Patients' experiences of an information brochure for knee arthroplasty. A brief qualitative study

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Abstract

Introduction:
Patient information holds an important role in knee arthroplasty surgery regarding patients' expectations and outcomes after surgery. The purpose of the present study was to explore the experiences and opinions of patients undergoing knee arthroplasty (KA) surgery on an information brochure provided preoperatively.

Methods:
A qualitative case study of 8 patients using individual semi-structured interviews was conducted to explore patients' opinions on an information brochure in KA surgery.

Results:
Patients rated the brochure as good and recommended its use. Unsatisfactory information regarding wound healing, pain expectations, postoperative exercises and use of walking aids was reported. Patients stated that the table of contents was insufficient and the size of the brochure (A4-format) too large. Patients reported to have no need for additional digital sources (e.g. applications, websites).

Conclusion:
These opinions support the use of an information brochure. The reported opinions were used to improve the brochure. Future research should focus on the improvement of information sources by involving patients (and other users) in the development process in which the information is tailored towards patient needs.

Keywords: Knee arthroplasty, Patient information, Preoperative education

Introduction

Patient information holds an important role in knee arthroplasty (KA) surgery. Traditionally, patients receive verbal and written information by the surgeon regarding preoperative preparation, hospital admission, surgical procedure, postoperative care and expectations after surgery. Walker (2007) reviewed the literature on the effects of information on general patient satisfaction. Despite the fact that this review concluded that there is contradicting evidence, good-quality preoperative information seems to facilitate patients to be actively involved in their care. In the information process, patient expectation management holds an indispensable role and good preoperative information can prevent unfulfilled expectations (Tilbury et al., 2016). Patient information is ideally provided as part of written content since the retention of verbal information by patients is low (Feiner and Rayan, 2016; Kessels, 2003). To increase reproducibility information should be repeatedly available for patients.

The purpose of the present study was to explore the experiences and opinions of patients undergoing KA surgery on a preoperatively provided information brochure.

Methods

This study included patients undergoing primary elective unicompartmental or total KA. A qualitative and exploratory case study with use of individual semi-structured face-to-face interviews was cemployed.

Preoperative patient information

After consultation with the orthopaedic surgeon, patients undergoing KA surgery received a brochure on the day that they were added to the waiting list. The orthopaedic operation room (OR) planner handed out the brochure and explained its use. On average, patients received the brochure 6–8 weeks prior to surgery. The brochure (A4 format) contained information on the patient pathway divided into several sections (Table 1). It was developed in collaboration with all stakeholders forming the multidisciplinary team (consisting of nurses, physiotherapists, physician assistants, anaesthesiologists, orthopaedic surgeons, managers, planners and communications department). The content of the brochure was based on the information supplied by the Dutch Orthopaedic Society (Nederlandse Orthopaedische Vereniging, 2012) and adjusted to incorporate our clinical pathway. Further improvements were made after several patients gave solicited and unsolicited advice on the content of the brochure.

Patients also underwent a physical education session by the hospital physiotherapists and were trained to walk with crutches and climb stairs. A preoperative consultation with the anaesthesiologist was performed to prepare for and discuss the type anaesthesia to be used during surgery, as well as a consultation with a nurse to help patients to prepare their environment prior to surgery.

Procedure

Patients were invited to participate on their six weeks postoperative visit. It was assumed that within this timeframe, patients would still remember their experiences after surgery, and they had enough opportunities to actually apply the information in the brochure. Participants who received primary elective KA surgery and who were able to read and understand the Dutch language were eligible to participate. Patients who were not able to read the brochure (e.g. because of cognitive disorders) and/or experienced severe complications (e.g. requiring readmission or re-operation) after surgery were excluded. Eligible participants received an information letter and gave written informed consent. The interview took place at the patient's home.

Table 1.
Content of the brochure.

