

Patients' expectations and experiences of provided surgery-related patient education: A descriptive longitudinal study

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Abstract

Aims: The aim of this study was to explore the educational expectations and experiences of surgical patients.

Design: Prospective, longitudinal, descriptive and two-centre study. Data were collected with questionnaires at the hospital and 6 weeks and 6 months postsurgery.

Methods: Patients undergoing elective surgery and hospitalized overnight from January to July 2016 answered questions about the content of received pre-operative and pre-discharge education, topics they wanted more information on, sources of information, satisfaction with and usefulness of the information and if their recovery was as expected.

Results: Patients ($N = 697$, 49% male, mean age 64.1 [SD 12.6] years) perceived the provided education as useful and satisfactory but less so after discharge. Most common topics which they expected more education about were postoperative complications, pain management, fatigue, lack of stamina and expected recovery time. Most patients received information through face-to-face teaching (79.7%) and in writing (78.4%). Expectations on recovery were related to patients' satisfaction with the education and how useful they evaluated it.

KEYWORDS

healthcare surveys, hospital, nursing, patient education as topic, self-care, surgical procedures

1 | INTRODUCTION

Surgery is a well-developed and successful medical treatment for many diseases and injuries and has seen dramatic advances in the last decades with emphasis on increased day surgery and enhanced recovery (ERAS® Society, 2022). This has transformed patients' experiences and has promoted faster recovery and shorter hospitalization. Simultaneously, direct nurse–patient contact is reduced, and patients are expected to self-manage what formerly was an aspect of care provided by professionals. Hence, patients and their relatives might experience lack of support and insecurity after discharge as their transition from hospital to home is complicated (Mottram, 2011;

Ruel et al., 2021). The promotion of self-care has ethical implications, supporting empowerment and autonomy, as well as economic implications for health care, and it is also the professional duty of nurses to sufficiently prepare patients for self-care (International Council of Nurses, 2021). Patient education plays a statistically significant role in this context as patients need knowledge to make health-related decisions and manage their health, before and after the surgery, for optimal recovery. Shorter nurse–patient contact during hospitalization limits the time available for patient education, and whether the education meets patients' needs is of concern to nurses (Klemetti et al., 2018). Regardless of the specific surgical procedure, patients undergoing surgery have common educational needs which have

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not been fully explored, nor how they are fulfilled in contemporary health care.

2 | BACKGROUND

Self-care, often complex, is needed from the surgical patient, both before and after the surgical procedure itself, but the concept has not been prevalent in the surgical care literature. Self-care theories have to date focused on the chronically ill, and no self-care theories of surgical patients exist. In chronic care, self-care has been defined as a “process of maintaining health through health-promoting practices and managing illness,” and consists of self-care maintenance, monitoring and management (Riegel et al., 2012).

Examples of self-care expected of the surgical patient are preparation for surgery and managing or preventing postoperative symptoms. After surgery, “postoperative recovery” awaits the patient, a concept which has been defined as an “energy-requiring process of returning to normality and wholeness,” and which is acquired by regaining control of physical, psychological, social and habitual functions (Allvin et al., 2007). These functions include healthy nutrition, skin care and mobility and knowing how to respond to common symptoms such as postoperative fatigue and pain as well as managing wound care and knowing how and when to seek healthcare assistance. It requires comprehensive patient education to prepare patients for necessary self-care and the postoperative recovery period (Buus et al., 2021; Ruel et al., 2021).

Patient education is an important and substantial part of nursing practice, and it is important that nurses choose evidence-based strategies in this part of their practice. For patient education to be effective, it has to be patient-centred and it has to include four components, that is assessment of the patient, planning, implementation and evaluation (Health Care Education Association, 2021).

Effective postoperative education is individualized, uses multiple media forms and multiple sessions (Fredericks & Yau, 2013), and different teaching strategies and methods can affect patients' knowledge, anxiety and satisfaction (Friedman et al., 2011). Although new strategies, such as the use of websites, are available, and it is known that verbal communication alone is not effective and should be used in combination with other methods, patients still rely on traditional methods they trust, that is face-to-face discussions and brochures (Andersson et al., 2015; Ingadottir et al., 2016). They also call for a personalized approach and assistance with finding reliable information on the internet (Ingadottir et al., 2016; Kang et al., 2020; Kaptain et al., 2019).

