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Communication Preferences in Total Joint Arthroplasty

Exploring the Patient Experience Through Generative Research

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BACKGROUND: Improving communication and information services for people receiving a total joint (knee or hip) arthroplasty (TJA) depends on the differences in patient communication needs and personal characteristics.

PURPOSE: The purpose of this study was to further examine individual differences in TJA patient preferences regarding communication and information provision.

METHODS: Nineteen patients participated in generative research, which meant they actively reflected on their TJA experiences and communication preferences through creative exercises (e.g., collage making). Audio transcripts of their shared reflections were qualitatively analyzed through an inductive approach.

RESULTS: Some participants wanted detailed health education, others did not. Participants also reported different support needs (e.g., at hospital discharge or during rehabilitation). Moreover, participant preferences for social connections with care providers differed.

CONCLUSIONS: An individual patient's mindset, his or her social support needs, physical condition, and medical history should guide the provision of tailored services.

Background

Improving the individual experience of care has been established as an essential aspect of improving the overall care system (Berwick et al., 2008) and has been linked to a competitive advantage for care institutions (Kennedy et al., 2014; Wolf et al., 2014). Patient experience is defined as “the sum of all interactions, shaped by an organization's culture, that influence patient perceptions across the continuum of care” (The Beryl Institute, n.d.). Examining the various aspects of the patient experience (such as perceptions about communication with nurses and doctors, communication about medicines, discharge information, responsiveness of hospital staff, and quietness of the hospital environment) is needed to

establish the extent to which patients are receiving care that aligns with and responds to individual patient values, preferences, and needs (Agency for Healthcare Research and Quality [AHRQ], 2017).

Although the terms “patient experience” and “patient satisfaction” are often used interchangeably, they are different. Patient experience looks at the patient's perceptions of structures and processes of care (Bjertnaes et al., 2012). Patient satisfaction is an outcome and captures whether a patient's expectations about the healthcare encounter were satisfied (AHRQ, 2017). One's

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expectations color how we view our experience. Although two people may receive the same care or the same information, if they have differing expectations, their satisfaction is likely to vary (AHRQ, 2017; Bjertnaes et al., 2012). Wolf (2017) identified that partnership between patients and families and clinicians, value of care provided, and the individual's experiences inclusive of choice, expectations, and understanding are all hallmarks of experience. Pre- and postoperative education are key strategies to promote understanding, which in turn is likely to influence expectations that the individual has for the healthcare experience.

For the patient undergoing a total joint arthroplasty (TJA), education has been a staple approach to preparing the patient and family for the pre-, intra-, and postoperative period in the hospital and later in the home. Studies examining the experience of patients undergoing TJA have confirmed the value of the education; however, they acknowledge that educational programs do not meet all patients' expectations and may be useful for one person but not the other. Specht et al. (2016) and Kennedy et al. (2017) examined patient experience and informational preferences with patients undergoing hip or knee arthroplasty and found that, for some, programs instilled a sense of confidence and security and lowered fear. In contrast, for others the education could engender uncertainty, especially if they received information that was ambiguous or incorrect for their situation, which may occur when combining patients undergoing different procedures in the same classes. Additionally, the structured preoperative teaching program may not match patients' preferences for receiving information, thus reducing the overall value.

Both studies noted that the education provided to patients was incomplete, especially around the topic of pain management (expected levels of pain, why medications are prescribed, how to take the medication, what to watch for, and how to "wean off" pain medications) and how to manage in the immediate weeks and months after surgery. Education seems to be tailored more to the acute care environment and is not meeting information needs, as the person moves across the care continuum. Berg et al. (2019) emphasized the differences in what patients expect in terms of information and called for individualized patient education and support, especially in the months after surgery. Decreasing the disparity between knowledge expectations and received knowledge is likely a key issue in empowering patients and improving outcomes (Klemetti et al., 2015; Soever et al., 2010). Improving the TJA patient experience before and after surgery requires care providers to systematically account for differences between patients, resulting in tailored approaches to communication and information provision (Berg et al., 2019; Luther et al., 2019).

Segmenting the TJA patient population into subgroups based on common preferences offers an opportunity to better tailor the patient experience. In an earlier survey study of 191 patients, conducted by the authors of the present study, the authors clustered patients with TJA into three groups based on similarities in their clinical, psychological, and communication characteristics (Dekkers, 2020; Groeneveld et al., 2019). These characteristics were chosen because of their

importance to the approach used for information giving to patients with TJA. Dekkers et al. (2018) posit that care providers use these characteristics to intuitively adapt their communication with patients.

Each of the three subgroups had a distinctive attitude or "role" they assumed in the patient journey. The first subgroup (possessing a "managing" role or attitude) consisted of individuals with poor preoperative health who reported many different coping styles and strong communication preferences. The second subgroup (an "optimistic" role) showed the best preoperative health and quality of life, had fewer coping strategies, and noted a lower priority for patient-provider communication. The third subgroup (a "modest" role) was significantly more anxious and older than patients in the other two groups and reported distinct coping behavior (e.g., religious coping), as well as lower self-efficacy and competence in their communication about health. Healthcare providers used a survey or screening instrument to determine the subgroup that best matches each patient. This instrument asks patients to indicate the presence or absence of (1) coping by planning ("I've been trying to form a strategy to reduce my stress."), (2) helpless feelings when in pain ("When I have pain, I feel like I can't stand it anymore."), and (3) preference for open information provision ("My physician should always tell me everything about my illness, even if it is unpleasant."). A more detailed summary of the subgroups and their determination is described elsewhere (Dekkers, 2020; Groeneveld et al., 2019).

