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Using patient experience in optimizing the total knee arthroplasty patient journey

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Using patient experience in optimizing the total knee arthroplasty patient journey

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Abstract

The objective was to explore how patients experienced their knee arthrosis journey within the hospital setting. Information was used to improve the patient journey and to achieve patient-centered care. Patients (>18 years, purposive sampling) were interviewed once at one point of their total knee arthrosis journey within the hospital setting. Patients were accompanied and observed during their hospital visit by one of the 19 healthcare professionals which were trained as interviewers. A qualitative research approach with in-depth and semi-structured interviews using a standardized interview guide were used to gather an in-depth understanding of the perceptions of patients. Interviews were written out with the emphasis on positive and negative feedback, quotes and observations that were made. The audio recordings were verbatim transcribed and coded using selective and open coding. Thirty-five semi-structured interviews were conducted. Five different themes were identified: overall experience, waiting, communication, information and facilities. Several easy fixes were dealt with immediately to improve service quality, productivity and the organization of the healthcare service. Other improvements were discussed with the stakeholders and were resolved directly or were planned for the long-term. Involving patients and let them collaborate with healthcare professionals is essential in optimizing patient-centered care. Most feedback was related to clarification and comprehensibility of the patient journey, to improve autonomy and to remove uncertainty of the patients. Continuity of care with medical personnel, personal attention and recognition of the problem are fundamental during the knee arthrosis patient journey.

Keywords

Patient-centered care, feedback, quality of care, patient journey, patient experience

Introduction

In today's healthcare industry an increased need for effectiveness, efficiency and quality is present, which encourages healthcare professionals to continuously improve the organization of care.¹ To support patient's needs and increase efficiency of care not only objective outcome measures such as morbidity, mortality, infection or revision need to be included in the optimisation processes but also the experience of patients.²⁻⁴ Patient experience can be seen as the sum of all interactions and touch points with the different healthcare professionals, shaped by an organization's culture, that influence patient perceptions.³ It has been shown that positive patient experiences and satisfaction have a positive effect on clinical outcome and cost-effectiveness.⁵

Mapping the patient journey through the healthcare system is a useful tool to better understand the patient's perspective and gain insight in patient experiences and the patient-perceived hospital service quality.^{3,6} The perception of service quality results from a comparison of patient

expectations with actual service performance.⁷ In this study the knee arthrosis patient journey is discussed. It is important that the whole patient journey is satisfactory and the transition of patients from one healthcare professional to another within the hospital is well arranged. Only then the increased need for effectiveness, efficiency and quality of the healthcare system can be met.¹

The aim of this study was to explore how patients experienced their knee arthrosis journey within the hospital. This information was used to improve the patient journey and to achieve patient-centered care.

Methods

A qualitative research approach was used to gain an in-depth understanding of the perceptions and experience of patients involved in the knee arthrosis healthcare process in the St. Antonius Hospital, Utrecht, The Netherlands. This service improvement project was approved by the Board of Directors of the hospital. An external agency (Branddoctors BV, Nieuwegein, The Netherlands), was

consulted to guide the patient journey improvement process. Written informed consent was obtained when audio or photography recordings were made. For this project, verbal informed consent was sufficient for all other participants. The Consolidated criteria for Reporting Qualitative studies (COREQ) was used which is a checklist of items that can be used as guidance for reporting research involving interviews (Appendix 1).⁸

Touch points

At the start of the project, 8 touch points within the hospital were defined: first consult within the hospital; surgical screening; information meeting; preoperative hospitalisation; surgery; postoperative hospitalization; discharge; postoperative visits (Figure 1). During these 8 touch points, patients are in contact with various healthcare professionals and hospital personnel such as different physicians, clinical assistants, physiotherapists, OR-planners and OR-assistants. One of the touch points (#3) was the information meeting. In our hospital, all patients undergoing total knee arthroplasty are invited to visit this meeting where information is provided about the surgery, rehabilitation and the aftercare. This information meeting is not mandatory. An orthopaedic resident, a nurse and a physiotherapist give a presentation where all relevant topics are covered.

