

ORIGINAL ARTICLE

Patients' conceptions of preoperative physiotherapy education before hip arthroplasty

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Abstract

In Finland, over 7500 hip arthroplasties are performed annually. While the mean age of the patients has increased, the length of hospital stay has decreased, and this presents challenges for patient education. The aim of this study was to explore patients' conceptions of preoperative physiotherapy education. This qualitative study included 10 hip arthroplasty patients. Data were collected using individual interviews at home before collecting preoperative information, and at the hospital after the operation. The interviews were tape-recorded and analysed using the phenomenographic method. Four hierarchically constructed categories of preoperative 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. According to the patients' conceptions, in preoperative 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 being the actor within the hospital service system.

Key words: Hip arthroplasty, patients' conceptions, phenomenography, preoperative physiotherapy education

Introduction

Osteoarthritis of the hip is common, and over 7500 primary hip arthroplasties are performed every year in Finland (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 people after THA and it is also a cost-effective treatment (2–4).

Osteoarthritis causes pain and there is no consensus regarding objective indication criteria for THA. Pain at rest, pain during activity and functional limitations are the most important criteria for orthopaedic surgeons, which refer to the physicians' point of view. Functional limitations, such as difficulties in walking, climbing stairs, and putting on shoes and

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 in hospital has decreased (7). Joint arthroplasty clinical pathways recommend preadmission education (8), and physiotherapy is part of that.

Education and teaching have 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, p. 23)

Trede 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” p.427 (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 patient’s 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 of theory, practice and self-regulation can be viewed as a problem-solving process (Figure 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.

Earlier studies claim that preoperative education before hip arthroplasty lowers the length of hospital stay (13) and has beneficial cost implications (14). The effects of preoperative patient education include patients feeling better prepared for surgery and being able to control their pain after the operation (15). Preoperative patient education has positive impacts on patients’ knowledge levels (16). However, a recent review affirms that preoperative education may not offer additional benefits over the usual care of patients undergoing hip arthroplasty. The benefits that were evaluated were a reduction in anxiety and surgical outcomes such as pain, function and adverse events (17). Nevertheless, preoperative education is commonly offered as preparation for surgery. The opportunity to learn relevant skills for postoperative recovery is part of preoperative education (18). These skills, such as learning to walk with crutches or using other aids, are also commonly provided as part of preoperative physiotherapy education. A qualitative study found 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. Information on issues related to the healthcare system, such as access to physiotherapy and follow-up by the surgeon, needs to be provided. Patients also need information about pain relief and the ability to walk (19).

In the relevant literature, there are many terms relating to patient education in hospitals: patient

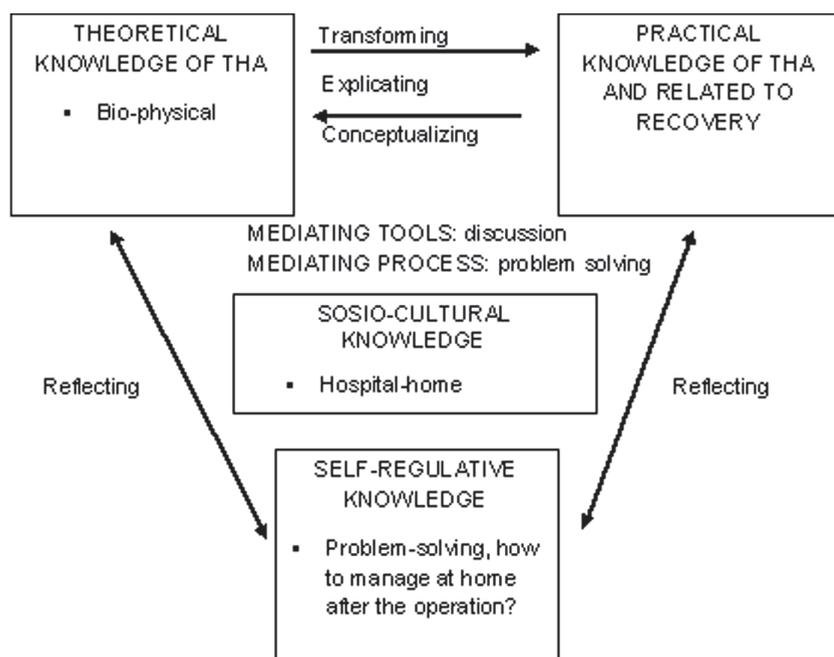


Figure 1. Preoperative physiotherapy education in the model of integrative pedagogy. THA, total hip arthroplasty. [Adapted from Tynjälä and Gijbels, 2012 (12)].

