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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.

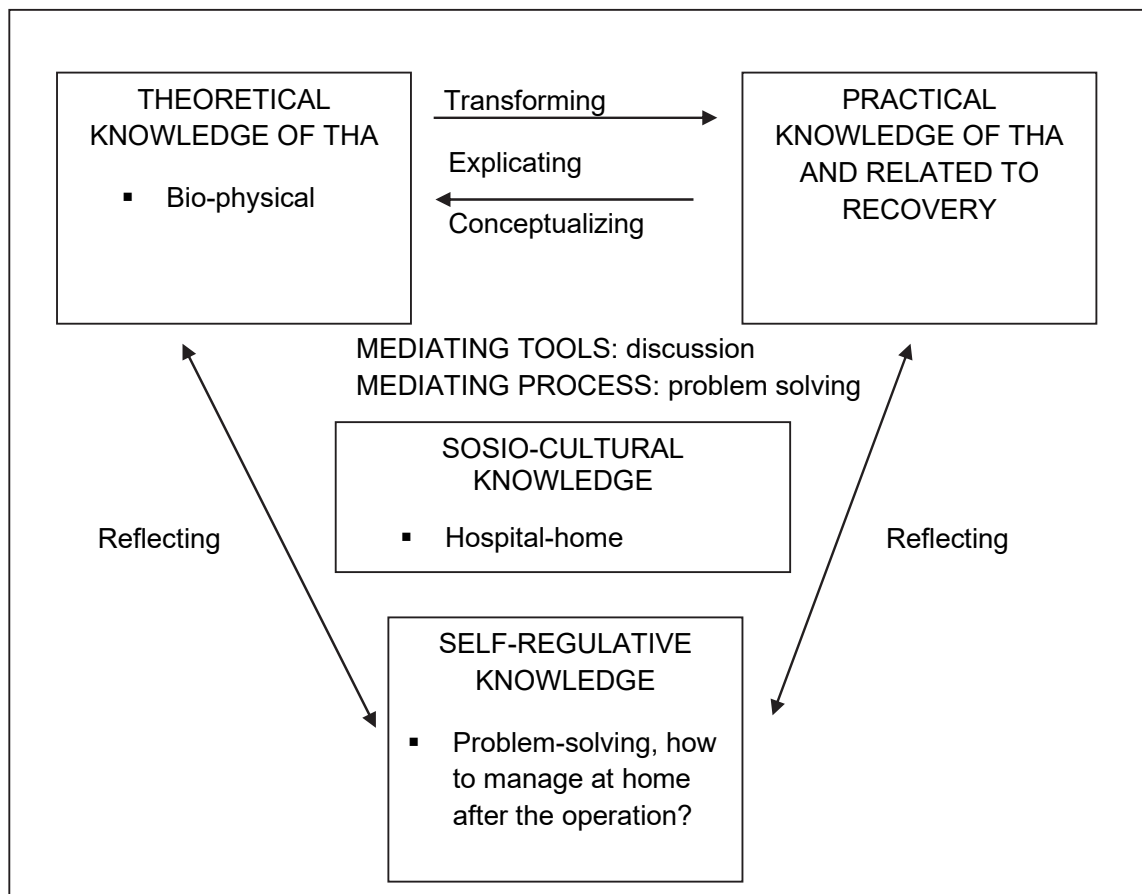


Figure 1

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.