The subgroup approach offers opportunities for personalizing and therefore improving the TJA patient experience. However, adapting to group-level characteristics can be seen as a targeted, rather than a tailored communication approach (Kreuter et al., 1999). In the definition of tailored communication by Hawkins et al. (2008), the subgroup division is analogous to the "segmentation" of a target audience. For instance, the segmentation proposed by the TJA subgroups could be used to increase the initial relevance of patient information, so that patients engage more with the material (Hawkins et al., 2008; Petty & Cacioppo, 1981). But to achieve tailored care, "customization" to individual preferences within each segment (or subgroup) of the target population is also necessary (Hawkins et al., 2008). Figure 1 shows the distinction between these tailoring components, and the relation to previous and current research.

The first step is to use a survey to segment the TJA patient population (Dekkers, 2020; Groeneveld et al., 2019). To achieve tailored health services, customization (Step 2) is needed and preferences of individual patients within each segment should be considered.

Purpose

The overall purpose of our research project was to improve the TJA patient experience using tailored information and communication services for this patient group. To customize these services, this study aimed to qualitatively examine the individual differences in TJA patient preferences regarding communication and information provision throughout the patient journey.

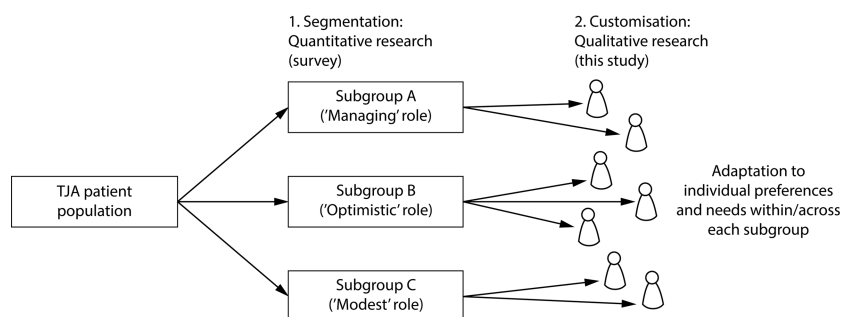


FIGURE 1. Framework for tailoring based on definitions by Hawkins et al. (2008).

Methods

Patients with TJA took part in a generative design research study (Sleeswijk Visser et al., 2005). Generative design research is defined as “an approach for co-designing and co-creating that is focused on the front end of the design development process” (Sanders & Stappers, 2012, p. 25). In generative sessions, participants are seen as “experts of their own experience” (Sleeswijk Visser et al., 2005) and fulfill an active role in reflecting on their experiences, memories, and hopes for the future. In this study, participants collected photographs and created both a timeline of their TJA patient journey and two collages describing their current experience and future ideal. The creation of and reflection on these visual artifacts allowed for the elicitation of tacit or even latent knowledge about their experiences—more than, for example, regular interviewing or observations—which, in turn, lead to a better understanding of the user experience (Sanders, 1999). In this study, the generative approach was used for discovering individual differences in TJA patient preferences to design tailored services (e.g., patient information provision) in follow-up studies. Such generative techniques allow people (i.e., patients) without design training to be more involved in this design process (Sanders & Stappers, 2012, p. 25).

The study was conducted from February to May 2017. After review, the local Medical Research Ethics Committee (MREC) decided (January 5, 2017, file 17-008) that this study falls outside the scope of the Dutch law concerning research involving human beings (Dutch abbreviation *WMO*).

Participants

Eligible participants were patients from the TJA population at the Reinier de Graaf Hospital (Delft, the Netherlands) who had participated in the previous survey study described in the introduction. These participants had undergone surgery between October 2015 and October 2016 at the study site. Patients were eligible for inclusion in this survey study if they (1) were of adult age (>18 years), (2) were proficient in Dutch, (3) were capable of providing informed consent, and (4) had undergone only one TJA surgery at the start of the study. Eligible patients were contacted in chronological order based on surgery date, to reduce selection bias. A total of 191 patients were included in the survey study. A

subset of these study participants were recruited for the current study; these patients were also contacted in chronological order of surgery date. The sample size for the current study was set at 10% of the survey sample ($n = 19$). Additional recruitment would have occurred to reach data saturation, but this was not necessary.

Procedure

The study procedure consisted of two parts: an individual part including a set of preparatory exercises followed by a group session. Each participant completed the preparatory exercises in the week prior to their scheduled session. The group sessions were organized at the participating hospital, with the exception of one session, which was held at the Delft University of Technology, Faculty of Industrial Design Engineering (Delft, the Netherlands). All participants provided written consent prior to inclusion. Prior to consent, participants received information about the study including subject protection. It was clearly stated that they were free to choose what information to share during the exercises, and that they were free to cancel participation at any time. It was also explained that participant data were coded so that it could be used anonymously, and that participants' information and data were safely stored at the study location accessible only to researchers.

PREPARATORY EXERCISES

Each participant received two preparatory exercises 1 week before their session date. The exercises were given to participants to let them actively and broadly think about their personal preferences and their TJA patient experience before attending the group session, so that they were better prepared for diverse and creative thinking during group sessions. It is considered essential to include these assignments in protocols for generative research (Sanders & Stappers, 2012, p. 55).

To facilitate participants' thinking about their personal preferences in daily life, participants completed Exercise A. The instructions for this exercise were as follows: “Please take up to three photographs of things from daily life that you generally like or dislike. These can be favourite pastimes, objects, or anything else that comes to mind. Write a short description of each photograph. You can take pictures with your smartphone or camera, or collect pre-existing images. Please send the images by e-mail, or bring them to the group meeting.”