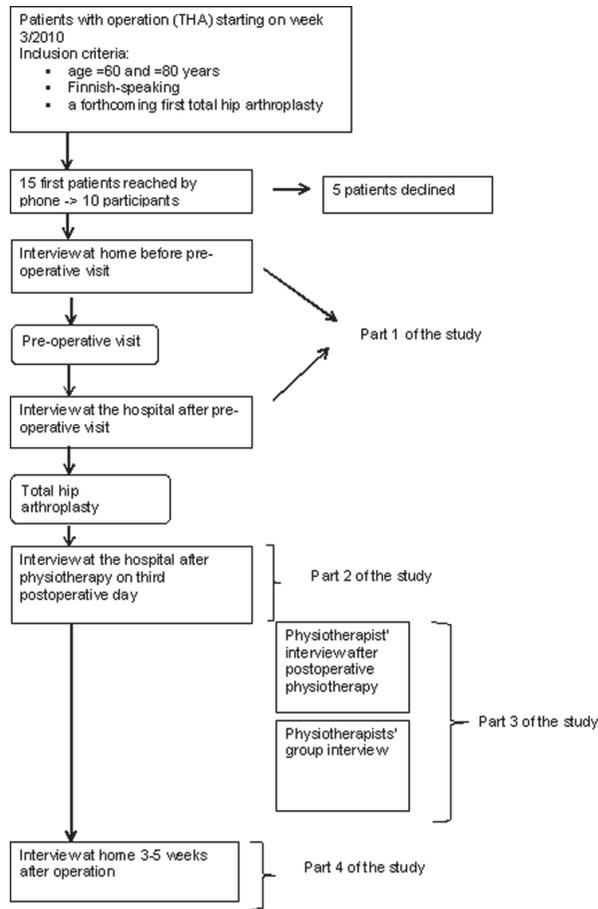


Figure 2. Study design and sampling flowchart.

education, health education, patient counselling and health counselling, for example (20). In this article, we use the term “preoperative physiotherapy education”, because it is a part of the education process provided preoperatively and postoperatively by the physiotherapist. Preoperative 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 preoperative physiotherapy education before hip arthroplasty.

Methods

Patients

The data for this qualitative study were consecutively collected during 2010. Patients were selected in order from weekly operation lists (Figure 2). Initially, 15 patients were approached by telephone by the clinical team, out of whom 10 were willing to participate in the study. After permission had been granted by the patients, the researchers contacted them. The number of patients ($n = 10$) was decided in advance by the research team, in order to analyse qualitative data. The inclusion criteria were: age ≥ 60 and ≤ 80 years; Finnish speaking; and undergoing a first THA in a Hospital District of Helsinki and Uusimaa.

The mean age of the patients was 69.7 years (range 63–79 years). There were two males and eight females living in the surrounding area. Two of them lived alone (Table I).

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.

Procedure

Data were collected from two separate interviews with each patient. One was conducted at the patient’s home, before any surgical procedure, and the other at the hospital, after the preoperative visit. At the hospital, it was common practice for every patient to receive individual preoperative physiotherapy education during the preoperative visit, before hip surgery. Preoperative physiotherapy education included information about the timetable and course of the

Table I. Sociodemographic characteristics of the patients.

Patient	Gender F/M	Age (years)	Marital/living status		Work status		
			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	

rehabilitation process, information about aids and the exercise programme, and an opportunity to practise skills such as walking with crutches. Discussions about home circumstances and the possibility of going 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 as a collaboration between students from the University of Jyväskylä and Laurea University of Applied Sciences. The first and the last authors were responsible for the study design, research process and guided interviews.

Ten patients were interviewed, and 19 out of 20 interviews were conducted in total (one patient was interviewed only once, owing to scheduling problems). Three students carried out the interviews. There were usually two students involved in each situation, but one student conducted the interview. The main themes of the interviews were: patients' experiences with disease, moving and performance in daily living, and expectations and experiences with preoperative 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 preoperative 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 is not determined in advance (24). Data are collected according to the descriptions in 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 themes, and the variation within the themes is shown in categories. The categories therein

describe the hierarchical structure of conceptions in the phenomenon (21,24).

