedical aspect, which limited adoption of patient-centred working. Physiotherapists' way of working focused on their own perspective as experts (Mudge, Stretton and Kayes 2014). Also in our study physiotherapists highlighted moving and exercising, which could be considered as a biomedical aspect. Physiotherapists cited their experience as the basis of making instructions. Evidence-based practice was not mentioned as the basis of instructions and only one physiotherapist raised this perspective in the discussion. This surprised us, but a recent review stated that physiotherapists use their peers and social contacts as a source of information rather than the literature (Condon, McGrane, Mockler and Stokes 2016).

Our findings emphasized the importance of recognizing patients' rehabilitation needs. Previously it has been indicated that patient and family education, interdisciplinary communication and collaboration, standardized protocol and staff roles are important elements of the THA clinical care pathway (Van Citters et al 2014). According to our findings physiotherapists pointed out the protocol, which was clear to all professionals. Rapid recovery models aim at fast discharge (Stambough et al 2015) and there is limited time for the physiotherapist to assess which patient is going to need supervision after the hospital stay. This made us wonder what kind of evaluation methods and knowledge physiotherapists need to have in order to recognize patients' rehabilitation needs. Identifying the patient`s specific needs is connected to the patient-centred approach valued by patients (Cott 2004) and there are patients who need supervision to perform intensified exercises (Mikkelsen, Mikkelsen and Christensen 2012) to achieve optimal recovery.

It is important to prepare patients to manage at home and increase exercise adherence. Motivational strategies could improve adherence, but the physiotherapist should be aware that non-adherence is multi-dimensional and there are many other strategies which can also help to optimise adherence (McLean et al 2010). Self-efficacy is thought to be related to exercise adherence and it is influenced by intrinsic and extrinsic factors. Extrinsic factors include, for example, verbal encouragement, physiological cues and cues to action (Rawlett

2014), which were also recognized in physiotherapists' perceptions in our study. Physiotherapists also raised patients' possibility to contact the hospital and physiotherapist after discharge, which is also an important aspect from the patients' viewpoint (Cott 2004).

Interaction was one central theme and was described, among other things, as natural and easy, adaptable and a basis of trust. Interaction is related to patients' satisfaction with physiotherapy (Oliveira et al 2012) and a part of patient-centeredness (Kidd, Bond and Bell 2011). This somehow contradicts the previous point about an organization-centred approach, elements of which we also discovered. Patient-centred communication can be defined as multidimensionally related to many theoretical views, also connected to the patient's communication skills (Ishikawa, Hashimoto and Kiuchi 2013). The physiotherapist's ability to provide good education is part of the good patient-therapist interaction valued by patients (O'Keeffe et al 2016). Good education from patients' views included for example clear information about their problems, treatment plan, home exercises in the form of explanation and metaphors (O'Keeffe et al 2016). Education skills are part of a physiotherapist's core competencies (World Confederation of Physical Therapy 2015; European commission, European Qualification Framework 2009). Improving physiotherapists' communication skills can result in better patient-centred physiotherapy (Cooper, Smith and Hancock 2008). The categories and the variation of themes in our study can help the physiotherapist with self-evaluation of patient education in physiotherapy. These findings resulting from descriptive categories can be utilised in determining content and methods of physiotherapists' education developing patient education in physiotherapy.

Limitations and strengths

The strength of this qualitative study is that it explored patient education in physiotherapy from physiotherapists' viewpoint, which has been little studied. This research study brings in-depth knowledge about patient education in physiotherapy from physiotherapists' perspective. This study has its limitations.

The findings are related to the regional and national context of the Finnish healthcare system. The number of physiotherapists was small even though they were interviewed both in a group and individually.

Conclusion

The objective of this study was to produce useful insights regarding patient education in physiotherapy needed by patients undergoing total hip arthroplasty from physiotherapists' viewpoint. The results showed that patient education in physiotherapy in hip arthroplasty was constructed hierarchically, starting from schematic physiotherapy complying with the protocol and continuing to coaching home rehabilitation. According to our results, two critical aspects can be identified: 1. How schematic physiotherapy could shift towards patient education in physiotherapy identifying individual rehabilitation needs, and 2. Widening the perspective from identifying individual rehabilitation needs to coaching home rehabilitation.

These findings can be used as a basis for planning development in patient education in physiotherapy to facilitate the rehabilitation process, in developing physiotherapy students' education and physiotherapists' education at workplaces.

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Declaration of Interest

The authors report no conflicts of interest

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IV

PATIENTS' NARRATIVES OF PATIENT EDUCATION IN PHYSIOTHERAPY AFTER TOTAL HIP ARTHROPLASTY

by

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