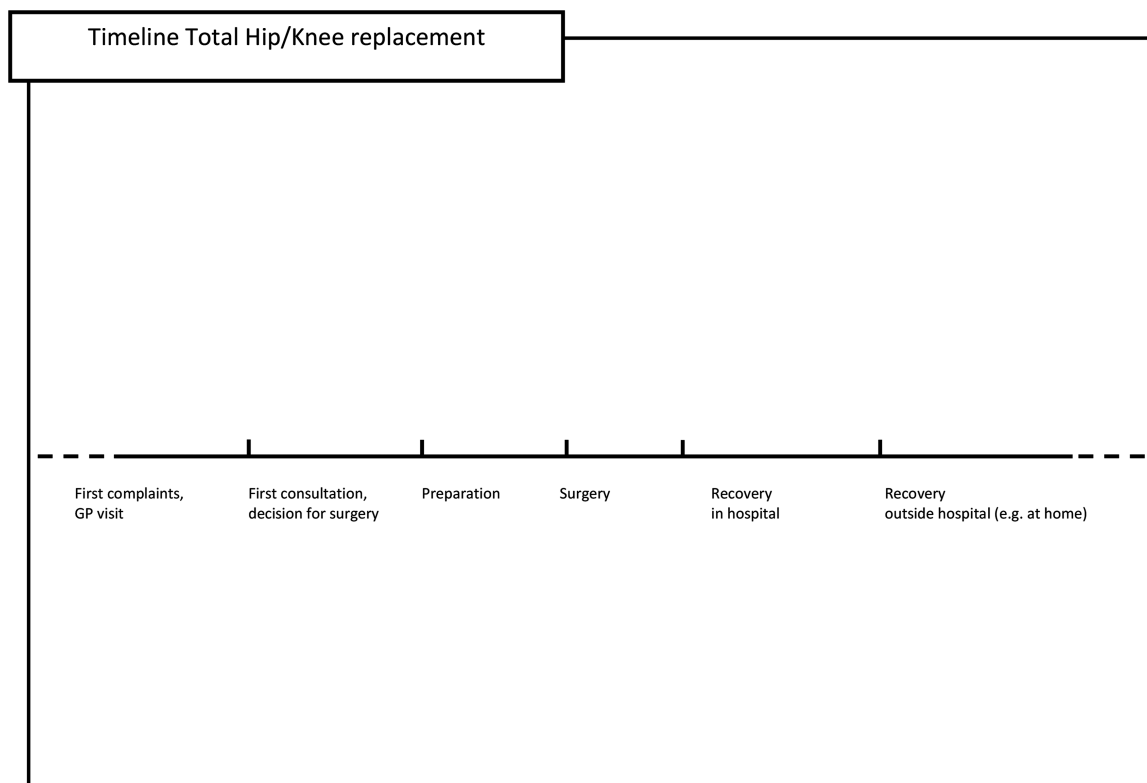


FIGURE 2. Timeline template sent to participants 4 days before the session, using a patient journey structure (originally in Dutch).

To help participants think about their overall TJA patient experience, Exercise B consisted of a timeline template that was sent by regular mail. This template is shown in Figure 2. The following instructions were given: “Please put the most important moment [of your TJA patient experience] in the timeline. You can use keywords or short sentences to do so. We would also like to ask you to mark the best and worst experience of the entire process. Bring the timeline to the group meeting.”

GROUP SESSIONS

Based on guidelines for generative research, we included between five and seven participants per session, as this provides enough opportunity to exchange experiences, while keeping group dynamics manageable for the session leader (Sleeswijk Visser et al., 2005).

During the session, participants visualized or described (1) a part of the patient journey they had not looked forward to, but that had turned out better than expected and (2) an “ideal” experience of the TJA experience, within physical limits (e.g., recovery time). Visual and textual stimuli (stickers with adjectives or generic shapes and colors) were provided to facilitate diverse visualizations or descriptions. Figure 3 gives an impression of the materials and tasks carried out by participants. After each creative act, participants individually presented their materials and the group was invited to compare their experiences and perspectives, evoking discussions on differences and similarities between individual experiences. One researcher acted as the session leader, whereas the other assumed the role of note taker. In total, the session was planned to

last 2 hours. Table 1 gives a detailed outline of the generative session.

All participants received a gift card (20 Euros) as a token of appreciation for their participation. Participants were also given a stamped postcard addressed to the researcher, to note any additional thoughts they had after the session and to share these with the researchers.

ANALYSIS

Directly after each session, the session leader and note taker discussed what they viewed as the session’s most important statements and aspects. In addition, each session was audio recorded and transcribed. The transcripts were used as the main data source for the analysis. The stories that participants told to explain the timeline and collages they created and their shared reflections on differences and similarities were particularly rich and useful for designing services (Sleeswijk Visser et al., 2005; Stappers & Sanders, 2003), such as tailored information provision. The analytic framework was similar to a grounded theory approach (Corbin & Strauss, 1990) in the sense that structures and patterns in data were discovered without preset expectations. Rather than being hypothesized in advance, such patterns were discovered during analysis. To this end, data were abstracted and interpreted to produce information and eventually, knowledge about the subject being studied (Ackoff, 1989; Sanders & Stappers, 2012, pp. 200–201).

Specifically, this meant that the researchers reread the transcripts several times to become familiar with the data. Qualitative content analysis was used to extract categories and themes from the transcript (Graneheim



FIGURE 3. Photograph of the materials used, and activities carried out by participants in the generative session.

& Lundman, 2004). Several measures to promote trustworthiness of this study are outlined next.

To promote credibility of the results, the first author coded the full transcripts of three sessions, which included sorting and interpreting meaning units. This resulted in a preliminary set of themes and data categories, an example of which is given in Table 2. Peer debriefing between the first and second authors was used to check and refine this preliminary outcome (Baarda et al., 2014, p. 245). Finally, data saturation was checked using transcript data from the final session. That is, we used this transcript to verify no new categories of data were formed by additional meaning units (Baarda et al., 2014, p. 221). Verbatim quotes from the transcripts ensured mutual exclusivity between categories of data.

To ensure the dependability of the data collection process, all four sessions were organized within a limited period of time, and specifically focused on the differences and similarities in patient preferences regarding the TJA patient experience. Finally, to provide insight into the transferability of the findings, specific details regarding the study setting and participant characteristics were summarized (see the subsection “Limitations of This Study and Future Research”).