Patient education which meets patients' expectations has been described as empowering and six-dimensional and consisting of biophysiological, functional, experiential, social, ethical and financial components (Rankinen et al., 2007). Empowered patients are expected to manage self-care better, which consequently will affect recovery, satisfaction and quality of life. There is a long list of benefits for patients with fulfilled knowledge expectations. These

include, but are not limited to possible reduced risk of postoperative complications (Koivisto et al., 2020), reduced use of pain medication (Khorfan et al., 2020) reduced depression (Fredericks & Yau, 2017), fewer readmissions, improved adherence to instructions and quality of life and more treatment satisfaction (Ayyadhah Alanazi, 2014; Fredericks & Yau, 2013; Huang et al., 2017; Kang et al., 2018, 2020; Yoon et al., 2010). Receiving adequate and comprehensible information therefore affects patient safety and outcomes of surgery (De Oliveira Jr et al., 2015).

Patients' educational expectations before surgery are indeed extensive but inadequately fulfilled. Patients are calling for more information about diverse topics such as pain and pain management and expected recovery time which may depend on postoperative fatigue. Fatigue is a well-known symptom after surgery, and although its aetiology is complicated and uncertain, it is known to affect the recovery and quality of life of surgical patients (Zargar-Shoshtari & Hill, 2009).

Surgical nursing and nursing education address perioperative care, including patient education. The focus is on both the general and special needs of patients undergoing different types of surgery, that is not only categorized according to medical specialities, but also may differ in the same speciality depending on how invasive the surgery is. Nevertheless, there are similarities with all surgical patients. It is also clear that patients' educational needs change during their postoperative recovery period. Few studies have addressed the educational needs of surgical patients, in general, over the extended period of their recovery. To be able to develop better nursing care in surgical nursing and patient education, more knowledge is needed on what educational needs surgical patients may have in common, and how current practice reflects such needs.

Therefore, the aim of this descriptive study was to explore the educational expectations and experiences of surgical patients up to 6 months after surgery. This includes to determine whether there was a relationship between patients' perception of recovery, on one hand, and how useful the education was and how satisfied patients were with the education, on the other hand. More specifically, we were interested in exploring the content of the pre-operative and postoperative education patients received, how it met patients' expectations and their sources of information.

3 | METHODS

The STROBE guidelines (strengthening the reporting of observational studies in epidemiology) for cross-sectional studies were followed in reporting on this study (See [Appendix S1](#)).

3.1 | Study design and participants

In this descriptive, prospective, longitudinal and two-centre survey study conducted in 2016–2017, data were collected with

questionnaires at three time points: before hospital discharge, and 6 weeks and 6 months postsurgery.

Participants were all consecutive, adult (18 years and older) patients, who understood Icelandic, had no cognitive impairments and had been admitted for any type of elective orthopaedic, gastrointestinal, cardiovascular, pulmonary or urological surgery between January and July 2016 and who were scheduled for discharge directly to their home after an overnight stay in the hospital. Patients scheduled for same day surgery were excluded.

3.2 | Data collection and setting

The study was conducted in two of the country's three hospitals which provide elective surgical services, one university hospital and one tertiary hospital. Educational procedures are similar in the two hospitals. Most patients visit the admission clinic few days before the scheduled surgery for assessment and education. They either get written information about the upcoming surgery mailed electronically 1–2 weeks beforehand or receive it at the clinic. Unstructured, face-to-face patient education is provided by nurses and physicians as well as physiotherapists for selected surgeries. Discharge education is sometimes sporadic and unstructured and may only include delivery of written instructions. In both hospitals, length of hospitalization has decreased in recent years and the principles of enhanced recovery or “fast track” have been implemented to some extent in some surgical specialities although none has gone to complying fully to the enhanced recovery after surgery (ERAS) protocols or guidelines (ERAS® Society, 2022).

All eligible patients were approached at each hospital after surgery but before discharge and invited to take part in the study. They answered a printed questionnaire at the hospital and could then choose whether to get the second and third questionnaire mailed or receive an electronic questionnaire via email. Online data were collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools hosted at the National University's School of Health Sciences. A reminder was sent via text messaging and email 2 weeks after the initial due date.

3.3 | Measurements

As no validated instrument was available for the purpose of the study, the data were collected with specific purpose-designed questions. These questions were designed in an earlier study by the authors and a group of clinical nurse specialists and experienced nurses from diverse surgical specialities. The questions were based on a literature review, focusing on recognized important and appropriate content of patient education to provide at different timepoints in the patient's perioperative process and the clinical experience of the group. Pre-testing was performed by 32 patients in 5 wards and

some minor revisions made based on patients' comments (Blöndal & Sveinsdóttir, 2011).