Patients

All patients visiting the hospital between October 2017 and April 2018 were eligible for participation. Inclusion criteria were age 18 years or older, willing to participate and mentally competence. Patients with insufficient knowledge of the Dutch language were excluded. All patients were approached and informed by phone. When they indicated that they wanted to participate, an appointment 30 minutes prior to their planned hospital visit was made and confirmed by letter. The selected patients were accompanied and observed during their hospital visit by the interviewer. All patients were interviewed once at one point of their journey within the hospital setting. In a random selection of 15 patients, audio recordings were made of the interviews. It was ensured that there was no conflict of interest or dependency issues between patients and interviewers and patients were encouraged to openly convey their viewpoints. Patients could withdraw their participation at any moment without providing a reason.

Interviews

Nineteen healthcare professionals and hospital staff members were selected to participate in this project as interviewers. The interviewers consisted of two orthopaedic physicians, an orthopaedic resident, a researcher, a research student, a nurse, a physical therapist,

Figure 1. The 8 defined touch points within the hospital including the main people and departments involved

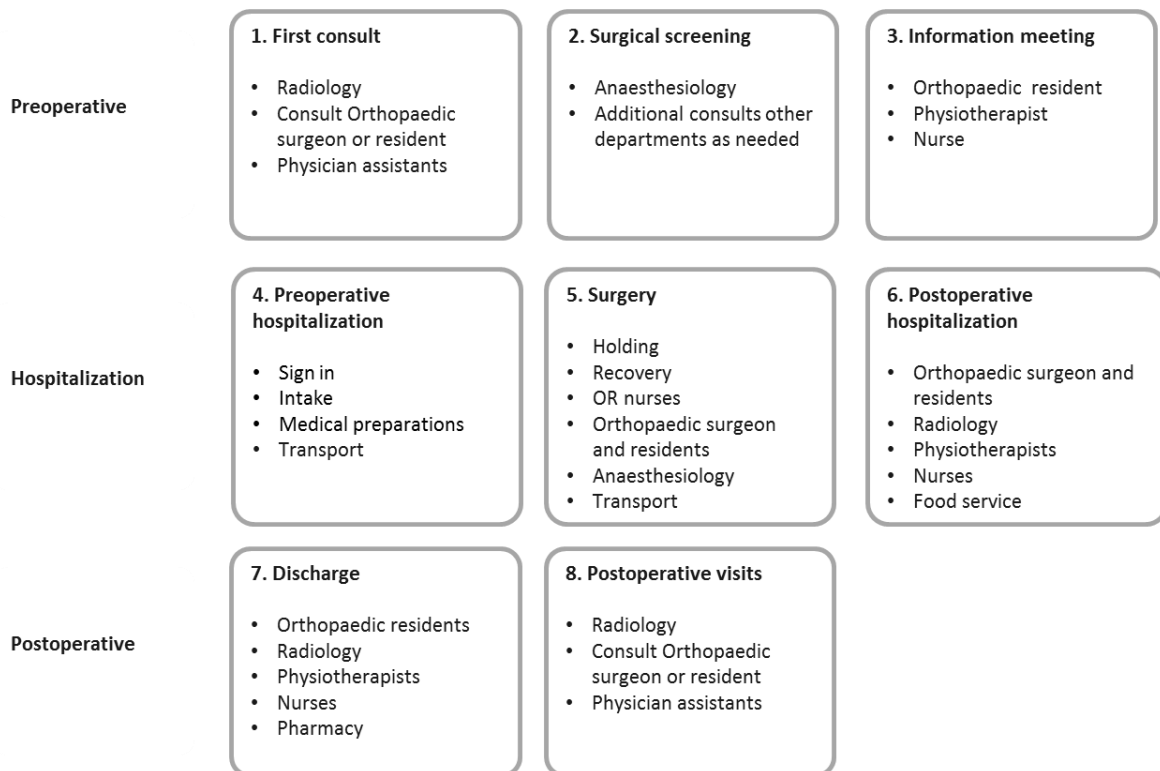


Table 1. Patient characteristics of the interviewed patients (N=35)