Results

A total of 19 patients with TJA participated in the four sessions, which were organized between February and May 2017. Sessions 1 and 2 had five participants, Session 3 had six. In the last session, only three patients

TABLE 1. DETAILED OUTLINE OF THE GENERATIVE SESSION				
Step (Duration)	Activity	Participant Actions	Remarks	Goal
1 (10–15 minutes)	Introduction	Introduce themselves, receive explanation about session setup		
2 (15 minutes)	Constructing past experience	Visualize or describe a part of the patient journey they had not looked forward to, but that had turned out better than expected	Visual and textual stimuli were provided to inspire participants	Each participant has a personal account of a key experience
3 (15–30 minutes)	Discussing past experiences	One participant was asked to present his or her creation; other participants were subsequently invited to elaborate or indicate differences and similarities based on their own experiences	One researcher moderates the discussion, the other takes notes	Unravel, e.g., emotional aspects of the experiences in-depth; gain insights into similarities and differences among patients
(10 minutes)	Break			
4 (15 minutes)	Imagining ideal TJA experience	Individually envisioned an “ideal” experience of the TJA procedure, within physical limits (e.g., recovery time)	Similar setup to Step 2	Each participant has a personal account of an ideal experience
5 (15–30 minutes)	Discussing ideal experience	Similar to Step 3	Similar to Step 3	Similar to Step 3
6 (10 minutes)	Closing			

Note. TJA = total joint arthroplasty.

TABLE 2. EXAMPLE OF QUALITATIVE CONTENT ANALYSIS FOR A SUBSET OF DATA FOR THE THEME OF “DIFFERENCES IN INFORMATION AND COMMUNICATION NEEDS”

Meaning Unit (Excerpt)	Interpreted Meaning Unit	Category	Theme
“[The surgeon] had already told me you could get infected during surgery [...] so yeah” (S3).	Participant experienced the information given as open	Some participants prefer open and full information about TJA and adjacent procedures	Contrasting needs regarding information provision and communication
“[...] I have no one at home who can take care of me, so [the fact] that a rehabilitation ward is available here in the hospital, that was never ... they refused to tell me that” (S2).	Participant had the feeling that information was deliberately withheld		
[Participant recalling the discussion with the surgeon about surgery:] “I don’t know anything about that. I just said, I hope you have a sharp knife” (S2).	Participant is not interested in knowing all the details of the surgery	Some participants place less value on detailed TJA-related information	

Note. TJA = total joint arthroplasty.

participated due to unexpected cancellations. These patients had undergone TJA, on average, 7 months before their participation (*SD* 1.6 months, range 4.6–10.7 months). Participant background characteristics are presented in Table 3.

The accounts of participant experiences were rich and vivid, and participants actively responded to each other’s experiences and opinions at each session. Data analysis of the last three participants did not result in any new themes or categories, which means data saturation was achieved. The following themes were found: (1) Participants indicated differences in information needs: some participants wanted open and full information, whereas others valued this less. (2) Participants reported differences in their support needs post-surgery, such as hospital discharge or rehabilitation. (3) There were differences in participant preferences for a social connection with care providers. These themes are discussed in detail later; Table 4 provides an additional summary. Quotes in the text are provided with a session number, abbreviated as (S).

DIFFERENCES IN INFORMATION NEEDS

Participants reported contrasting needs regarding *information provision from care providers*. Several participants were pleased that they had received detailed information

from care providers. This included a participant who could monitor her own (minor corrective) surgery (S1), and one participant who was clearly informed about the risks of surgery: “[The surgeon] had already told me you could get infected during surgery [...] so yeah” (S3). In this case it helped the participant to accept potential postoperative complications. Giving specific information after the operation about the amount of blood loss was also valued by one patient (S3). Some participants also had the feeling that processes were not communicated well or that information was even deliberately withheld: “[...] I have no one at home who can take care of me, so [the fact] that there is a rehabilitation ward available here in the hospital, that was never ... they refused to tell me that” (S2). At least five participants seemed to find *open and full information provision* important. In addition, examples were mentioned of care providers using terms and phrases that patients were unfamiliar with, causing confusion (S3). One patient stressed the need for dispersed and repeated information provision “because people never remember everything” (S3).

Others (*n* = 2) placed less value on receiving open and full information. For instance, one participant recalled saying, when discussing the operation with the surgeon, “I don’t know anything about that. I just said, I hope you have a sharp knife” (S2). Several other

TABLE 3. PARTICIPANTS’ BACKGROUND CHARACTERISTICS

Characteristic	<i>n</i> (%) or <i>M</i> ± <i>SD</i> (Range)	
	Current Study Sample (<i>n</i> = 19)	Survey Sample (<i>n</i> = 191)
Sex: male	7 (37)	74 (39)
Age (years)	67 ± 7.5 (46–76)	71 ± 8.7
Type of surgery: numbers (and percentages per group) of total hip arthroplasty patients (other participants had received a total knee arthroplasty)	13 (68)	106 (55)

TABLE 4. THEMES REGARDING INDIVIDUAL DIFFERENCES IN TOTAL JOINT ARTHROPLASTY PATIENT NEEDS AND PREFERENCES

Theme	Specification	Examples
Differences in information needs	Varying needs for open and honest information Assessment and adaptation of communication	Some patients want open and full information, others need fewer details and try to have faith in the surgeon Shared responsibility of care providers and patients to assess communication preferences and adapt accordingly
Differences in support needs post-surgery	Different needs and preferences regarding hospital discharge Adaptation to personal wishes in rehabilitation Extent and type of guidance in rehabilitation	Create a checklist for discharge based on medical conditions, home circumstances, social support Adapt rehabilitation to patient's wishes, capabilities, physical status, and medical history Some patients need little guidance in rehabilitation, others want or may need more than what is currently being provided; related to complications, social connections, physical fitness
Differences in preference for a social connection with care providers		Some patients find social connection or rapport with the surgeon more important than others

participants felt that it was also important to just *have faith in the surgeon* and the process, leading to disagreement on this topic between participants (S3). Some participants ($n = 2$) thought that the need for open, full information is also dependent on the person's own attitude and previous experience: "I also have trust, but through experience I have, if you have worked in this field, you know a bit more about how this works, really" (S3). This critical attitude was also mentioned as a disadvantage because patients could make the process harder for themselves.