3.3.1 | Content of patient education

To assess patients' experiences of the content of the education, two sets of questions were created. The first one, delivered at the hospital (T1), asked whether patients had received any pre-operative information on selected 25 topics (see Table 2). The second one, delivered at 6 weeks postsurgery (T2), asked patients whether they had received discharge education about selected 30 topics (see Table 3). Response options were no information, yes some, yes good and does not apply to me.

To assess patients' expectations of the content of the education, three sets of questions were created. The first one, delivered at T1, asked patients whether they would have liked more information on 23 selected topics (Figure 2), the second one, delivered at T2, asked the same about selected 17 topics (Figure 3) and the third one, delivered at 6 months postsurgery (T3), asked the same about six selected topics. In answering the questions, patients marked those topics they would have liked more information on. At T3, patients were also asked whether they had received information on possible cost of the surgery and if they had experienced any unexpected out-of-pocket expenditure (response options yes/no).

3.3.2 | Information sources

At T2, patients were asked how they received the provided information and could mark one or more of the following response options: verbal—face to face; verbal—telephone; written material, websites found by patient; websites recommended by healthcare professionals; from family or friends; patient organizations.

3.3.3 | Usefulness and satisfaction with the education

Patients' experience was assessed by asking them at all timepoints how useful the education had been (response options very useful, rather useful, neither nor, not so useful, not useful), and how satisfied they were with the provided education at the hospital (response options very satisfied, rather satisfied, neither satisfied nor dissatisfied, rather dissatisfied, very dissatisfied).

3.3.4 | Recovery

Patients' perception of their recovery was assessed by asking them at T2 and T3 whether their recovery had been as they expected

before the surgery. Responses were yes, no and an option of written response (other), that was not analysed in the present study.

3.3.5 | Background

Demographic and background data were collected with specific questions in the first questionnaire, that is on age, gender, marital status, education and living arrangements (living alone or with others). From patient records, data were collected on length of hospital stay and type of surgery.

3.4 | Data analysis

Descriptive statistics were used to describe the patients' characteristics, mean (standard deviation) for continuous variables and frequency and proportion (%) for categorical variables. Data are described separately for each time point.

To assess the relationship between the patient education experience and patients' perception if their recovery had been as they expected, variables on satisfaction with and usefulness of the education were reclassified into two categories: satisfied (very satisfied and satisfied), and neither nor or not satisfied (neither satisfied nor dissatisfied, rather dissatisfied, very dissatisfied) and useful (very useful and useful), and neither nor or not useful (neither nor, not so useful, not useful).

A Fisher exact test was then used to assess whether there was a relationship between if the recovery had been as the patients expected (yes/no), on the one hand, and their satisfaction with the education and how useful it had been, on the other hand. The significance level was set at $p < .05$. Data were analysed using SPSS 26.0 for Windows (SPSS, Inc., Chicago, IL, USA).

4 | RESULTS

4.1 | Participants

A total of 1,033 eligible patients were invited to participate in the study. Of those, 697 (67.5%) consented and returned at least one questionnaire and were included in the study. The questionnaire at the hospital was answered by 632 patients, 553 responded after 6 weeks, 443 responded at 6 months after discharge, and 388 patients answered at all three time points. Figure 1 presents a flowsheet of study participation. No information was collected on reasons for patients' dropout.

The patients' mean age was 64.2 (± 12.6) years, 49.8% were male, and 85.4% had previous experience of surgery. Over half of the group (58.8%) had undergone orthopaedic surgery, and patients' average stay in the hospital was 3.9 (± 3.2) days. The patients' background characteristics are presented in Table 1.

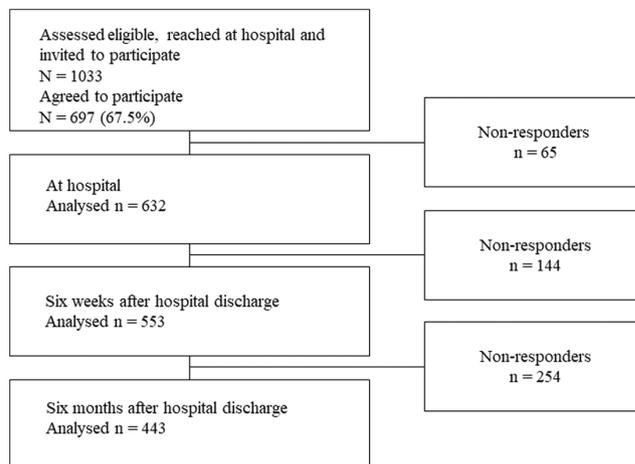


FIGURE 1 Flowsheet of patient participation in the study

4.2 | Preoperative education

Before surgery, patients reported they had received education on most of the listed topics but the five top topics which were least covered were possible effects of surgery on (a) sleep medication use, (b) their sex life, (c) sleep disturbances, (d) changes in appetite and (e) urination. Table 2 presents the proportion of patients who received and did not receive education on the inquired topics asked for.