Gender	
Male	19 (54%)
Female	16 (46%)
Age (years)	
50-59	4 (11%)
60-69	14 (40%)
70-79	13 (37%)
80-90	4 (11%)
Work status	
Retired	23 (66%)
Absent due to knee problems	3 (9%)
Working	9 (26%)
Living situation	
Alone	7 (20%)
With spouse	28 (80%)
Touch point	
Preoperatively	18 (51%)
Postoperatively	17 (49%)

outpatient clinic physical assistant, a food service hostess, marketing and communication advisers, operating room nurses, a surgery planner, the orthopaedic outpatient clinical manager, the division manager and the manager of radiology. All interviewers attended 2 meetings where they received training about the patient journey, interview approaches and observation techniques. In 2 follow-up meetings results were discussed and elaborated for practical implementation.

Qualitative research is useful for understanding perceptions of participants.⁹ A purposive sampling strategy was applied in which every patient meeting the criteria of inclusion was selected until data saturation was achieved.¹⁰ In-depth and semi-structured interviews using a standardized interview guide (Appendix 2) were used exploring the experiences and opinions of patients and to determine potentially modifiable factors for improving health care.^{8,11,12,17} Furthermore, all patients were observed during their visit and all notable actions, contextual details and non-verbal expressions were recorded and directly evaluated with the patient. Audio recordings were used in part of the patients to establish internal validity by assuring the integrity and completeness of the collected data.¹³

Data analysis

Data was pseudo-anonymised by appointing a study number to the patients before the interview took place. Interviews were written out with the emphasis on positive and negative feedback from the patients, quotes and observations that were made. The audio recordings were verbatim transcribed and coded using selective and open

coding (DH)^{13,14}. Transcription and coding was checked by a second researcher (NW).

Results

Thirty-nine patients were approached for participation of which 4 refused, resulting in 35 included patients (Table 1). Reasons for refusal were: too stressful, doubts about the surgery, overload of feedback requests and planning to go to another clinic for an unknown reason. Based on the interviews and observations 5 themes were identified: overall experience, waiting, communication, information and facilities. No relationship between patient characteristics and the results were noted.

Overall patient experience

In general, patients were positive about their overall hospital experience and therefore would recommend the hospital to their family and friends. This could be partly explained by the fact that patients in the knee arthrosis journey already had previous hospital experiences and therefore knew what to expect and could easily find their way around. Interpretation, listening skills and matching body language were assigned as essential qualities of all hospital personnel and in particularly for treating physicians. During the outpatient clinic visits, clear communication and personal attention were considered important. One of the patients said: “the physician was looking at me and not at his computer and I could ask all the questions I had” (patient 2; touch point 1). Patients found it important to build up a relationship with their physician, and not see a different physician at each visit.

Regarding surgical patients, one of the orthopaedic physicians always called, with consent of the patient, the family or contact right after finishing surgery to inform them how it went. This example of personal contact was very much appreciated. Also, personal contact with the physician during hospitalization was experienced as pleasant and patients thought this personal contact should be standard. In order to meet health expectations and to be able to give the correct information it is crucial to set health goals. These must be individual and realistic goals set by the patient together with healthcare professionals. In conclusion, confirmation, trust, personal attention and reassurance are essential during the knee arthrosis care path.

Waiting

Several patients indicated that in the last years, the waiting time in the waiting room before your appointment has decreased. However, patients still find it normal to wait before their appointment and one patient even described hospitals as “waiting-houses” (patient 4, touch point 4). A few patients found waiting in the waiting room for their appointment very annoying and emphasized that personnel had to adhere to the schedule to keep patients satisfied. On the other hand, several patients indicated waiting as positive as that indicated that the physician took their time and physical examinations and consults were not rushed because of lack of time. What everyone agreed on was that they wanted to be informed about the waiting time. Two of the 3 main locations used a digital screen to inform patients about the waiting time per physician. Not having a digital screen on the third location was the most important point for improvement.