At the beginning of this analysis, the focus was to identify and describe patients' views on preoperative physiotherapy education in relation to their operation. The first author read the transcripts several times, looking for similarities and differences and identifying the overall themes. In further analysis on the ways of experiencing preoperative 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 preoperative 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 1 and 2 were performed by the first author. Phases 3 and 4 were performed collaboratively by the research team.

Results

The categories of preoperative physiotherapy education were seen in the variation of themes that the patients used in the interview. The themes were: knowledge about hip arthroplasty, action skills, body understanding and trusting encounter (Table II). 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 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

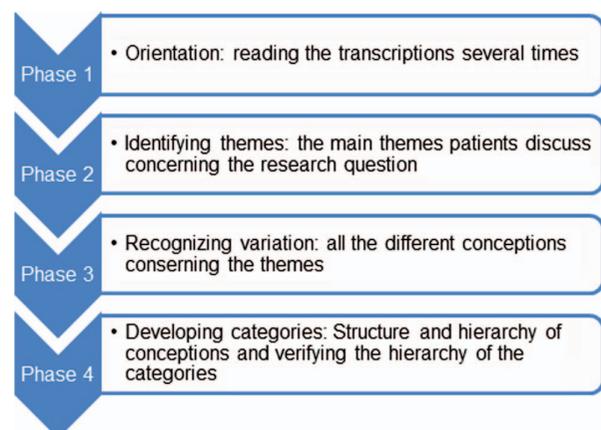


Figure 3. Process of phenomenographic data analysis.

Table II. Patients' conceptions of preoperative physiotherapy education before hip arthroplasty.

Variation of themes	Hierarchy of categories			
	I. Readiness for the operation	II. Preparing for the rehabilitation	III. Actor within the hospital service system	IV. Independent actor
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 in daily life
Action skills	The way to move	Practise confirming action skills	Confidence to continuing practising after operation	Self-practising 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

activities affected by the operation and activities the patients were required to practise, 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 categories of preoperative 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, followed by "actor within the hospital service system" (III). The widest was "independent actor" (IV).

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 a realization for the need for knowledge. The interviews identified particular expectations regarding the content of knowledge before the preoperative patient education visit. Some of the patients gathered information by themselves before the visit, during participation in information lectures about hip arthroplasty. They also gained information from relatives, friends and 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 practising skills, such as walking with crutches, before the operation, varied from necessary to unnecessary. Some patients considered practising to be very important, whereas others thought it could be difficult to apply in a real-life situation.

I think it is better to see and practise 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 experienced pain and how it changed their body. They also mentioned that preoperative physiotherapy education helped them to 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)

Preoperative physiotherapy helped patients to perceive the changes osteoarthritis had made, as mentioned earlier, and at the same time possibly affirmed patients' need for surgery and their belief in it. Patients expressed their trust regarding the surgery and commented on their awareness of positive outcomes following these operations. Patients were ready

for the operation and only some were concerned about the timing of the surgery. A few patients discussed nervousness. One patient expressed that the preoperative 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 joint 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)

Preoperative physiotherapy education was identified as an opportunity to practise action skills. Practising was also related to the information provided. Patients talked most about practising movements such as 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 practise. (B)

When preparing for rehabilitation, patients hoped that the operation would help to normalize the body and that physiotherapy could help them to 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 both my 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. Preoperative education staff were described as factual, competent and sympathetic, which helped to 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 ways 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 that they would receive additional information afterwards.

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 the 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 this would happen. They also hoped for follow-up checks from the physiotherapist after the hospital stage, or even follow-up physical therapy. Some of them required it, even if it was not routine practice.

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

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

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, their ability to use the leg and the possibility of going outside. They were worried about slipping during winter and intended to walk only 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 housework were done in advance or by enlisting extra help. Many patients hoped and expected to recover and continue their earlier hobbies, such as skiing, dancing and cycling, as well as leisure activities, such as picking berries, but the focus was first on walking and managing 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 regained this facility once walking became easier and they could manage themselves independently.