The five top topics patients would have liked more information on pre-operatively were possible postoperative complications, side effects of pain medication, pain management, pain after surgery and wound management. Figure 2 presents the proportion of patients who wanted more pre-operative information on the relevant topics.

4.3 | Discharge education

Patients were asked about the provided discharge education at T2 and what topics they would have liked more information on, both at T2 and T3. At T2, over 50% of patients ($N = 553$) reported that they had received no education on how to manage changes in urination, possible use of sleep medication after discharge and how to manage postoperative lack of stamina. Over 40% of patients stated that they had received no education on eight other topics, including management of postoperative fatigue, possible sleep disruption and possible side effects of pain medication (Table 3).

Topics patients said they would have liked more information about at discharge included expected recovery time (33%), lack of stamina (25.5%), fatigue (24.6%) and pain after surgery (18.7%) (Figure 3).

At T3, patients ($N = 443$) were again asked what topics they still felt that they would have liked more information on. The most common responses were pain (24.5%), lack of stamina (24.9%), fatigue (22.0%), sleep (13.2%), sex (11.7%) and when to resume work (11.1%).

TABLE 1 Characteristics of the sample (N = 632)

	N (%)
Gender	
Male	315 (49.8)
Female	296 (46.8)
Missing	21 (3.3)
Education	
Basic education or less	220 (37.3)
College	175 (29.8)
Started or completed university	139 (23.6)
Other	56 (9.5)
Missing	42
Has previously worked in healthcare/social services?	
Yes	182 (30.9)
No	407 (69.1)
Missing	43
Cohabitation	
Lives with a partner	471 (78.4)
Lives with other than partner	22 (3.7)
Lives alone	108 (18.0)
Missing	31
Marital status	
Married/Cohabiting	473 (79.3)
Divorced/Widowed	84 (14.1)
Single	39 (6.5)
Missing	36
Type of surgery	
Orthopaedic surgery	372 (58.8)
General surgery	118 (18.7)
Cardiothoracic surgery	66 (10.5)
Urology	58 (9.2)
Vascular surgery	14 (2.2)
Missing	4 (0.6)
Has previously undergone surgery?	
Yes	492 (85.4)
No	84 (14.6)
Missing	56

Patients were also asked at this time point if they had received information on expected out-of-pocket expenditures related to their surgery, of which 62.3% of patients had not received any such information. They were also asked whether they had experienced any such unexpected costs, and 14.0% responded with yes.

4.4 | Information sources

After 6 weeks, patients (N = 553) were asked about the sources of the information they had received about their surgery and recovery. The

most common sources were face-to-face information from healthcare professionals (79.7%) and written information (78.4%), while 15% of patients used websites they found themselves and 8% used websites recommended by healthcare professionals (Figure 4). A total of 78.5% of patients answering at this time had used two information sources, 64% had used three information sources, and 44.8% had used four information sources, while 21.2% had used one source.

4.5 | Patient satisfaction, usefulness of patient education and perceived recovery

Patients were asked about their satisfaction with the provided patient education and its usefulness. Patients were satisfied with the provided patient education with 592 (93.7%) out of 632 patients being rather or very satisfied at discharge, 419 (75.8%) out of 553 at T2 and 359 (81.0%) out of 443 at T3.

The provided patient education was also considered useful as 585 patients (92.5%) out of 632 found it rather/very useful when asked at discharge, 500 (90.4%) out of 553 when asked at T2 and 376 (84.5%) out of 435 when asked at T3.

Finally, patients were asked whether their recovery had been as they expected before surgery. Six weeks postsurgery, 429 (77.6%) patients out of 553 who answered the questionnaire at that time stated that their recovery was as expected and 6 months postsurgery 332 (74.9%) out of 443 patients. Significantly, more patients (n = 350) who found their recovery as expected 6 weeks postsurgery were very/rather satisfied with the discharge education as compared to those who did not find the recovery as expected (n = 45; Fisher exact test; $p \leq .001$). Comparable results were found when patients were asked after 6 months. There was a statistically significant difference between those who did (n = 289) and did not (n = 55) experience their postoperative recovery to be as expected about their satisfaction with the education (Fisher exact test; $p \leq .001$).