Communication

Confirmation letters are an important part of the information supply of a hospital. The confirmation letters were perceived as clear by various patients, however, busy and chaotic by others. Some patients mentioned that they did not have a computer at home and therefore were very pleased with the fact that they received a letter. Other patients positively indicated that, in addition to the letter, they received a notification on their telephone about the appointment. Feedback that was obtained concerned the lay-out, length and tone of the letter. Various patients stated that the letter should be shorter, more business-like and the location and time should be presented in bold. “Keep it short and simple, excessive information is always damaging. So never write down things that are not really important.” (Patient 15, touch point 1). Patients tend to scan the letters instead of reading it completely and therefore important information needed to stand out. “I had not even noticed that there was something on the back.”(Patient 10, touch point 1).

Information

At all touch points, patients had specific questions which they wanted to see answered. This often concerns the same questions. Based on this observation, a frequently asked questions (FAQ) list will be made available on the website. During the information meeting, an orthopaedic resident, a nurse and a physiotherapist give a presentation where all relevant topics are covered. Patients that attended the information meeting were very positive about the information they received. They described it as instructive, useful and detailed. The fact that the patients could ask questions and hear the questions from other patients was named as most valuable. The only mentioned drawback of the meeting was the amount of information in a short period of time. A patient solved this by taking pictures of the presentation: “in this way I can read it again at home” (patient 7, touch point 3).

During the knee arthrosis patient journey, patients were in contact with all kinds of different health care professionals. Unfortunately, it was not always clear to patients who was who during their journey. The fact that personnel could be distinguished by the clothing they wear, was not known to the patients.

During the entire journey, the patient passed various departments, some exclusively orthopaedic (outpatient clinic, clinic) and some not (radiology, anaesthesiology) where the patient would ask questions about their surgery or treatment. Items such as stopping medication and length of hospital stay, were not communicated well throughout the different departments resulting in patients receiving contradictory information. Working together in this project solved many of these problems and made us realise how important it is that we all use the same, up-to-date source of information which is in our case our website.

Facilities

Patients were interviewed at one of the three orthopaedic main locations. The orthopaedic physicians alternate the different locations. The locations vary in size, age, appearance and facilities which was also noticed by patients. For some patients these factors also played a role in choosing a location. Two patients especially choose the newest location, while others found the newest location “too big and massive” (patient 11, touch point 8). However, when specifically questioned, most patients did not notice any differences between the three hospital locations when it came to care and hospitality. Most patients choose the location based on the distance and the accessibility by car or public transportation. For several patients the location was of less importance, they wanted to be helped as quickly as possible by their own physician and so they went to the location with the shortest waiting list.

During the project, the hospital personnel encountered two eye-openers regarding route directions within the hospital. Professionals did not realize that route directions were different in each location. Furthermore, the radiological department was indicated in different ways inside the hospital and in the confirmation letters which was confusing for patients. Another point of confusion was that there were no clear signs in the parking garage of one location. It is unclear on which floor you are. Furthermore, in the elevator it was not clear that the entrance to the hospital was located at the first floor instead of the ground floor.

Topics that were identified once or twice were that the toilets were not properly indicated, all the signs could be slightly enlarged, the waiting areas were too small and should be enlarged, the paper cups should be replaced by glass and the food during hospitalization should be improved. Also, the waiting room prior to surgery was indicated as unpleasant. For the long term a project is planned to examine how this could be improved in order to meet the expectations of the patients.