Topic	Subtopic
Preoperative information and preparation	- Information on the illness and arthroplasty procedure - Expectations after surgery regarding functional improvements and possible adverse events - Home preparations - Relative or coach selection for postoperative aiding - Screening by anaesthesiologist and nurse - Physical physiotherapy education class
Hospital admission	- Timetable of admission - Procedures and transfers within the hospital - Preoperative medication protocol - General preparations for surgery
Postoperative treatment	- Expectations after surgery regarding anaesthesia, pain and length of hospital stay - Exercise instructions and physiotherapy sessions - Self-administration of thrombosis prophylaxis - Postoperative medication protocol - Wound care - Discharge criteria
Follow-up after surgery	- Information in case of any adverse events or questions after discharge - Postoperative outpatient visits

Interviews

Semi-structured interviews were conducted by two researchers, one functioning as conversation partner and the other as scribe. The interviews were audio recorded. A semi-structured topic list was used (Table 2). Patients had the opportunity to give and explain their opinion on each topic. Summarization was used during the interviews to determine accuracy and correctly interpreted data. Subsequently, ideas on and need for other information sources were explored.

Table 2
Semi-structured interview topic list.

Topic	Subtopic
Explanation of the interview	- Purpose of the interview - Practical considerations
Design of brochure	- First impression - Size - Formal requirements (font size, style) - Titles - Colour - Figures/pictures/tables
Structure of the brochure	- Table of contents - Chapter structure - Order of subjects - Clarity
Content of the brochure	- Importance of information - Description of the content - Completeness of the information - Depth of the topics - Adequacy
Usage of the brochure	- Frequency - Other users
Need for usage of other information sources	- Video material - Website - Applications - Additional figures/pictures
Other	- Patients' input - Questions

Data-analysis
Demographic data about the participants were collected. All interviews were transcribed verbatim. Data analysis was performed using inductive content analysis. The answers were collected and coded according to the topics. To state the codes, the most extensive interviews were coded first. If no new information emerged during the interviews, code saturation was expected to be reached. Investigator triangulation was achieved by interviewing the patients and analysing the data with two researchers separately. Any discrepancies between researchers' interpretations were discussed until agreement was reached.

Ethics

This study was performed in compliance with the Helsinki Declaration of 1975, as revised in 2013 and was reviewed and approved by the IRB and conducted in accordance with the guidelines for Good Clinical Practice.

Results

A total of 8 participants were included. The demographic data of the participants are presented in Table 3. Patients' experiences and opinions are outlined according to the topic list (Table 2).

Table 3

Patient characteristics and demographics.

ID	Gender	Age (years)	Education level	Profession	Type of arthroplasty
1	Male	72	Bachelor's degree	Commercial manager	UKA
2	Male	53	Associate degree	Grocer	UKA
3	Female	58	Associate degree	Cabdriver	UKA
4	Male	71	Bachelor's degree	Architect	UKA
5	Male	60	Associate degree	Assembly operator	UKA
6	Female	64	Associate degree	Fitness instructor	TKA
7	Male	76	Associate degree	Justice	TKA
8	Female	71	High school	Saleswoman	TKA

UKA, unicompartmental knee arthroplasty; TKA, total knee arthroplasty.

Design of the brochure
Patients reported that the brochure was written with a clear font size, font type, line spacing and sizing of the paragraphs. The current size of the brochure is too large and had a detrimental effect on the participants so they prefered a smaller size (A5 instead of A4 format):
P1: "I actually thought it was a big brochure. I thought, hey, what am I getting here?"

Structure of the brochure
Patients reported that the table of contents was not clear enough, which made it hard for them to find certain information on specific subjects:
P2: "[…] and then you just have to browse […] the index is not really clear."
Not all pictures regarding exercises clarified the plain text enough and could be presented in a higher resolution.

Content of the brochure
The content was clear overall and written in an understandable language. Patients stated that the information was reliable. Several adjustments were proposed such as addition of a description of other walking aids,besides canes/crutches:
P7: "Well I found out; it just tells you about crutches. That you have to bring them in advance, but I have found that it is much easier to walk with a walker instead."

It was proposed there should be more information on self-exercising and intensity build-up of exercises during rehabilitation. One patient suggested more accurate descriptions of expectations of pain experiences:
P1: "[…] there, you highlight what you are not allowed to do. But maybe the process of what you feel after the surgery, where you say the first step is wound pain […] so that you are at least reassured."

Patients advised more accurate information on spinal anaesthesia and, in particular, how long the anaesthetic would last. Patients were also interested in information about the surgeons (e.g. background information, specialties). It was advised by several patients to delete the 3-month outpatient visit, since this was omitted from the follow-up after surgery.

Usage of the brochure
All patients stated that they used the brochure and recommend its use and indicated that the brochure was necessary to provide all the information they needed regarding their KA surgery. Caregivers also used the brochure.
P3: "Yes, my daughter and son used it very extensive. They liked it."