In light of the above, the presence of formal (hospital-provided) information was satisfactory for at least two patients, but three patients thought that this information should be better adapted to their personal circumstances, such as the presence of social support and possible complications. As such, participants mentioned that care providers should *assess and adapt their information provision* to patients to accommodate these individual differences (S3). Three participants indicated that it is the *patient's responsibility* to discuss their questions and preferences: "Listening is important, but [...] as a patient, you also need to indicate yourself where you have pain, what you're feeling, what your attitude in life is" (S1). However, it was added that "this may be pretty hard" for some patients, as "everyone has the right to know everything [about the operation] but not everyone can [indicate] this" (S3).

DIFFERENCES IN SUPPORT NEEDS POST-SURGERY

Participants also reported differences in their postoperative support needs. Specific comments were made regarding the guidance around and criteria for hospital discharge; participants also indicated different personal preferences for their rehabilitation. These aspects are discussed next.

DIFFERENT NEEDS AND PREFERENCES REGARDING HOSPITAL DISCHARGE

Six patients believed that the period to discharge and transfer to home should be more flexible (S3, S4). One patient (S3) was frustrated by the rigid use of protocol

for discharge from the hospital: "So I was still in the hospital, and the bed was soaked [with wound fluid]. [...] So, I said, but that's not OK, right? 'Yes, but you can walk a bit, right? [...] well, then you can go home'" (S3). In this case, the patient had to undergo corrective surgery due to a bacterial infection. Another participant indicated that being alone at home was especially hard the first days after discharge: "That was worse than I had imagined, to really manage on your own at home. [...] Or you would need a spouse at home or a partner, but [for me] that wasn't the case" (S2). For a participant (S4) without a partner, practical support at home was hard to arrange. This participant really valued being allowed to stay in hospital longer (S4). Reflecting on these experiences, in one session (S1) a checklist for discharge was suggested that took a patient's medical condition, home circumstances, and the presence of peer support into account.

A lack of communication about the transfer home was also particularly stress-inducing for several patients: "It's unclear when you go into hospital how that will go. There's a decent person that knows the way who takes care of it. But you only see them once you go home. And that causes much uncertainty" (S2). In this case, the transfer nurse played an important role, but there was also need for more information about this person.

ADAPTATION TO PERSONAL WISHES IN REHABILITATION

At least four patients indicated that flexibility throughout rehabilitation is important. For example, a patient argued that "it's very important that [...] both physician and physical therapist, [...] and that you look very critically at what goals you want to reach" (S2). She also argued that "they shouldn't [adapt rehabilitation] to your age category, but to your fitness." Conversely, one patient was negative about "standard rehabilitation" that did not account for his specific needs. In some cases, patients could indicate what they wanted: "Yes, I told them myself what I like and what I need. [...] I benefited quite a bit from [doing this]" (S2). To summarize the discussions on this subject, it appears that the rehabilitation plan should include a patient's wishes, capabilities, physical status, and medical history.

EXTENT AND TYPE OF GUIDANCE IN REHABILITATION

Patients also differed as to how much and what kind of guidance they preferred during rehabilitation. Several patients ($n = 5$) reported that the rehabilitation process was smooth and that little guidance was needed. For instance, one participant recalled: "I needed to do those [exercises] and that helped me [...] Well, I just did that and it only got better, only better" (S2). One patient thought that all the instructions after surgery made rehabilitation seem "like boot camp" (S4), and she exercised casually after surgery.

Most patients indicated that the physical therapist (PT) provided clear feedback on exercises and physical behavior (S1, S2, and S4). For instance, one participant especially valued that the PT clearly indicated that an activity was off-limits: "At some point I said, I could cycle again. [...] and he was like, 'don't do that!' So I thought the physical therapist was very clear about that" (S1).

There were also participants who independently supported or arranged their own rehabilitation. One patient noted, "that PT I went to, she said [...] 'just do the exercises with the cycling and your legs and all.' So, I said, well, then I'll just go to [the gym] [...]. Then I'll do it myself" (S3). Another participant (S2) purchased a step counter to keep track of his progress and made adjustments in his home. Some participants ($n = 2$) adapted their own pain medication, or found alternative means of managing postoperative pain (S4). These participants seemed to only need a little guidance from care providers during this phase.

In contrast, other participants ($n = 7$) reported problems or struggles relating to rehabilitation, and implicitly or explicitly indicated that more guidance was needed ($n = 5$). In one extreme case, a lack of clear information on recovery led to a long period of distress, "When you meet with the Physician Assistant after six months, you're like, Oh, I'm no good, I'm still limping. And then that man says, 'completely normal. You're doing great. It's really normal that it hurts.' And here I was, thinking all the time that I should be running around all fit" (S2). Another participant expressed, "I find this hard, my limits... what I can and can't do. [My surgeon] is not in favour of physical therapy, he just prefers walking and that's it. [...]; I want to have some more guidance." In this case, the therapy could have been adapted to the patient's wishes, but still she felt that "the rehabilitation process is a process of searching. [...], that's the only thing that disappoints me, so to say" (S1). This was a participant who had always been very physically active and who valued her independence. However, it was also said that more guidance was especially needed for patients who were not very motivated to start moving again (S1).

Finally, whereas some participants managed modifications in their homes independently, in Session 2 it was noted that these adaptations should be guided by care providers. In all, there were considerable differences in how patients *managed* the rehabilitation process versus *what they expected* of it, which seemed to be related to their own goals, postoperative complications, personal circumstances, and social connections, as well as physical fitness. As one participant said: "If you've been [fit and active] your entire life, then you just don't

know better. [...] and then [rehabilitation] takes a bit more energy" (S1).