Discussion

During this study, it was explored how patients experienced their knee arthrosis journey and to use this information to improve the patient journey and to achieve patient-centered care. To evaluate personnel, system performance and effectiveness of healthcare treatment, patient satisfaction is one of the essential aspects to examine.^{15,16} However, measuring patient satisfaction is elusive because patient satisfaction is a multidimensional construct and this concept has not been well defined for Orthopaedic surgery.^{2,15} Furthermore, greater satisfaction is not directly a measure of higher-quality care.¹⁵ It has been previously demonstrated that the concept dissatisfaction was associated with a perceived need for more information.¹⁷ Therefore, with good information supply and good communication, the expectations of patients and the patients' experiences can be managed which will reduce the risk of negative disconfirmation and will increase the change of satisfaction. Embedded within patient experience is a focus on individualized care and services to meet their needs and engage them as partners in their care. Subsequent, patients' experiences are strongly tied to patients' expectations and are beyond clinical outcomes or health status.^{4,18}

Care pathway implementation is a well-established strategy to standardize the organization, the coordination and the follow-up of care. Standardization reduces unnecessary complexity and the variation of care processes and therefore contributes to hospitals running as well-oiled machines¹. However, it is important to find the balance between standardization and patient-centered care. Therefore, all the more important to involve all layers of

the hospital organization. Exploring the patient journey and gathering feedback data is a useful tool to engage patients in healthcare improvement. Involving patients and let them collaborate with healthcare professionals is essential in optimizing patient-centered care, which should be a continuous process.³ In order to continue to receive feedback, a questionnaire is now sent out monthly to patients who have visited our hospital. This questionnaire contains several questions to stimulate patients to share their experience and provide open feedback.

Implications for practice

Based on this study, different improvements and adjustments were suggested. Several easy fixes were dealt with immediately. Other possible improvements were discussed with the involved parties and were resolved directly or were planned for the long term. Most feedback was related to clarification and comprehensibility of the patient journey, to improve autonomy and to remove uncertainty of the patients. By removing uncertainty as much as possible, stress and doubts may be prevented or reduced. Personal attention and recognition of the problem were fundamental during the patient journey. The postoperative phone call from the orthopaedic physician to the family is an example of this and is therefore now adopted by all orthopaedic colleagues. Furthermore, empathy, recognition and personal attention are communication skills that can be used by physicians to overcome barriers in the patient-physician relationship.¹⁹ The patient is looking for confirmation from the physician. Therefore, the patient and physician should create an environment of shared trust.¹⁹

Patients missed a digital screen in one of the main locations to indicate waiting times. In cooperation with facility managers, it was investigated whether it was possible to extend the use of digital screens indicating waiting times to the third location. This was labelled as a long-term improvement. Until this is achieved, patients are verbally informed about the waiting time. Another long-term improvement concerns the presentation of the information meeting. During the meeting a lot of information is presented, and patients are not able to remember everything. To solve this problem, the presentations could be made available on the website or could be printed and handed out. However, the presentations need to be checked for applicable interpretation to a more general audience first. The presentations should be self-explainable because no verbal explanation can be given when the presentation is placed on the internet.

Several easy fixes that were dealt with immediately were improvement of the confirmation letters concerning date, time, location and lay-out; in cooperation with the facility managers the parking garage signs were improved, and an overview was made of how to recognize the different

healthcare professionals. This overview is now displayed hospital wide in the waiting rooms and also published online.

Limitations and strengths

Qualitative research is often stated as ‘unscientific’ and it is said that it lacks reproducibility and generalizability.^{9,20} However, the total number of patients that was interviewed was 35. No new data was obtained with the last patients, therefore data saturation was achieved. Before starting the project, it was ensured that the project was widely supported, and all kinds of different hospital personnel participated. Participating to the project increased the awareness of the hospital personnel of patient centred care and also increased their work motivation.¹ The variety of the involved personnel might also be a limitation as, despite the training and interview guides, everyone had their own angle and focus and noted only what they found important. This might have had a limiting effect on the obtained outcome.

It was ensured that there was no conflict of interest or dependency issues between patients and interviewers. Patients were very appreciative of their opinion being asked and therefore gave a lot of constructive criticism. Even if the interviewer was someone of high ranking (physician or department manager). A possible limitation might have been that medical personnel not in the project might acted differently (positive effect) during the patients touch points because someone was present to observe.