Need for usage of other information sources
Patients stated that medical care apps were not an option for them, although they could imagine the use of them by next generations.
P1: "Of course, you could have a video, or you could download a mobile app. But maybe that's for a few years later. Because now I saw almost all older people who, like me, don't really like apps. You wouldn't fulfill their needs, I guess."

Discussion

The most important finding of this study is that the overall experiences of the provided patient information were positive and patients were satisfied with the given information regarding their KA surgery.

Patient expectation management has an important role in KA surgery as unmet expectations after surgery can result in dissatisfaction (Choi and Ra, 2016; Gunaratne et al., 2017; Mahdi et al., 2020). To prepare patients before surgery, information regarding the procedure and expectations following surgery can be provided using oral and written content, with a possible addition of face-to-face contact (e.g. physical therapy sessions, preoperative information classes, so-called 'joint-schools'). Besides providing written content, patients had several face-to-face contacts in the current study; the orthopaedic surgeon provided oral information, patients received information from the OR planner regarding practical considerations (e.g. date of surgery), had a preoperative consultation with the anaesthesiologist/nurse and underwent a physical education session with the physiotherapist. The combination of preoperative educational programs with written information has previously been examined (Jordan et al., 2014; Rucinski and Cook, 2020; Aydin et al., 2015) and it was concluded that this strategy did not (positively) affect postoperative outcomes in terms of safety (e.g. complication rates, length of hospital stay). When analysing other outcomes, the impact of a multimodal educational approach (verbal and written information) on opioid consumption and pain demonstrated reduced use of opioids after surgery (Rucinski and Cook, 2020). The authors stated further that information solely on patients' expectations after surgery did not reduce pain scores, indicating that a multimodal educational approach is desirable. This is in line with another study reporting no effect of preoperative education alone on postoperative pain scores (Barry, 2017).

Another proposed advantage of patient education is reduced preoperative anxiety. As anxiety is strongly related to poorer postoperative outcomes (in terms of patient satisfaction after KA), it is of major importance to address this anxiety prior to surgery (Alattas et al., 2017). Aydin et al. (2015) reported a reduction in preoperative anxiety after implementation of preoperative patient education. Tong et al. (2020) reported psychological interventions prior to surgery to be beneficial in the reduction of anxiety and mental components of quality of life in the long term. This addresses the need for patient specific and targeted preoperative patient information.

Several studies (Kennedy et al., 2017; Soever et al., 2010) examined patients' needs regarding perioperative information. They concluded that patients need information on the healthcare specialists, postoperative care, recovery and medication. Information on medication (e.g. expected levels of pain, medication use, side-effects) was found to be especially important, which is in line with the opinions and recommendations of the patients in the current study.

The recommendations to increase readability (e.g. table of content, figure/image resolution) are also in line with other studies. As stated by other authors, these aspects of design are of major importance (e.g. letter type, letter size, paragraph usage) (Clark, 2016; Dzulkifli and Mustafar, 2013; Frost et al., 1999; Weiss, 2007).

With the introduction of applications and websites, the availability of information has increased. Despite great advantages of this freely available information, concerns regarding reliability and variability are expressed (Brunnekreef and Schreurs, 2011). Although patients reported less need for additional applications or websites, they reported the size of the brochure as a limitation so an application could be more tailored towards the patient's wishes regarding size.

Another major advantage would be the ease to change and manage information. For example, patients reported that the given information was outdated on the postoperative visits in the hospital.

This study has several limitations. The sample may have been subject to bias because all participants stated that they were satisfied with their overall treatment process. To extract more insight in adverse experiences, the cohort should ideally include dissatisfied patients as well. IGreater data saturation could have been achieved with a larger cohort of patients.

The next step should be to improve information brochures (or other material) by involving patients (and other users) in the development process (co-creation).

Conclusion

Patients rated the information brochure on KA surgery as good and recommended its use. The reported opinions on content (e.g. wound healing, pain experiences, exercise intensity build-up, usage of walking aids) and formal requirement (e.g. table of content, size) were used to improve the brochure.

Ethical approval statement

This study was performed in compliance with the Helsinki Declaration of 1975, as revised in 2013 and was studied and approved by the IRB and conducted in accordance with the guidelines for Good Clinical Practice. IRB-approval was obtained from the Regional Ethics Committee of Heerlen (METC Z, Heerlen, the Netherlands, IRB Nr. METCZ 17-N-53). All patients who participated in the study gave their written informed consent.