DIFFERENCES IN PREFERENCE FOR A SOCIAL CONNECTION WITH CARE PROVIDERS

The *importance of a social connection* between patient and care provider was valued differently. One participant indicated that, "sometimes [communication] could be a bit lighter, more humorous, I think. [...] Of course, it's, [...] in fact it's very enjoyable, that you can walk again. I would [put] more humour in the process" (S2). The sociability of a surgeon was specifically valued by an S4 participant, and another participant (S3) even indicated that he switched to this surgeon because he felt he had a "better connection" with him. Another participant disagreed, arguing that "it's great if the physician is nice, but [...] if they are just functional and have good professional knowledge, that comes first" (S3).

Discussion

This study aimed to qualitatively examine the individual differences in TJA patients' preferences regarding communication and information provision throughout the patient journey to customize health services for this patient group. Participants indicated differences in these needs: they differed in how strongly they desired open and full information. Participants also reported differences in their support needs throughout the care process; specifically, the timing of hospital discharge should be more flexible, and patients should be able to have more influence on rehabilitation goals. In addition, although some patients need little guidance in rehabilitation and mostly manage themselves, others want or may need more guidance than currently provided. This need was influenced by postsurgery complications, social connections, and physical fitness. Finally, there is a difference as to how participants value social connection or rapport with care providers.

As shown in previous research (Berg et al., 2019; Klemetti et al., 2015), the preferences for information provision differed between individual participants. Participants' current statements reveal additional contextual factors such as a patient's previous experience, attitude toward care processes, and social support that determines a patient's information needs. Regarding the hospital discharge, patients in the current study indicate that the presence of social support should be taken into account, as this is known to influence the postdischarge experience for patients with TJA (Fielden et al., 2003; Marcus-Aiyeku et al., 2015; Webster et al., 2015). Patients without a partner/carer at home may need more support, for instance in adapting the home to physical limitations following the operation. The role of a discharge planning mentor was mentioned (Fielden et al., 2003), and this study emphasizes the importance of clearly communicating the presence and role of such a person, if available. Patients' personal rehabilitation goals and expectations need to be managed (Aasvang et al., 2015; Marcus-Aiyeku et al., 2015), but the participants in this study also stated that they wanted to influence the goal setting process and that their personal

factors needed to be taken into account. Sociocultural factors are also indicated as important determinants for a successful return to desired physical activities (Webster et al., 2015), but in this study, these were only mentioned in the context of guidance and feedback during rehabilitation. The need for more intense feedback and guidance on recommended levels of physical activity has also been mentioned (Fielden et al., 2003), and this study also notes factors (such as postoperative complications and social connections) that influence this need for guidance.

IMPLICATIONS FOR NURSING PRACTICE

First, this study points to the limits of a generic approach to TJA patient education. Second, this study as well as previous research supports the use of segmentation and customization mechanisms defined by Hawkins et al. (2008) to realize tailored healthcare services for patients with TJA. That is, the subgroups from previous research can be used to broadly differentiate support services for each subgroup. For example, patients in the “managing” role may benefit from expanded information and guidance, because of the relatively high preferences for open communication in this subgroup. These patients could receive more information compared with patients in the “optimistic” or “modest” roles. Additionally, the information may be differently framed between subgroups: For instance, patients in the “modest” role show higher anxiety compared with the other groups, so communication toward this subgroup could be aimed at reassurance.

Segmentation is achieved in the above examples. Beyond these adaptations, the current study provides

guidance to customize health services for each subgroup and achieve tailored care. For instance, patients in the managing role might receive a more elaborate rehabilitation guidance program. Based on this study, such an additional support service can be customized using an individual patient’s physical activity goals, physical status, and medical history. For example, one patient might be physically fit and have ambitious activity goals (e.g., to be able to go skiing) whereas another may simply want to lift a grandchild safely and pain free. Both patients participate in the guidance program, but the specific recommendations could be different for these two patients based on their physical status and activity goals. This way, the subgroup-specific service could be customized to optimally manage patient expectations and improve the postsurgery patient experience. Figure 4 provides an impression of this customization mechanism.

In the development of tailored services for patients with TJA, novel information technologies could be useful for organizational optimization and better access to healthcare services (Jansson et al., 2019). Examples can be found of technology-supported patient education in orthopaedic settings (Laude et al., 2017), but the use of technology should be expanded for it to support tailored information provision. For instance, physical activity goals have been mentioned in calls for personalized rehabilitation (Aasvang et al., 2015; Webster et al., 2015); results from this study can be used to design processes that incorporate these personal differences. In this light, it was interesting that one participant bought a step tracker to monitor progress independently, suggesting that such devices may be acceptable to at least some current and future patients with TJA to support



FIGURE 4. An example of customization for individual patients within a (targeted) service. Left: A patient has indicated to a physiotherapist (PT) that her personal goal is to be able to go skiing again. The PT gives contextualized information based on this goal, and at home (bottom), the patient uses a rehabilitation device to do exercises that are contextualized toward the skiing goal. Right: A scenario in which the patient discusses the goal of being able to safely lift his grandchild again. (These scenarios were drawn as a starting point to discuss medical feasibility with healthcare providers, i.e., whether it is safe and reasonable to specify contextualized exercise schemes for individual patients.)

their rehabilitation. Daily step counts have already been suggested as an objective measure in orthopaedic rehabilitation (Crizer et al., 2017).

Although this study specifically focuses on differences in personal preferences regarding the style of communication and information provision, it should be noted that participants also mentioned care provider behaviors and dispositions that are important for all patients: having an attentive attitude and treating patients kindly; taking patients and their physical complaints seriously; and behaving flexibly and responsively to patients' needs. These aspects are also mentioned as generic components of compassionate care (Sinclair et al., 2016) or patient-centered TJA care (Marcus-Aiyeku et al., 2015). Leaving efforts to personalize the patient experience aside, the importance of these generally valued behaviors and the need to improve these should also be stressed (Lown et al., 2011).