After that preoperative 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 preoperative physiotherapy education were constructed hierarchically. The conceptions widened from the narrowest (support 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 preoperative physiotherapy education before hip arthroplasty. Patients' conceptions of preoperative physiotherapy education appeared in four consistent themes. In this study, gaining knowledge through information was highlighted. The information needs of patients undergoing surgery have been studied earlier and a knowledge expectation was reported, *inter alia*, on the biophysiological 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 possess and which new ones they need to learn. Therefore, it is relevant to know how patients perceive their situation with respect to preoperative physiotherapy education. If we consider 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' perceptions could develop towards the image of an independent actor (Figure 1).

Preoperative physiotherapy education was one of various sources of information, including the acquisition of written materials and participation in information lectures. However, patients also gathered information from relatives and friends; this was in accordance with earlier studies, which found 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 were limited and, therefore, family members and friends were considered invaluable (29). Preoperative physiotherapy education took place around one week before the operation, which could be late, as far as receiving information is concerned. Therefore, the timing of the education should be revalued to promote the patients' agency.

In the area of body understanding, preoperative 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, interactions between action skills, such as movement, body and mind, were considered.

Our study revealed that patients had wide-ranging conceptions regarding preoperative 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 practising 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 being the actor within the hospital service system (category III). Then, the key issues were to realize and obtain support when the 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.

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 this (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 their confidence, showing concern and involving them in the decision-making process (37). To achieve this goal during one preoperative education session and a short hospital stay after surgery, physiotherapists need to have good communication and motivational skills. To increase patients' participation in healthcare discussions and contributions to the decision-making process, both patients and physiotherapists need to practise their communication skills (38). According to patients' conceptions, in our results, physiotherapists had the opportunity to enhance patients' adherence to exercise and their self-efficacy.

Trustworthiness of the results

The qualitative approach is a good way of exploring patients' experiences of preoperative physiotherapy education, which has been little studied. This research brings knowledge about the preoperative physiotherapy education from the patients' perspective, and can be utilized in developing physiotherapy. The advantage of using a phenomenographic method is that the different conceptions can be identified and the hierarchical structure of conceptions discovered (21,24).

This study has its limitations. It comprised only 10 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, to enable handling of the data and to identify the logical structure within the context of different meanings (19). During the process of analysis, the number of units with new meaning decreased, which indicates some level of saturation. The advantage of conducting two interviews was that it created the possibility to identify pure expectations before the procedure. We also felt that patients could express themselves freely in the home environment. The duration of the interviews varied and the interviews at home were longer than the interviews at the hospital. It may have been wiser

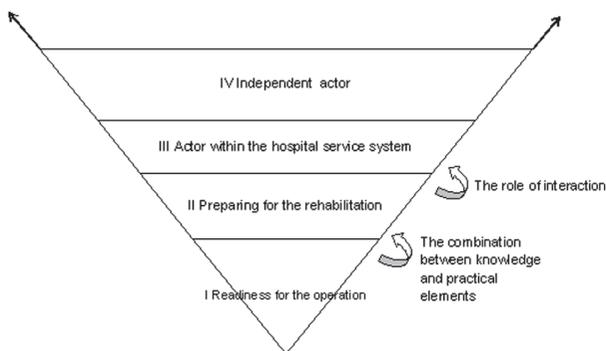


Figure 4. Patients' conceptions of preoperative education and the critical aspects between the categories.

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to carry out the second interviews also at home, a little while after the preoperative visit. Patients met many professionals during the preoperative visit. Patients' experiences can also reflect education from other professionals, even though interviews were focused on preoperative physiotherapy education.

Another limitation of this study is that the findings relate 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 in descriptions, however, could have been wider. For example, issues about work, and ability to work, were little discussed, because of the inclusion criteria. We can assume that working age patients would mention preoperative advice from the physiotherapist in order to return to work after the operation. Nevertheless, we believe that we achieved the essential conceptions in those categories. Further research is needed to examine the conceptions of preoperative physiotherapy education by patients in different cultures and of different ages.

Conclusion

The aim of this study was to explore patients' conceptions of preoperative physiotherapy education before hip arthroplasty. The system of categories used to describe the patients' conceptions of preoperative physiotherapy education has given a new insight into the different conceptions of preoperative physiotherapy held by patients. The four categories of preoperative physiotherapy education reflect broad and differing views. According to the patients' conceptions, in preoperative 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: how readiness for the operation could shift towards preparing for rehabilitation; and widening the perspective from preparing for rehabilitation to being the actor within the hospital service system. These findings can be used as a basis for planning preoperative physiotherapy education in rapid discharge situations.

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