Postoperative Recovery After General and Regional Anesthesia in Patients Undergoing Day Surgery: A Mixed Methods Study

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Purpose: *To investigate differences and describe experiences of postoperative recovery after day surgery between patients undergoing general anesthesia (GA) versus regional anesthesia (RA).*
Design: *A mixed methods design.*
Methods: *Day surgery patients (N = 401) were included. Postoperative recovery was assessed daily for 14 days using the Swedish Web Version of the Quality of Recovery questionnaire included in a mobile application. In addition, qualitative interviews were completed with 20 day surgery patients. Quantitative and qualitative data were first analyzed separately and then merged.*
Findings: *There were significant differences in Swedish Web Version of the Quality of Recovery between GA and RA on days 1 to 13 (*P *< .05). These findings could not be confirmed in the qualitative findings, except for psychological issues as well as tiredness and fatigue. Unexpected issues contributed to a greater extent to the theme* not feeling well*. Pain in the surgical wound was overall the biggest problem.*
Conclusions: *There seems to be a poorer recovery after GA compared with RA. Tiredness or fatigue is present also after minor surgery in RA. Unexpected issues affect recovery negatively, and therefore should be addressed by health care.*

Keywords: *day surgery, fatigue, mixed methods, patient experience, patient-reported outcomes, postoperative*

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THE GOAL FOR DAY SURGERY is a rapid recovery, and to emphasize that, the type of anesthesia needs to be considered. The choice is between general anesthesia (GA; laryngeal mask airway, endotracheal intubation with volatile gas, or total intravenous anesthesia) and regional anesthesia (RA; spinal, epidural, or local anesthesia).[1] RA is often used for orthopaedic surgery.[2] However, GA is often chosen, as it has high acceptance by the patients. Also, more women seem to prefer GA compared with men because of the concern of being awake during surgery.[3,4] The different types of anesthesia have advantages and disadvantages. GA has significantly shorter induction compared with RA.[5] RA reduces pain scores in the postanesthesia care unit (PACU), and the need for rescue analgesics[5,6] and antiemetics.[6] There are contradictory results in the literature as to whether RA reduces the PACU length of stay, probably because of differences in discharge criteria among studies.[5,6]

Background

Outpatient surgery has become more common than inpatient surgery.[7] Outpatient surgery, also called day surgery, is defined as the surgical patient being admitted and discharged on the same day or within 24 hours.[1] Selection of patients for ambulatory or day surgery setting is based on the procedure and the patient's comorbidities.[1] The benefits of having a day surgical procedure are several; for example, patients prefer to recover at home.[8] Other benefits are lower risk for nosocomial infections and earlier mobilization, and also the cost effectiveness of not having the patient occupy a hospital bed.[1]

Postoperative recovery starts when anesthesia and surgery are ended and has been defined as the perception of the complete return to one's usual self or to one's preoperative condition or better. Recovery is an energy-consuming process of returning to preoperative levels of normality and wholeness regarding physical, psychological, social, and habitual functions.[9] Common postoperative symptoms related to anesthesia and surgery are pain, drowsiness, sore throat, and nausea.[10,11] The nurses' scope of practice is to assess the postoperative recovery in the PACU, but when the patient returns home, the recovery is left to the discretion of the patient. Long-term systematic follow-up is unusual in clinical practice and lived experiences may add value to the understanding of the recovery process. Such knowledge is essential for nurses to prepare, care for, and support day surgery patients. To our knowledge, there is a knowledge gap regarding patients' experiences of their postoperative recovery after GA and RA during the first 14 postoperative days.

The Study

Aim

The aim of this study was to investigate differences and describe experiences of postoperative recovery after day surgery between patients undergoing GA versus RA.

Design

A mixed methods study with a modified explanatory sequential design[12] was undertaken to address the research questions.

Participants

The quantitative (N = 401) and qualitative (N = 20) parts consisted of two separate samples with day surgical patients. Inclusion criteria were undergoing day surgery, age older than 17 years, access to a smartphone (quantitative study only), and able to understand written and spoken Swedish. Exclusion criteria were visual impairment, memory impairment, or substance abuse.