Another limitation was that the department of orthopedics is part of a much larger hospital organization. The department of orthopedics was not able or allowed to make all decisions on their own as suggested improvements might also affect other departments. Different stakeholders might all have their own perception and the hospital pursues equality across the various departments. For this reason, changes were not as fast or easy as we would have liked. Finally, some suggested improvements were not possible due to limitations within systems and software.

In future research a number of these limitations could be taken into account, e.g. less interviewers, independent interviewers and audio recordings during all interviews. Furthermore, it could be considered if it is possible to develop a service quality model and standard instrument to measure patients’ service quality perceptions.⁷

Conclusion

Exploring the patient journey and gathering feedback is a useful tool to engage patients in healthcare improvement. Involving patients and let them collaborate with healthcare professionals is essential in optimizing patient-centered care, which should be a continuous process. Most

feedback was related to clarification and comprehensibility of the patient journey, to improve autonomy and to remove uncertainty of the patients. In addition, continuity of care with medical personnel, personal attention and recognition of the problem are fundamental during a patient journey.

References

1. Seys D, Bruyneel L, Deneckere S, Kul S, Van der Veken L, Van Zelm R, Sermeus W, Panella M, Vanhaecht K. Better organized care via care pathways: A multicenter study. *PLoS One* 2017; 12: 1-11.
2. Bourne RB, Chesworth BM, Davis AM, Mahomed NN, Charron KD. Patient satisfaction after total knee arthroplasty: who is satisfied and who is not? *Clin Orthop Relat Res* 2010; 468: 57-63.
3. Purcărea TV. Creating the ideal patient experience. *J Med Life* 2016; 9: 380-385.
4. Wolf JA, Niederhauser V, Marshburn D, LaVela SL. Defining patient Experience. *Patient Experience Journal* 2014; 1: 7-19.
5. Hall MF. Looking to improve financial results? start by listening to patients. *Healthc Financ Manage* 2008; 62: 76-80.
6. Trebble TM, Hansi N, Hydes T, Smith MA, Baker M. Process mapping the patient journey through health care: an introduction. *BMJ* 2010; 341: 394-397.
7. Parasuraman A, Zeithaml VA, Berry LL. A conceptual model of service quality and its implications for future research. *J Marketing* 1985; 49:41-50.
8. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007; 19: 349-357.
9. Gray DE. *Doing research in the real world*. Sage Publications Ltd, 2014.
10. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Adm Policy Ment Health* 2015; 42: 533-544.
11. Tofade T, Elsner J, Haines ST. Best practice strategies for effective use of questions as a teaching tool. *Am J Pharm Educ* 2013; 77: 155-163.
12. Wright EB, Holcombe C, Salmon P. Doctors' communication of trust, care, and respect in breast cancer: Qualitative study. *BMJ* 2004; 328: 864-868.
13. Bailey J. First steps in qualitative data analysis: transcribing. *Fam Pract* 2008; 25: 127-131.
14. MacQueen KM, McLellan-Lemal ME. Team-based codebook development: Structure, process, and agreement. *Handbook for Team-Based Qualitative Research*. Rowman Altamira 2008.

15. Graham B, Green A, James M, Katz J, Swiontkowski M. Measuring patient satisfaction in Orthopaedic surgery. *J Bone Joint Surg Am* 2015; 97: 80-84.
16. Urden LD. Patient satisfaction measurement: Current issues and implications. *Lippincotts Case Manag* 2002; 7: 194-200.
17. Williams G, Pattison G, Mariathas C, Lazar J, Rashied M. Improving parental satisfaction in pediatric Orthopaedics. *J Pediatr Orthop* 2011; 31: 610-615.
18. Tilbury C, Haanstra TM, Leichtenberg CS, Verdegaal SH, Ostelo RW, de Vet HC, Nelissen RG, Vliet Vlieland TP. Unfulfilled expectations after total hip and knee arthroplasty surgery: There is a need for better preoperative patient information and education. *J Arthroplasty* 2016; 31: 2139-2145.
19. Flickinger TE, Saha S, Roter D, Korthuis PT, Sharp V, Cohn J, Moore RD, Ingersoll KS, Beach MC. Respecting patients is associated with more patient-centered communication behaviors in clinical encounters. *Patient Educ Couns.* 2016; 99(2):250-255.
20. Mays N, Pope C. Rigour and qualitative research. *BMJ* 1995; 311: 109-112.