Six months postsurgery, statistically significantly more patients (n = 298) found the discharge education very/rather useful as compared to those who did not find the recovery as expected (n = 61; Fisher exact test; $p \leq .01$). This was not found 6 weeks postsurgery.

5 | DISCUSSION

This descriptive longitudinal study on the educational experiences and expectations of surgical patients shows that there is a room for improvement in patient education, especially about the postoperative recovery process and self-care topics such as pain management, stamina, sleep and fatigue. All these are topics that might contribute to complications and delayed recovery if not fully understood and embraced by patients through self-care. The novelty of the study lies in asking patients about their educational expectations up to 6 months after surgery to learn about what topics are relevant for them over their postoperative recovery. The importance of patient education in discharge planning, to prepare patients for their

Topics included	No n (%)	Yes (good or some) n (%)	Not applicable n (%)
Possible use of sleep medication	195 (36.6)	273 (51.2)	65 (12.2)
Possible effect of surgery on sex life	197 (36.0)	242 (44.2)	108 (19.7)
Possible sleep disturbances	177 (32.2)	312 (56.7)	61 (11.1)
Possible changes in appetite	175 (30.7)	270 (47.4)	125 (21.9)
Possible changes in urination	174 (30.4)	321 (56.1)	77 (13.5)
Side effects of pain management	157 (28.0)	354 (63.2)	49 (8.8)
Colon preparation	146 (27.2)	146 (27.2)	245 (45.6)
Possible changes in bowel habits	147 (25.6)	365 (63.4)	63 (11.0)
Wound management	123 (21.7)	421 (74.4)	22 (3.9)
Use of aids after surgery	83 (15.3)	395 (72.9)	64 (11.8)
When I can resume work	77 (14.1)	341 (62.2)	130 (23.7)
Possible complications of surgery	73 (12.9)	463 (81.8)	30 (5.3)
Postoperative nutrition	63 (10.4)	518 (85.4)	26 (4.3)
Breathing exercises	58 (9.7)	515 (86.4)	23 (3.9)
Skin preparation	52 (9.1)	437 (76.7)	81 (14.2)
Leg exercises	53 (8.7)	527 (86.6)	28 (4.6)
Postoperative pain	31 (5.2)	559 (93.6)	7 (1.2)
Postoperative pain management	35 (5.0)	560 (93.8)	7 (1.2)
Anaesthesia/sedation	24 (4.1)	560 (94.9)	6 (1.0)
Premedication	21 (3.6)	526 (90.1)	7 (6.3)
Disease	21 (3.6)	522 (88.4)	48 (8.1)
Estimated length of hospitalization	19 (3.2)	558 (95.0)	10 (1.7)
What will be done in the operation	15 (2.6)	560 (96.1)	8 (1.4)
Preoperative fasting	14 (2.3)	581 (95.0)	10 (1.7)
Mobilization after surgery	12 (2.0)	590 (96.8)	7 (1.5)

TABLE 2 Topics covered in patient's pre-operative education (patient reported at hospital at hospital discharge)

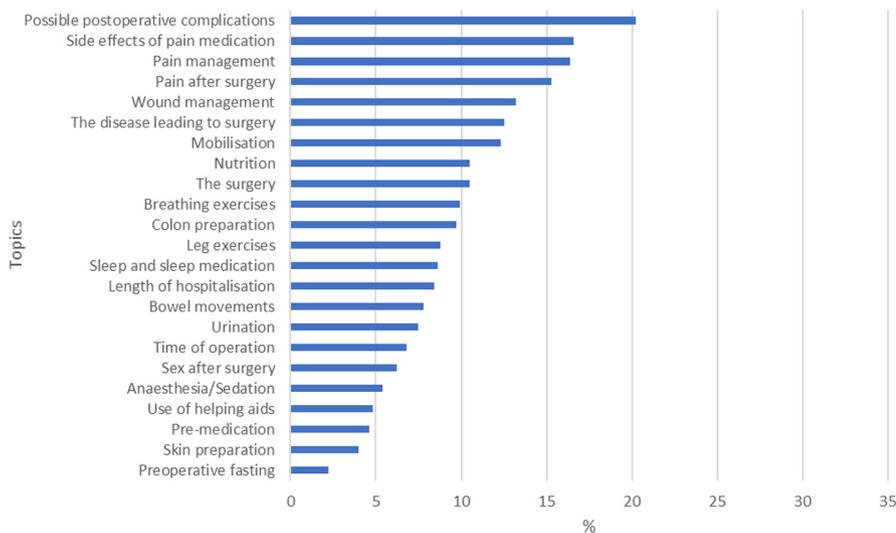


FIGURE 2 Proportion of patients who wanted more information pre-operatively on inquired topics

postoperative recovery, is evident from the results, because patients who experienced that their recovery was as they had expected were significantly more satisfied with their discharge education and found the education more useful. Yet another statistically significant finding is that despite a wealth of information being provided, patients want more information on several topics. This is interesting given

that 85.5% had previously undergone surgery; therefore, patients with previous experience of surgery should not be expected to need less education.