Data Collection

First, a quantitative data collection was performed, and the results were analyzed (Figure 1). On the basis of the quantitative findings, a qualitative interview study was made, separately from the quantitative data collection, to further explore the postoperative recovery process. On the basis of the findings from the qualitative analysis, a second quantitative analysis was performed (Figure 1). The analyses from the two data collections were made separately and with separate study samples, and thereafter the results were interpreted together.

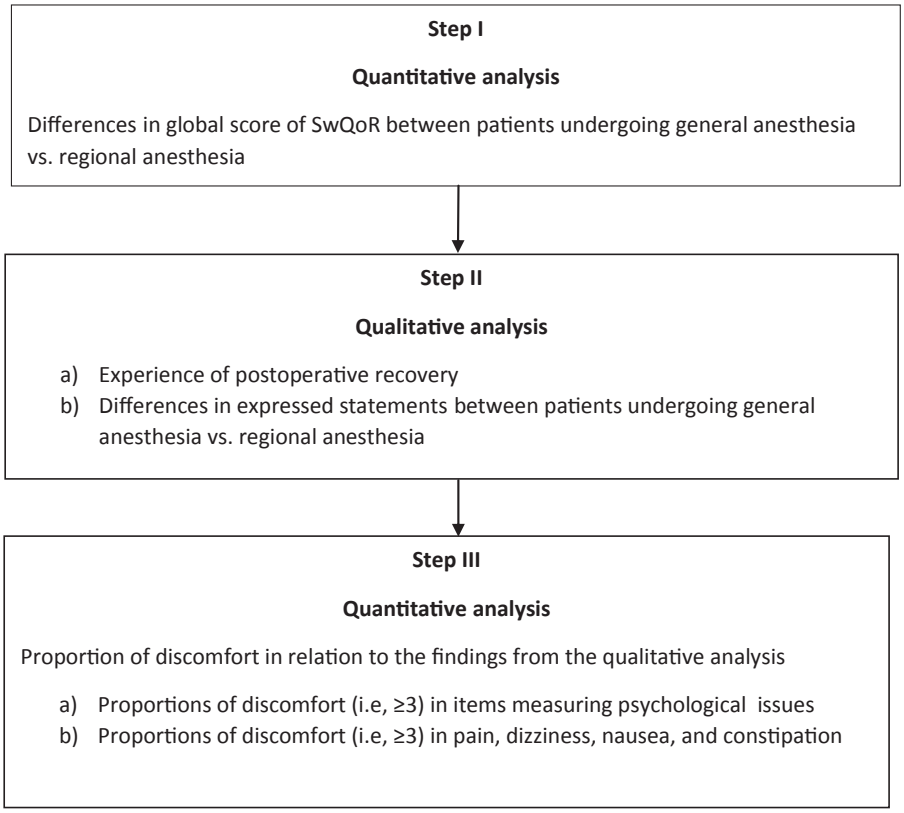

Figure 1. Flowchart of the steps in the analysis. SwQoR, Swedish Web Version of the Quality of Recovery.

QUANTITATIVE STUDY. The quantitative data collection was part of a multicenter, two-group, parallel, single-blind randomized controlled trial conducted from October 2015 to July 2016 at four day surgery departments in Sweden.[13] The participants were invited to enroll preoperatively on the day of surgery. Written information about the study was sent out in advance, together with information about the planned surgery. Interviews were completed preoperatively on the day of surgery, and all participants gave oral and written consent to participate in the study. This present study included only participants who were randomized into the intervention group and who had undergone general, orthopaedic, or hand surgery with GA or RA.

This study presents a secondary analysis of data collected from the intervention group who answered the Swedish Web Version of the Quality of Recovery (SwQoR) questionnaire daily for 14 days after surgery. The intervention included a systematic postoperative follow-up via a mobile phone application, RAPP (Recovery Assessment by Phone Point), including the SwQoR questionnaire. SwQoR questionnaire includes 24 items measuring postoperative recovery, to be reported on an 11-point response scale (0 to 10), where 0 = none of the time and 10 = all the time, with global score ranging from 0 (excellent quality of postoperative recovery) to 240 (extremely poor quality of recovery).[13,14] Reliability and validity tests have provided sufficient evidence that SwQoR questionnaire is appropriate to use for day surgery patients measuring postoperative recovery day 1 to 14: internal consistency (0.91 to 0.93).[14] Content validity index has also been evaluated and found to be 0.94 for staff and 0.72 for day surgery patients.[15] The SwQoR questionnaire was answered daily for 14 days after the surgery. Preoperatively, RAPP was installed by the research nurse on each participant's own smartphone.