Appendix 1. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews

	Item	Response
Domain 1: Research team and reflexivity		
Personal characteristics		
1.	Interviewers	N. Wolterbeek, PhD, research coordinator, ♀ D.J. Hiemstra, Msc., research student, ♀
2.	Credentials	F.A. van der Hoeven, Msc, division manager, ♀ K.G. Auw Yang, PhD, MD, orthopedic surgeon, ♂
3.	Occupation	Rest of the interviewers consisted of 1 orthopedic surgeon (♂), 1 orthopedic resident (♀), 1 nurse (♀), 1 physical therapist (♂), 1 manager radiology (♂), 1 outpatient clinic manager (♀), 1 outpatient clinic physician assistant (♀), 4 marketing and communication advisers (♀), 2 operating room nurses (♀), 1 operating room planner (♀) and 1 food service hostess (♀).
4.	Gender	
5.	Experience and training	All interviewers attended 4 meetings where they received training about the patient journey, interview approaches and observation techniques
Relationship with participants		
6.	Relationship established	The participants were not acquainted to the researchers prior to the study commencements
7.	Participant knowledge of the interviewer	The participants were informed about the goal of the project; mapping the patient experience to improve the patient journey. Participants only received the name and gender of the interviewer before meeting them. Participants knew that the interviewers were affiliated with the hospital.
8.	Interviewer characteristics	
Domain 2: study design		
Theoretical framework		
9.	Methodological orientation and theory	A qualitative research approach was used to gain an in-depth understanding of the perceptions of patients
Participant selection		
10.	Sampling	Participants were recruited through purposive sampling, all involved in the knee arthrosis patient journey.
11.	Method of approach	All patients were informed by phone and received an information letter.
12.	Sample-size	In total 35 patients were included.
13.	Non-participation	Four patients refused participation for different reasons. No participants dropped out.
Setting		
14.	Setting of data collection	All interviews were conducted at one of the three orthopedic main locations of the hospital.
15.	Presence of non-participants	The presence of non-participants (e.g. spouse or life partners) that accompanied the patients was discussed with the participants however from research perspective they could be present during the interviews.
16.	Description of sample	Patient characteristics are presented in Table 1.
Data collection		
17.	Interview guide	A semi-structured interview guide was developed for the patients where audio recording would be used. The guides were slightly modified when new insights became available. The first 3 patients counted as pilot patients.
18.	Repeat interviews	No repeated interviews were carried out.
19.	Audio/visual recording	Audio recording was used in 15 patients and transcribed prior to analysis.
20.	Field notes	Field notes were made before, during and after the interviews and the observation of the specific part of the patient journey.
21.	Duration	Interviews were approximately 30 minutes.
22.	Data saturation	Data saturation was discussed and assumed.
23.	Transcripts returned	Transcripts were not returned to participants for comment. Transcripts were reviewed and discussed by the interviewers.

Appendix 1. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews (cont.)

Domain 3: analysis and findings		
Data analysis		
24.	Number of data coders	2 (NW, DH)
25.	Description of the coding tree	An interview guide with coding tree was developed and refined based on data collection and analysis. The coding tree was only used for the audio recordings. Feedback and responses from all interviews were grouped into similar descriptive categories. The 5 main themes were agreed upon by the project group through consensus.
26.	Derivation of themes	Themes were derived from the data.
27.	Software	No software was used to manage the data.
28.	Participating checking	Notable actions were recorded and directly evaluated with the patient. Results were shared with the orthopedic staff and Board of Directors of the hospital to validate the findings.
Reporting		
29.	Quotations presented	Participant quotations are presented including patient number.
30.	Data and findings consistent	Yes, there is consistency between the data presented and the findings.
31.	Clarity of major themes	Yes, major themes are clearly presented.
32.	Clarity of minor themes	Yes, there is a description and discussion of minor themes.