Pain management was one of the topics most patients wanted more information on. It is one of the most important topics to include in education of the surgical patient as pain is the main

TABLE 3 Topics covered in patient's discharge education (patient reported at 6 weeks postsurgery)

Topics included	No n (%)	Yes (good or some) n (%)	Not Applicable n (%)
How to manage changes in urination	285 (55.0)	168 (32.4)	65 (12.5)
Possible use of sleep medication after discharge	274 (52.9)	192 (37.0)	52 (10.0)
How to manage postoperative lack of stamina	259 (50.1)	235 (45.5)	23 (4.4)
How to manage postoperative fatigue	260 (49.6)	243 (46.4)	21 (4.0)
Postoperative lack of stamina	226 (43.1)	278 (53.0)	20 (3.8)
Non-medical pain management	223 (42.6)	257 (49.2)	43 (8.2)
Possible changes in urination after surgery	255 (49.6)	202 (39.3)	57 (11.1)
Possible changes in sex life after surgery	232 (46.1)	209 (41.6)	62 (12.3)
Possible sleep disruption after discharge	231 (44.8)	264 (51.2)	21 (4.1)
Possible side effects of pain medication	223 (43.1)	272 (52.6)	22 (4.3)
Non-medical pain management	223 (42.6)	257 (49.2)	43 (8.2)
How to manage changes in bowel movements	197 (38.6)	281 (55.0)	33 (6.5)
Possible changes in bowel movements	190 (36.8)	294 (56.9)	33 (6.4)
Postoperative fatigue	179 (34.0)	327 (62.1)	20 (3.8)
Diet	166 (32.9)	317 (62.9)	21 (4.2)
When recommended to drive car again	149 (28.4)	346 (65.9)	30 (5.7)
How to manage symptoms of wound infection	128 (25.0)	360 (70.3)	24 (4.7)
Signs and symptoms of wound infection	124 (24.4)	360 (70.9)	24 (4.7)
When and how to reduce use of pain medication	111 (20.9)	400 (75.5)	19 (3.6)
Expected duration of pain after surgery	93 (17.8)	424 (81.1)	6 (1.1)
When able to resume work	66 (12.7)	287 (55.4)	165 (31.9)
Wound management	72 (13.9)	427 (82.2)	20 (3.9)
How much pain to expect after surgery	56 (10.5)	474 (88.6)	5 (0.9)
Daily dose of pain medication	49 (9.2)	471 (88.3)	13 (2.4)
When to contact doctor or ward	45 (8.6)	473 (89.9)	8 (1.5)
Expected recovery time	42 (7.9)	488 (91.2)	5 (0.9)
When recommended to take a bath/shower/swim	41 (7.7)	481 (90.6)	9 (1.7)
Mobilization after surgery	37 (7.0)	491 (92.4)	3 (0.6)
Use of pain medication after discharge	30 (5.6)	502 (93.3)	6 (1.1)
When/whether to come for check-up	18 (3.4)	509 (95.1)	8 (1.5)

symptom reported by patients after surgery (Jan Odom-Forren & Wesmiller, 2017).

It is disappointing to note that up to 6 months after surgery a quarter (25%) of patients still claimed that they would have liked more information about pain management, indicating that they may not have been sufficiently prepared for managing their pain at home. This lack of knowledge on pain management after discharge is in line with previous studies (Ingadóttir & Zoëga, 2017) and may suggest that even if nurses are aware of the importance of including pain management in their teaching, it does not result in an optimal self-care outcome. To be effective, patient teaching about pain

management requires thorough preparation and competence by nurses (Ingadóttir & Zoëga, 2017).