Participants' demographic and postoperative data were gathered from patient records and covered

Table 1. Distribution of Gender, Age, Type of Surgery, and Duration of Surgery Between General and Regional Anesthesia

	Quantitative Study Sample			Qualitative Study Sample	
	General Anesthesia (n = 292)	Regional Anesthesia (n = 109)	*P* Value	General Anesthesia (n = 10)	Regional Anesthesia (n = 10)
Gender					
Women, n (%)	142 (48.6)	74 (67.9)	.001*	5	6
Men, n (%)	150 (51.4)	35 (32.1)		5	4
Age					
Mean (SD)	45.1 (14.7)	49.3 (13.6)	.01†	46.4 (19.8)	51.2 (17.5)
Min-max	18-81	19-73		18-75	28-76
Type of surgery, n (%)					
General	116 (39.7)	10 (9.2)	< .001*	3 (30.0)	4 (40.0)
Hand	66 (22.6)	50 (45.9)		6 (60.0)	3 (30.0)
Orthopaedic	110 (37.7)	49 (44.9)		1 (10.0)	3 (30.0)
Duration of surgery (min)					
Mean (SD)	44.6 (30.4)	33.5 (24.3)	.001†		
Min-max	2-145	14-105			

*Analyzed with χ^2 test.
†Analyzed with independent *t* test.

age, gender, type of anesthesia and surgery, and duration of surgery (Table 1).

QUALITATIVE STUDY. For the qualitative part of the study, semistructured interviews with 20 day surgery patients were conducted from June to September 2017. The data collection was conducted after and separately from the quantitative data collection. To participate, patients had to be older than 17 years and able to share their experiences in Swedish. In total, 35 day surgery patients from two day surgery units were asked by nurses whether a researcher could contact them after their surgery for an interview. From these, 20 patients were selected to be interviewed. A purposeful maximum variation sample strategy[16] was used to identify 10 participants who had undergone surgery with GA and 10 with RA. Participants were also chosen for variation in gender, age, and type of surgery. None of the respondents refused to participate in the interview. The interviews were conducted about 2 weeks postoperatively, on day 12 to 19 (median 14 days), by one of the authors (K.H.), who had not been part of the quantitative data collection or analyses. The interviews were conducted face to face (7 interviews) in the study participant's home or workplace, or by telephone (13 interviews), as desired by the study participant. All interviews started with the question "can you tell me how you felt when coming home after your surgery?" and ended with the question "was there something that surprised you concerning your recovery?" To gain a deeper understanding probing questions were asked. Written information about the study was provided by the nurse at the preoperative department, and oral information was provided by the researcher. Informed consent was obtained before the interview. None of the participants in the qualitative part of the study had participated in the quantitative study or had any experience of using RAPP.

Data Analysis

QUANTITATIVE DATA ANALYSIS. Descriptive statistics of age, gender, and type and duration of surgery are presented with number, percentage, and mean (SD) or min-max, as appropriate (Table 1). To analyze differences between GA and RA, χ^2 and Student's *t* tests were used. The quantitative analyses were conducted twice. In step I (the first quantitative analysis) differences between global scores of SwQoR between GA and RA were analyzed using Mann-Whitney *U* tests.