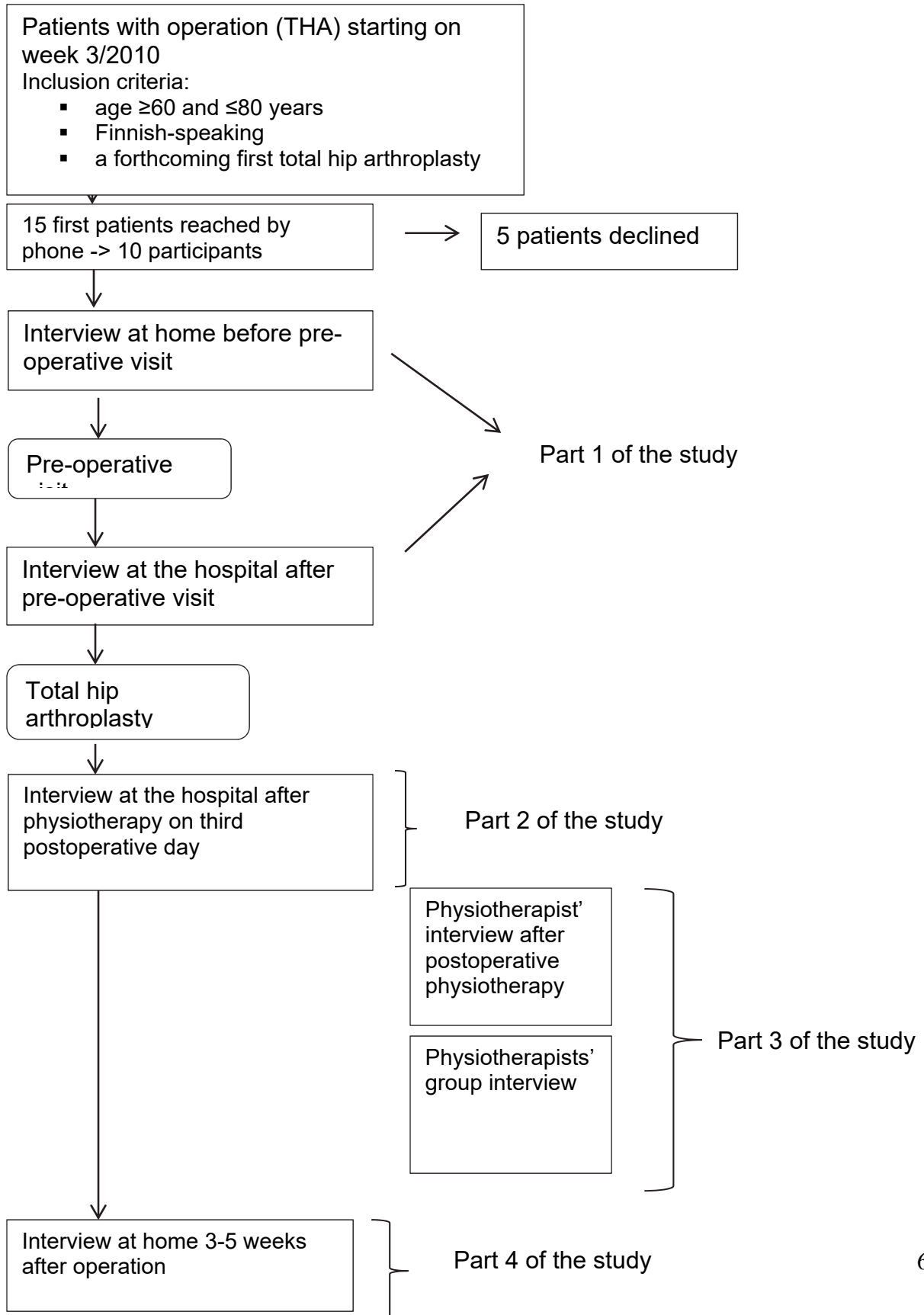


Figure 2
Study design and sampling flow chart

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.

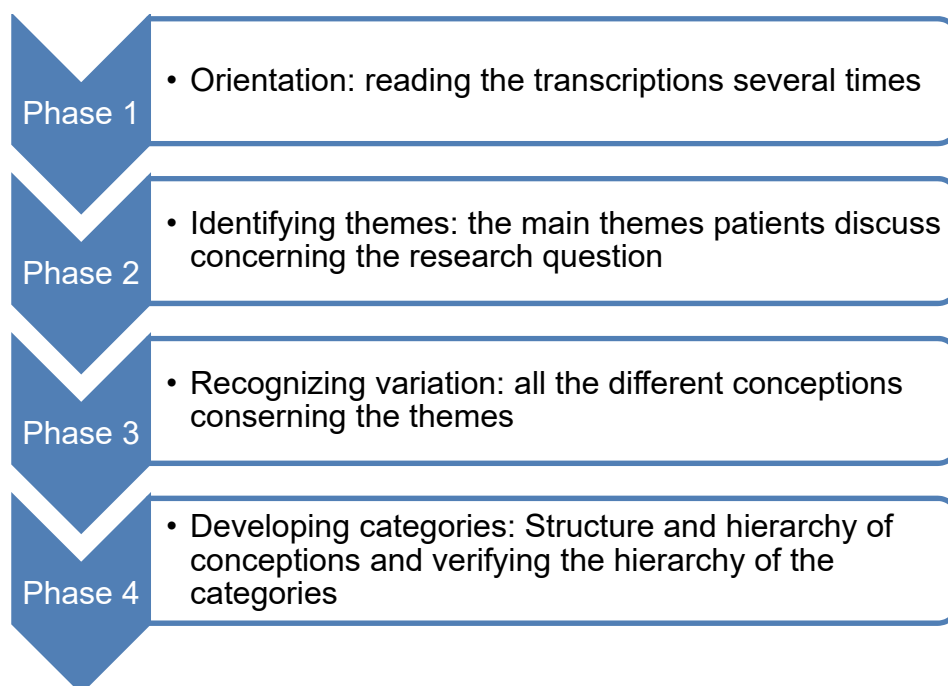


Figure 3
Process of phenomenographic data analysis

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.