LIMITATIONS OF THIS STUDY AND FUTURE RESEARCH

First of all, because of the study design we were unable to evaluate patients' experiences over time and while patients were in the process of preparing for surgery or recovery. As for the credibility of the results, data saturation appeared to be achieved; in addition, 12 participants gave feedback on intermediate results and they mostly recognized themselves in the outcomes. However, it remains questionable whether patients with knee and hip replacement can be pooled, as their preferences and experiences may be too different (Aasvang et al., 2015), although this did not seem to be the case during the group sessions. Most participants in this sample had undergone a total hip arthroplasty, so credibility for patients with total knee arthroplasty may be limited. A final limitation to the credibility of the findings lies in the possible recall bias of participants.

In addition, it could be that the specific study context limits the transferability of the results. That is, the experiences of patients with TJA outside the Netherlands (or even the specific study site) may vary because the typical TJA process may be different (e.g., if the hospital stay is longer, or if patients are discharged to a skilled facility more often). The sample of this study appears to be similar to the survey study sample, but a selection bias could have occurred because participation may have been appealing to a specific subset of patients (i.e., those eager to communicate about their experiences). Most participants in this sample also had a similar cultural background (native Dutch), which may limit transferability across cultures. For instance, in cultural contexts other than the one in this study there may be less room in general to adapt rehabilitation to patients' personal wishes, or to develop a social connection with care providers.

Furthermore, it remains uncertain whether and how implementation of patients' suggestions will improve the patient experience: research and development of services for patients with TJA that incorporate the insights from this study and the survey study (Groeneveld et al., 2019) is thus needed. It also remains uncertain whether personal preferences (e.g., for open and full information) are more prominent in certain subgroups

(e.g., the first subgroup, displaying strong communication preferences). This could be further studied.

Finally, this study itself appeared to be beneficial for some participants. In all, at least three participants indicated that talking about their experiences and sharing them with other patients supported emotional closure of the events surrounding their TJA. This is in line with a therapeutic effect of participating in qualitative interviews found in other cases (Murray, 2003), and further exploration of this effect may be worthwhile.

Conclusions

In TJA, processes like information provision and communication are key determinants of the patient experience. However, to optimize these aspects of care, differences in patient communication needs and capabilities need to be accounted for. Subgroups of patients with TJA similar in their clinical, psychological, and communication characteristics can be used to create targeted information strategies. In addition, this study confirms that personal preferences should also be considered: an individual patient's mindset, social support, physical condition, and medical history should guide the tailoring of services for patients with TJA. Beyond these factors, this study also provides suggestions on how these factors could be incorporated into the TJA patient journey, both before and after surgery. These findings can be further validated by developing and evaluating tailored services for patients with TJA.

REFERENCES

- Aasvang, E. K., Luna, I. E., & Kehlet, H. (2015). Challenges in postdischarge function and recovery: The case of fast-track hip and knee arthroplasty. *British Journal of Anaesthesia*, 115(6), 861–866. <https://doi.org/10.1093/bja/aev257>
- Ackoff, R. L. (1989). From data to wisdom. *Journal of Applied Systems Analysis*, 16(1), 3–9.
- Agency for Healthcare Research and Quality. (2017). *What is patient experience?* Content last reviewed March 2017. Author. <https://www.ahrq.gov/cahps/about-cahps/patient-experience/index.html>
- Baarda, B., Bakker, E., Julsing, M., & Fischer, T. (2014). *Basisboek kwalitatief onderzoek [Fundamentals of qualitative research]* (3rd ed.). Noordhoff Uitgevers bv.
- Berg, U., Berg, M., Rolfson, O., & Erichsen-Andersson, A. (2019). Fast-track program of elective joint replacement in hip and knee—patients' experiences of the clinical pathway and care process. *Journal of Orthopaedic Surgery and Research*, 14(1), 186. <https://doi.org/10.1186/s13018-019-1232-8>
- Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs*, 27(3), 759–769. <https://doi.org/10.1377/hlthaff.27.3.759>
- Bjertnaes, O. A., Sjetne, I. S., & Iversen, H. H. (2012). Overall patient satisfaction with hospitals: Effects of patient-reported experiences and fulfilment of expectations. *BMJ Quality & Safety*, 21(1), 39–46. <http://dx.doi.org/10.1136/bmjqs-2011-000137>
- Corbin, J., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3–21.
- Crizer, M. P., Kazarian, G. S., Fleischman, A. N., Lonner, J. H., Maltenfort, M. G., & Chen, A. F. (2017). Stepping