In step II the qualitative analysis was performed (see subsequently). Step III (the second quantitative analysis) was guided by the findings of the

qualitative analysis (step II) and led to separate analysis of one factor in SwQoR questionnaire including seven items that measured psychological issues of recovery.[14] The qualitative findings also led to discomforting symptoms and issues that the patients expressed in the qualitative finding analysis, that is, pain in the surgical wound, muscle pain, sore throat, dizziness, nausea, constipation, having difficulty taking care of one's personal hygiene, and having difficulty returning to work or usual home activities were analyzed a second time in the quantitative data. These items were dichotomized into 0 to 2 (nonminor discomfort issues) and 3 or greater (discomforting issues) and are presented as scores of 3 or greater within days 1 to 14. For statistical analyses, IBM SPSS statistics version 24 for Windows was used (IBM, Armonk, NY). A P value $< .05$ was considered statistically significant in all analyses.

QUALITATIVE DATA ANALYSIS. All interviews were *transcribed* verbatim by a professional transcription company and analyzed in line with an inductive thematic analysis.[17] In the first step, all interviews were read through, and expressions concerning the experienced postoperative recovery were marked. At the same time, initial reflections on the data were noted. In the second step, the marked expressions were coded into a condensed semantic description of the experiences expressed. In the third step, themes were identified, based on sorting the codes and initial reflections. In this step, relations between and levels of the themes were also mapped. In the fourth step, a review of the themes was conducted, when all codes included in a theme were considered, following which the whole analysis was considered in relation to the original texts and initial reflections. Thereafter, all themes and subthemes were named with inspiration from the items used in SwQoR questionnaire. After the inductive analysis, an analysis based on the prevalence of the themes in each interview[17] was performed. The analysis was completed in Swedish, then translated into English for the manuscript.

Ethical Considerations

Study implementation upheld the ethical standards of the Helsinki Declaration (sixth revision) and was approved by the Uppsala Regional Ethics Committee (2015/262). All participants were informed that the study was voluntary and that the data would be treated with confidentiality. They were also informed that they could terminate their participation at any time.

Results

Quantitative Sample Population

In the main study 1,796 patients were eligible for inclusion. Of these, 433 did not meet the inclusion criteria and 336 declined to participate, resulting in 1,027 day surgery patients who were included for randomization. Of the 513 participants randomized into the intervention group, 19 were excluded because of canceled operations (n = 15), refusal to participate (n = 3), and technical issues (n = 1), leaving a total of 494 participants. After excluding participants undergoing ear, nose, and throat (n = 57); gynecologic (n = 26); eye (n = 5), urological (n = 3); and dental (n = 2) surgery, 401 participants remained, 185 (46.1%) men and 216 (53.9%) women. The participants were distributed among general surgery (n = 126), orthopaedic surgery (n = 159), and hand surgery (n = 116).

Qualitative Sample Population

In the qualitative study, 9 males and 11 females participated, aged between 18 and 76 years (median 26). The participants had undergone general (n = 7), orthopaedic (n = 4), or hand (n = 9) surgery. Ten had undergone surgery with GA and 10 with RA.

POSTOPERATIVE RECOVERY: A COMPARISON OF GA VERSUS RA. When comparing GA versus RA, the quantitative analysis showed that there were significant differences in gender, age, and type and duration of surgery in the quantitative data collection (Table 1). Participants undergoing GA rated statistically significantly poorer recovery (ie, more discomfort); $P < .05$ (all postoperative days, except for day 14; Figure 2). The prevalence analysis of the themes in each interview showed no distinct difference between participants who had undergone surgery with RA compared with GA, except for tiredness/fatigue and psychological problems. Expressions related to these two categories were more common