Another main result from this study is that patients need more information about estimated recovery time and fatigue during recovery, two topics that may be interrelated. Unlike pain management, which nurses are highly acquainted with, postoperative fatigue is an underrepresented topic as manifested by the fact that only about half of the patients receive information on this issue before discharge and 22% would have liked more information on fatigue when asked at 6 months after surgery. Postoperative fatigue is characterized by tiredness and reduced concentration and affects surgical patients'

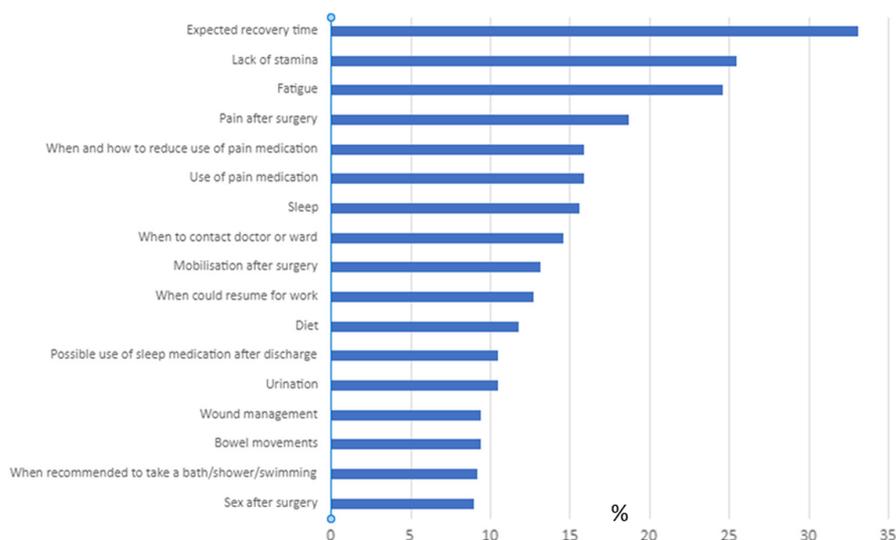


FIGURE 3 Topics patients would have liked more information on (patient reported at 6 weeks postsurgery)

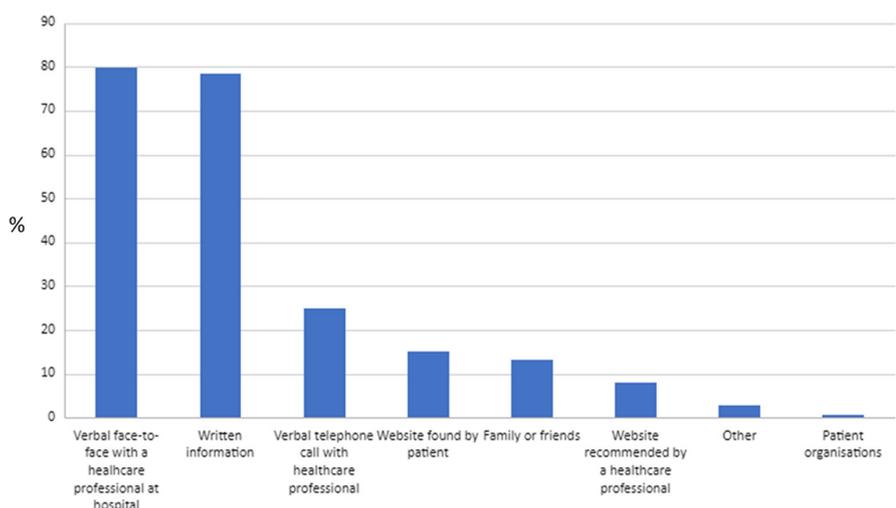


FIGURE 4 Information sources

quality of life and recovery (Scott et al., 2015). It varies in intensity, usually intensifies in the first month after surgery and then declines after 2 months, but has even been observed 2 or 3 years after surgery (Oliveira et al., 2016). Clear guidance about the management of postoperative fatigue in surgical patients is lacking, but it may be targeted with multimodal interventions such as the enhanced recovery after surgery (ERAS) approach (ERAS® Society, 202) which emphasizes comprehensive pain management and early mobilization and nutrition after surgery (Zargar-Shoshtari & Hill, 2009). These factors are interrelated, and therefore, their joint management, which certainly is in the domain of nursing, may reduce the intensity of postoperative fatigue (Odom-Forren et al., 2015). For that to happen, the subject needs more attention, awareness, research and training in surgical care.