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Declaration of competing interest

All authors declare that they have no conflict of interest to report.

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References

Alattas, S.A., Smith, T., Bhatti, M., Wilson-Nunn, D., Donell, S., 2017. Greater preoperative anxiety, pain and poorer function predict a worse outcome of a total knee arthroplasty. Knee Surg. Sports Traumatol. Arthrosc. 25 (11), 3403–3410.

Aydin, D., Klit, J., Jacobsen, S., Troelsen, A., Husted, H., 2015. No major effects of preoperative education in patients undergoing hip or knee replacement – a systematic review. Dan Med J 62 (7), A5106.

Barry, M.A., 2017. The effect of preoperative education on postoperative pain after joint surgery: an integrative literature review. Creativ. Nurs. 1;23 (1), 42–46.

Brunnekreef, J.J., Schreurs, B.W., 2011. Total hip arthroplasty: what information do we offer patients on websites of hospitals? BMC Health Serv. Res. 11, 83.

Choi, Y.J., Ra, H.J., 2016. Patient satisfaction after total knee arthroplasty. Knee Surg Relat Res 28 (1), 1–15.

Clark, N.B., 2016. Patient Education Materials. College of Medicine, Florida, pp. 1–18.
Dzulkifli, M.A., Mustafar, M.F., 2013. The influence of colour on memory performance: a review. Malays. J. Med. Sci. 20 (2), 3–9.

Feiner, D.E., Rayan, G.M., 2016. Preoperative surgical discussion and information retention by patients. J Hand Surg Asian Pac Vol 21 (3), 326–332.

Frost, M.H., Thompson, R., Thiemann, K.B., 1999. Importance of format and design in print patient information. Cancer pract 7 (1), 22–27.

Gunaratne, R., Pratt, D.N., Banda, J., Fick, D.P., Khan, R.J.K., Robertson, B.W., 2017. Patient dissatisfaction following total knee arthroplasty: a systematic review of the literature. J. Arthroplasty 32 (12), 3854–3860.

Jordan, R.W., Smith, N.A., Chahal, G.S., Casson, C., Reed, M.R., Sprowson, A.P., 2014. Enhanced education and physiotherapy before knee replacement; is it worth it? A systematic review. Physiotherapy 100 (4), 305–312.

Kennedy, D., Wainwright, A., Pereira, L., et al., 2017. A qualitative study of patient education needs for hip and knee replacement. BMC Muscoskel. Disord. 18 (1), 413.

Kessels, R.P.C., 2003. Patients' memory for medical information. J. R. Soc. Med. 96 (5), 219–222.

Mahdi, A., Svantesson, M., Wretenberg, P., H¨alleberg-Nyman, M., 2020. Patients' experiences of discontentment one year after total knee arthroplasty - a qualitative study. BMC Muscoskel. Disord. 14;21 (1), 29.

Nederlandse Orthopaedische Vereniging (NOV). patientenvoorlichting. https://www.orthopeden.org/kwaliteit/patientenvoorlichting.

Rucinski, K., Cook, J.L., 2020. Effects of preoperative opioid education on postoperative opioid use and pain management in orthopaedics: a systematic review. J. Orthop. 21 (20), 154–159.

Soever, L.J., MacKay, C., Saryeddinne, T., et al., 2010. Educational needs of patients undergoing total joint arthroplasty. Physiother. Can. 62 (3), 206–214.

Tilbury, C., Haanstra, T.M., Leichtenberg, C.S., et al., 2016. Unfulfilled expectations after total hip and knee arthroplasty surgery: there is a need for better preoperative patient information and education. J. Arthroplasty 31 (10), 2139–2145.

Tong, F., Dannaway, J., Enke, O., Eslick, G., 2020. Effect of preoperative psychological interventions on elective orthopaedic surgery outcomes: a systematic review and meta-analysis. ANZ J. Surg. 90 (3), 230–236.

Weiss, B.D., 2007. Health literacy and patient safety: help patients understand. Manual for Clinicians AMA Foundation 2, 1–62.

Walker, J.A., 2007. What is the effect of preoperative information on patient satisfaction? Br. J. Nurs. 16 (1), 27–32.