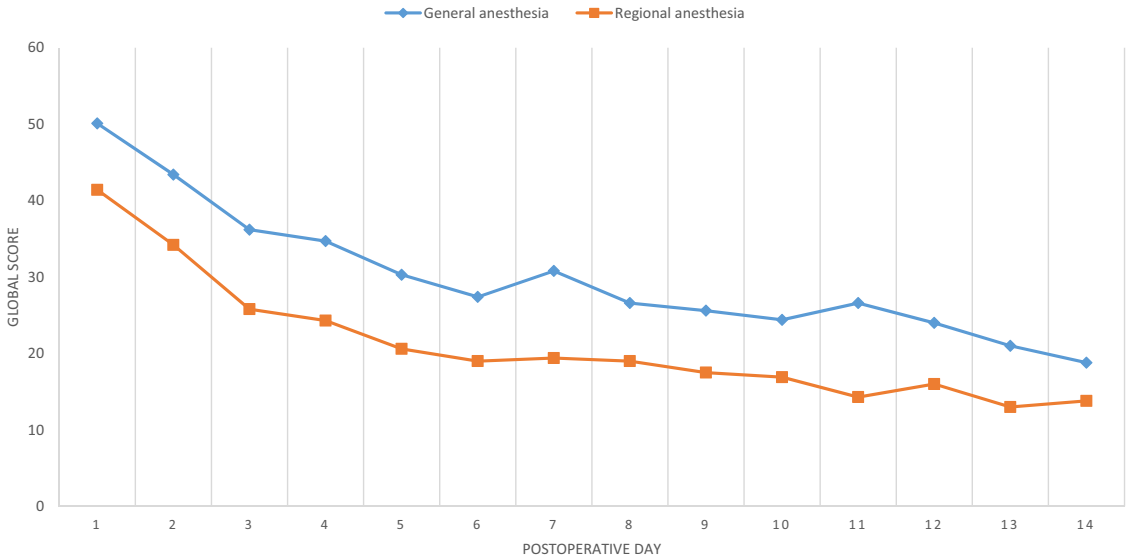

Figure 2. Global score of postoperative recovery measured using Swedish Web Version of the Quality of Recovery. Higher scores indicate poorer recovery, that is, more discomfort. Statistically significant differences, $P < .05$ (Mann-Whiney U tests) all postoperative days, except for day 14. This figure is available in color online at www.jopan.org.

among participants who had undergone surgery with GA (Table 2).

DEALING WITH THE POSTOPERATIVE RECOVERY PROCESS. The general experience of the postoperative recovery process, *not feeling well* or *feeling well*, appeared to be much related to personal expectations of the recovery process. Physical, psychological, and social problems were found in the qualitative analysis (Table 3) as well as in the quantitative data.

Not Feeling Well. In the findings from the quantitative analysis of the physical problems mentioned in the qualitative analysis (pain, muscle pain, sore throat, dizziness, nausea, and constipation), pain in the surgical wound of 3 or greater was overall the biggest problem, ranging between 16% and 76% during the two postoperative weeks and muscle pain that ranged between 20% and 33%. The proportion of discomfort in sore throat, dizziness, nausea, and constipation were lower and ranged between 4% and 29% (Figure 3).

Most participants in the qualitative study reported more than one category of experienced problems (Table 2). If the problems were experienced as unexpected by the participant, the postoperative process was to a greater extent associated with a general experience of not feeling well.

Pain, both at unexpected locations, such as general muscle pain or pain related to dressings and plaster, and at unexpected times, such as after several days, was reported in the interviews.

> *I did not have pain in the wound itself, but they dressed the foot really tight, very, very hard, so I had pain from that. I had my surgery in the heel, but the pain was on the instep, and I still have ugly marks and abrasions from the dressings there.*

Dizziness, nausea, and constipation were also reported in the interviews. Tiredness, described as a feeling of being in need of sleep, and fatigue, expressed as a state of severe physical and mental exhaustion, were frequently mentioned and had a great impact on the participants' daily lives.

> *I was exhausted. Just fell asleep and so. I have slept very much. I don't know exactly why. But I have been so tired. It was like… you go to the couch and then—bang-you sleep.*

Table 2. Prevalence of the Themes in Each Interview, Sorted by Type of Anesthesia

		Feeling Well		Not Feeling Well			
		Adaptation to the Situation	General Feeling of Well-being	Psychological Problems	Physical Problems	Tiredness/ Fatigue	Negative Practical and Social Consequences
Informant	RA/GA						
1	GA	X		X	X		
2	GA						X
3	GA				X	X	
4	GA	X			X	X	
5	GA			X	X	X	X
6	GA				X	X	
7	GA		X	X			
9	GA	X			X	X	
11	GA		X	X	X	X	
14	GA	X	X		X	X	
8	RA	X					X
10	RA		X				
12	RA		X		X	X	
13	RA		X				
15	RA				X		X
16	RA	X			X		
17	RA			X	X	X	X
18	RA		X	X	X	X	
19	RA				X	X	
20	RA		X				

GA, general anesthesia; RA, regional anesthesia.