Patients have previously called for better and longer follow-up and information after discharge (Berg et al., 2013; Buus et al., 2021; Kang et al., 2020; Mottram, 2011). The first 30 days after surgery are usually considered the most critical time with respect to adverse events and rehospitalization, and this period is widely used as an indicator of quality in health care (Kassin et al., 2012). Symptoms that patients experience after more than

30 days and are not seen as life-threatening by health professionals have perhaps not gained adequate attention despite being debilitating and affecting patients' recovery and quality of life. An example of this is distress caused by postoperative symptoms that has been found to be a predictor of symptoms of anxiety and depression (Sveinsdóttir et al., 2021) and may delay recovery. Organized follow-up is called for to find these patients and support their self-care (Ruel et al., 2021). An example of a simple and effective follow-up intervention is to support recovery via telephone (Clari et al., 2015; Santana et al., 2018) while more novel approaches including e-health based methods to provide education and support are currently being tested, with promising results (Jonker et al., 2020; van der Meij et al., 2016).

In this study, we found that 37% of patients did not receive information about the financial implications of their surgery. As addressed earlier one of the components of empowering patient education is the financial one (Rankinen et al., 2007). Previous studies have demonstrated not only that patients expect such education but also that it is least fulfilled expectation (Ingadottir et al., 2015; Klemetti et al., 2018; Rankinen et al., 2007). Our findings support that financial aspect of surgeries might be addressed further.

This study demonstrated that patient education continues to be conveyed through traditional methods. The predominant use of verbal and written instructions and the fact that less than half of the patients (47.2%) used two or more information sources is intriguing as combining various methods results in better outcome (Friedman et al., 2011). This could reflect patients' general preferences for not only verbal and written information (Ingadottir et al., 2016), but also nurses' preference for using oral communication (Lee & Lee, 2013). Then nurses often rely on methods that are habitually used in their wards (Klemetti et al., 2018). The use of other methods is recommended, and a recent systematic review showed, for example that video-based pre-operative education may contribute to decreased anxiety, improve knowledge, preparedness, satisfaction and post-operative quality of life in surgical patients. Although evidence was inconclusive, it is relevant for healthcare professionals to reconsider their practice, challenge the traditional methods of patient education and implement videos into patients' care pathways (Tom & Phang, 2022).

Although patients received wealth of information perioperatively, this study indicates that present patient educational practices are not in accordance with current evidence on optimal content and teaching strategies, including technology, to prepare patients for early discharge and self-care.

5.1 | Strengths and limitations

This study has some important strengths and limitations. The strengths include the longitudinal design with data collected from the point of hospitalization and at a 6-month follow-up which, to our knowledge, has not been described before for surgical patients as a group. Two main centres of the country performing surgery are included in the study, and the study population and the response rate were reasonable.

The study is limited by a lack of validated instruments to measure patient education. The study gives an overview of patient education for surgical patients in general, and data were not analysed according to subgroups of surgical specialities, which may affect the generalizability of the results. It might be considered a limitation that answers from patients who answered at least one questionnaire were included instead of limiting the analysis to those who answered at all times and thereby allowing for repeated analysis. However, in the analysis presented here, we were interested in the content of patient education at all times, from the patient's perspective, and for that analysis, the input of every participant was important and ethical. The patients were not asked about the same topics of education at all times. In so doing, it is acknowledged that patients' needs for education differ over time. Asking for detailed topics related to the immediate postoperative period also raises validation questions about recall 6 weeks and 6 months postdischarge.

Finally, it is acknowledged that it would have strengthened the study to base it on a specific conceptual framework. We do refer to the concepts of postoperative recovery, self-care and empowering

patient education. However, it would have been stronger to base the whole study on theories of perioperative care. This acknowledged we believe that the findings of our study will be valuable in revising and generating future instruments addressing education of surgical patients.

6 | CONCLUSION

Surgical patients receive education about the most important topics in the pre-operative and pre-discharge educational sessions at the hospital, but they expect more education on pain management, fatigue and expected recovery time. Patient education is mainly delivered using traditional methods, face-to-face and with brochures. Healthcare professionals could support patients' recovery by providing person-centred patient education, offering postoperative follow-up care and by implementing multimodal methods in their patient education. The study's results can inform the development of perioperative care and nursing education.

AUTHOR CONTRIBUTIONS

HS, BI, KB involved in study design. HS, KB contributed to data collection. BI, KB contributed to data analysis. KB, BI, HS involved in manuscript preparation.

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE (<http://www.icmje.org/recommendations/>)]:

- substantial contributions to conception and design, acquisition of data or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

Due to privacy and ethical concerns, neither the data nor the source of the data can be made available.

ETHICS APPROVAL

The study conforms to the Declaration of Helsinki ("World Medical Association Declaration of Helsinki," 2013). Patients received verbal and written information including the purpose of the study, confidentiality and anonymity before signing a consent form. The study

was approved by the mandatory institutional review board and the directors of the surgical division at both hospitals.

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