Appendix 2: Summary of interview structure and guideline

Interview structure:

1. General introduction
2. Question subjects:
 - *Topics before starting contact moment/hospital visit*
 - Introduction
 - Expectations
 - *Topics after finishing contact moment/hospital visit*
 - Patient experience
 - Disconfirmation of beliefs
 - Satisfaction
3. Conclusion and short summary of the interview

Interview guide:

Prior to interview:	<p>To be filled out by the interviewer prior to the interview:</p> <p>Respondent number: Date of interview: Location of interview:</p> <p>What is the gender of the patient?</p> <p><input type="checkbox"/> Male <input type="checkbox"/> Female</p> <p>Age:</p> <p><input type="checkbox"/> < 50 <input type="checkbox"/> 50-60 <input type="checkbox"/> 60-70 <input type="checkbox"/> 70-80 <input type="checkbox"/> > 80</p> <p>Do you (still) work? What is/was your profession? Is there someone at home who can take care of you (if necessary)? Marital status:</p>
	<i>Topics before contact moment/hospital visit</i>
TOPIC	<i>Example questions and follow-up questions</i>
Intro	<p>Question 1: How do you feel about being here in the hospital? <i>Possible follow-up questions</i></p> <ul style="list-style-type: none"> • Could you tell me what you are here for? • Could you tell me why you chose this hospital?
	<p>Question 2: Was it clear to you where you had to be today? <i>Possible follow-up questions</i></p> <ul style="list-style-type: none"> • Was it clear to you with whom you have an appointment today?
	<p>Question 3: Was the information you received prior this hospital visit clear? <i>Possible follow-up questions</i></p> <ul style="list-style-type: none"> • Have you received sufficient information prior to this hospital visit? • Did you consult the internet prior to this hospital visit? • Did you visit the website of this hospital?
EXPECTATIONS	‘What do the patients expect of their hospital visit?’
	<p>Question 4: What do you expect of this hospital visit? <i>Possible follow-up questions</i></p> <ul style="list-style-type: none"> • What is the main purpose of this hospital visit for you? • What answers do you want to have after this hospital visit?

Appendix 2: Summary of interview structure and guideline (cont.)

<i>Topics after contact moment/hospital visit</i>	
PATIENT EXPERIENCE	<p>‘What do the patients experience during their hospital visit?’</p>
	<p>Question 5: How was your hospital visit? <i>Possible follow-up questions</i></p> <ul style="list-style-type: none"> • What did you experience during this hospital visit? • Have you received sufficient information? Concerning: <ul style="list-style-type: none"> ❖ The further trajectory • Did you understand the information you received? <ul style="list-style-type: none"> ❖ Where can more clarity be given? • Do you know which person can answer your questions? • Did the personnel introduce themselves to you? • Which physician is/was responsible for your care? • Did you have the opportunity to discuss your goals/wishes (for you treatment) with the physician? <p>Have all your questions been answered during this hospital visit?</p>
DISCONFIRMATION OF BELIEFS	<p>‘To what extent are patients’ beliefs confirmed?’</p>
	<p>Question 6: Have your expectations about this visit been confirmed? <i>Possible follow-up questions</i></p> <ul style="list-style-type: none"> • Why? Why not? • To what extent have your expectations been confirmed? • What does good information supply mean for you? • What does good communication mean for you? • Did the conversation go as you expected? <p>Did you feel in control during the conversation?</p>
SATISFACTION	<ul style="list-style-type: none"> • ‘To what extent are patients satisfied with the hospital visit?’
	<p>Question 7: Are you satisfied with this hospital visit? <i>Possible follow-up questions</i></p> <ul style="list-style-type: none"> • What were the major bottlenecks? • What have you experienced as positive? • What good / bad experiences do you have with regard to the information supply (communication)? • Are you missing something in the field of information supply (communication)? • What could be improved with regard to the information supply (communication)? • Would you recommend this hospital to family and friends? • What do you tell at home about today?