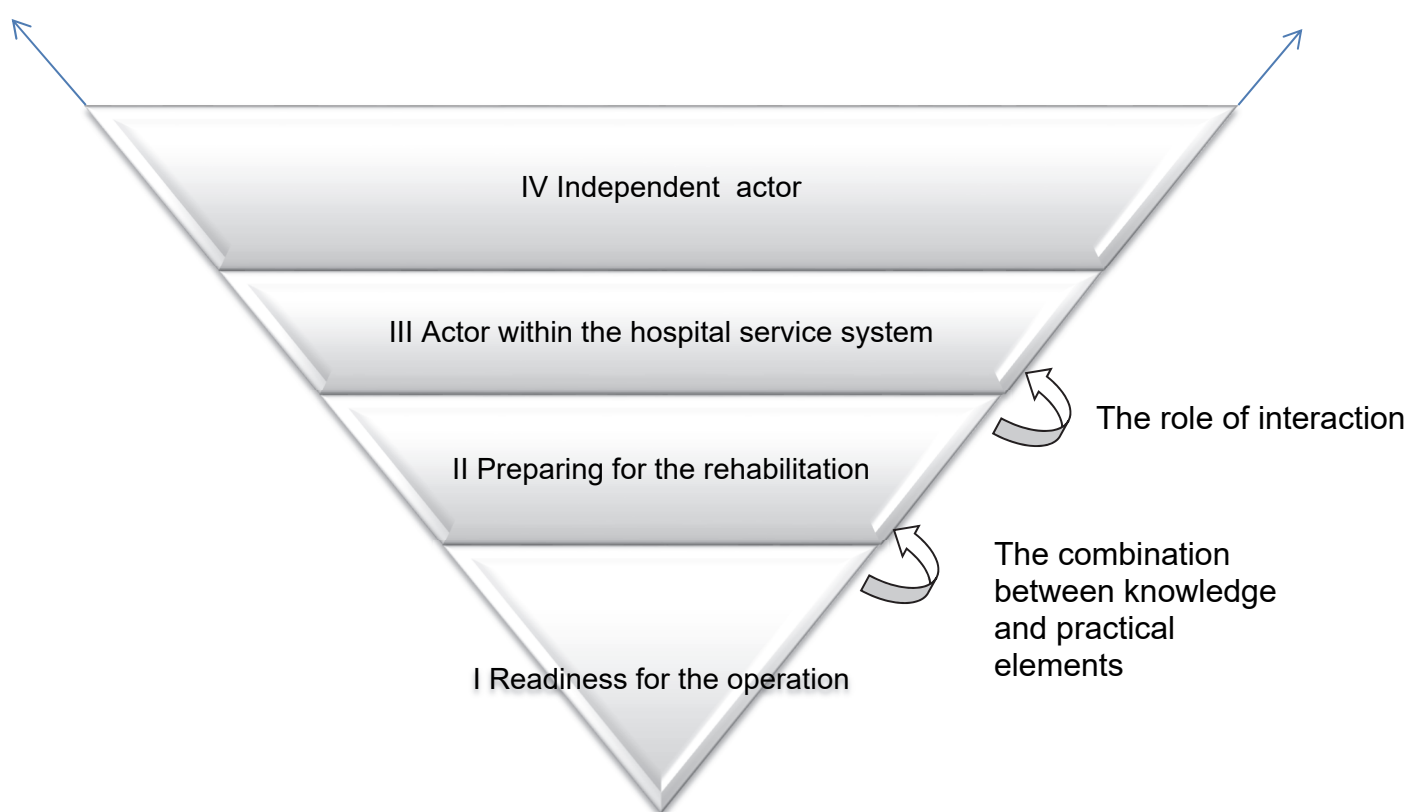


Figure 4
Patients' conceptions of pre-operative physiotherapy education and the critical aspects between the categories.

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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