- toward objective outcomes: A prospective analysis of step count after total joint arthroplasty. *Journal of Arthroplasty*, 32(9S), S162–S165. <https://doi.org/10.1016/j.arth.2017.02.058>
- Dekkers, T. (2020). *Data-driven patient profiles: Definition, validation, and implementation for tailored orthopaedic healthcare services*. Delft University of Technology.
- Dekkers, T., Melles, M., Mathijssen, N. M. C., Vehmeijer, S. B. W., & de Ridder, H. (2018). Tailoring the orthopaedic consultation: How perceived patient characteristics influence surgeons' communication. *Patient Education and Counseling*, 101(3), 428–438. <https://doi.org/10.1016/j.pec.2017.08.018>
- Fielden, J. M., Scott, S., & Horne, J. G. (2003). An investigation of patient satisfaction following discharge after total hip replacement surgery. *Orthopaedic Nursing*, 22(6), 429–436.
- Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105–112. <https://doi.org/10.1016/j.nedt.2003.10.001>
- Groeneveld, B., Melles, M., Vehmeijer, S., Mathijssen, N., Dekkers, T., & Goossens, R. (2019). Developing digital applications for tailored communication in orthopaedics using a Research through design approach. *Digital Health*, 5, 2055207618824919. <https://doi.org/10.1177/2055207618824919>
- Hawkins, R. P., Kreuter, M., Resnicow, K., Fishbein, M., & Dijkstra, A. (2008). Understanding tailoring in communicating about health. *Health Education Research*, 23(3), 454–466. <https://doi.org/10.1093/her/cyn004>
- Jansson, M. M., Harjumaa, M., Puhto, A. P., & Pikkariainen, M. (2019). Healthcare professionals' perceived problems in fast-track hip and knee arthroplasty: Results of a qualitative interview study. *Journal of Orthopaedic Surgery and Research*, 14(1), 294. <https://doi.org/10.1186/s13018-019-1334-3>
- Kennedy, D. M., Fasolino, J. P., & Gullen, D. J. (2014). Improving the patient experience through provider communication skills building. *Patient Experience Journal*, 1(1), 56–60.
- Kennedy, D., Wainwright, A., Pereira, L., Robarts, S., Dickson, P., Christian, J., & Webster, F. (2017). A qualitative study of patient education needs for hip and knee replacement. *BMC Musculoskeletal Disorders*, 18(1), 413.
- Klemetti, S., Leino-Kilpi, H., Cabrera, E., Copanitsanou, P., Ingadottir, B., Istomina, N., Katajisto, J., Papastavrou, E., Unosson, M., & Valkeapää, K. (2015). Difference between received and expected knowledge of patients undergoing knee or hip replacement in seven European countries. *Clinical Nursing Research*, 24(6), 624–643. <https://doi.org/10.1177/1054773814549992>
- Kreuter, M. W., Strecher, V. J., & Glassman, B. (1999). One size does not fit all: The case for tailoring print materials. *Annals of Behavioral Medicine*, 21(4), 276–283. <https://doi.org/10.1007/BF02895958>
- Laude, K., Buchholz, S. W., & Rodts, M. (2017). Improving patient education at a large midwest urban orthopaedic center. *Orthopaedic Nursing*, 36(2), 133–139. <https://doi.org/10.1097/NOR.0000000000000327>
- Lown, B. A., Rosen, J., & Marttila, J. (2011). An agenda for improving compassionate care: A survey shows about half of patients say such care is missing. *Health Affairs*, 30(9), 1772–1778. <https://doi.org/10.1377/hlthaff.2011.0539>
- Luther, B., Wilson, R. D., Kranz, C., & Krahulec, M. (2019). Discharge processes: What evidence tells us is most effective. *Orthopaedic Nursing*, 38(5), 328–333. <https://doi.org/10.1097/nor.0000000000000601>
- Marcus-Aiyeku, U., De Bari, M., & Salmond, S. (2015). Assessment of the patient-centered and family-centered care experience of total joint replacement patients using a shadowing technique. *Orthopaedic Nursing*, 34(5), 269–277. <https://doi.org/10.1097/NOR.0000000000000177>
- Murray, B. L. (2003). Qualitative research interviews: Therapeutic benefits for the participants. *Journal of Psychiatric and Mental Health Nursing*, 10(2), 233–236. <https://doi.org/10.1046/j.1365-2850.2003.00553.x>
- Petty, R. E., & Cacioppo, J. T. (1981). Epilog: A general framework for understanding attitude change processes. In Petty, R. E., & Cacioppo, J. T. (Eds.), *Attitudes and Persuasion: Classic and Contemporary Approaches* (pp. 255–269). W.C. Brown Company Publishers.
- Sanders, E. B. N. (1999). *Postdesign and participatory culture. Proceedings of useful and critical: The position of research in design* (pp. 87–92). University of Art and Design.
- Sanders, E. B. N., & Stappers, P. J. (2012). *Convivial toolbox: Generative research for the front end of design*. BIS Publishers.
- Sinclair, S., McClement, S., Raffin-Bouchal, S., Hack, T. F., Hagen, N. A., McConnell, S., & Chochinov, H. M. (2016). Compassion in health care: An empirical model. *Journal of Pain and Symptom Management*, 51(2), 193–203. <https://doi.org/10.1016/j.jpainsymman.2015.10.009>
- Sleeswijk Visser, F., Stappers, P. J., van der Lugt, R., & Sanders, E. B. N. (2005). Contextmapping: Experiences from practice. *Codesign*, 1(2), 119–149. <https://doi.org/10.1080/15710880500135987>
- Soever, L. J., Mackay, C., Saryeddine, T., Davis, A. M., Flannery, J. F., Jaglal, S. B., Levy, C., & Mahomed, N. (2010). Educational needs of patients undergoing total joint arthroplasty. *Physiotherapy Canada*, 62(3), 206–214. <https://doi.org/10.3138/physio.62.3.206>
- Specht, K., Kjaersgaard-Andersen, P., & Pedersen, B. D. (2016). Patient experience in fast-track hip and knee arthroplasty—a qualitative study. *Journal of Clinical Nursing*, 25(5–6), 836–845.
- Stappers, P. J., & Sanders, E. B. N. (2003). Generative tools for context mapping: Tuning the tools. In McDonagh, D., Hekkert, P., van Erp, J., & Gyi, D. (Eds.), *Design and emotion: The experience of everyday things* (pp. 77–81). Taylor & Francis.
- The Beryl Institute. (n.d.). *Defining patient experience*. Retrieved April 30, 2019, from <https://www.theberylinstitute.org/page/DefiningPatientExp>
- Webster, F., Perruccio, A. V., Jenkinson, R., Jaglal, S., Schemitsch, E., Waddell, J. P., Venkataramanan, V., Bytautas, J., & Davis, A. M. (2015). Understanding why people do or do not engage in activities following total joint replacement: A longitudinal qualitative study. *Osteoarthritis and Cartilage*, 23(6), 860–867. <https://doi.org/10.1016/j.joca.2015.02.013>
- Wolf, J. A., Niederhauser, V., Marshburn, D., & Lavela, S. L. (2014). Defining patient experience. *Patient Experience Journal*, 1(1), 7–19.
- Wolf, J. A. (2017). Patient experience: The new heart of healthcare leadership. *Frontiers of Health Services Management*, 33(3), 3–16.

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