Some participants described the fatigue as a process where they at first, directly after the surgery, had felt very alert or even speeded. After some hours, they "collapsed" and felt a great fatigue that lasted for several days. The fatigue itself sometimes caused anxieties, or practical or social problems. Fatigue was not measured using the SwQoR.

The proportions of patients rating psychological discomfort (ie, 3 or greater) during the two postoperative weeks ranged between 17% and 50% in *having difficulty feeling relaxed*, 15% to 49% in *not having a general feeling of well-being*, 11% to 27% in *not feeling in control of my situation*, 13% to 46% in having *sleeping difficulties,* 12% to 31% in having *difficulties in concentrating,* 12% to 32% in feeling *anxious*, and 10% to 28% in feeling *depressed*. The highest rating of discomfort was recorded on day 1, and the item with the overall highest proportion of discomfort was *having difficulty feeling relaxed* (Figure 4). Psychological problems such as feeling depressed or emotionally numb were also expressed in the interviews, as well as anxiety about the future and for their

Table 3. Overview of Qualitative Results: Main Theme, Themes, and Categories

Dealing with the Postoperative Recovery Process					
Not Feeling Well				**Feeling Well**	
Physical problems	Tiredness/ fatigue	Psychological problems	Negative practical and social consequences	Adaptation to the situation	General feeling of well-being

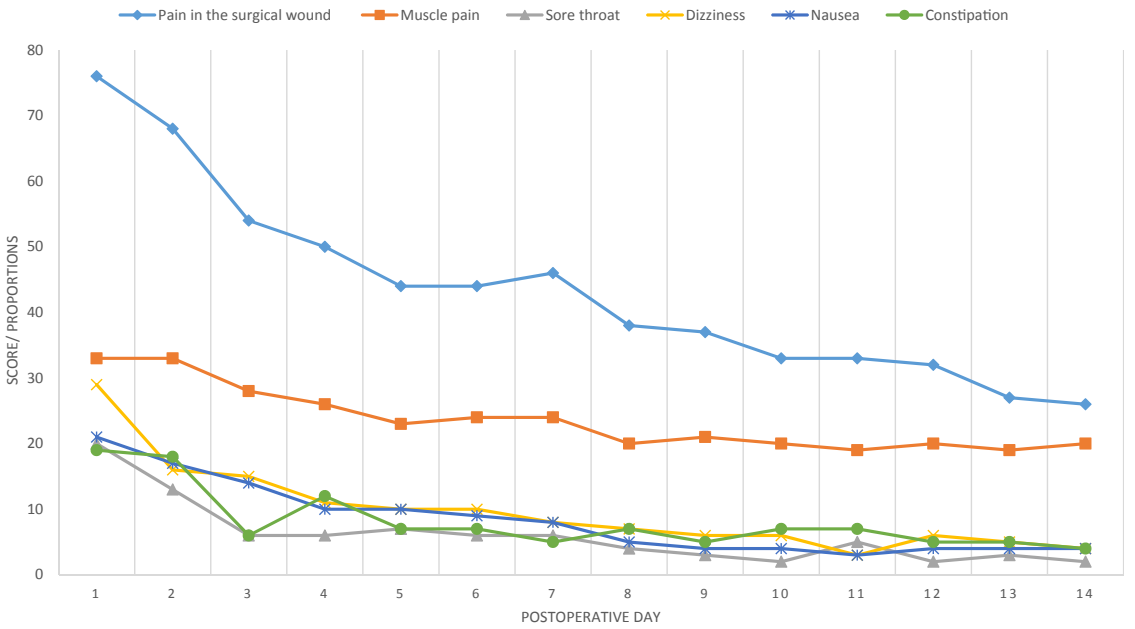

Figure 3. Proportions of patients rating 3 or greater in the items pain in the surgical wound, muscle pain, sore throat, dizziness, nausea, and constipation within postoperative days 1 to 14. This figure is available in color online at www.jopan.org.

own recovery process. When the recovery process did not go as expected from the participants' point of view, a strong feeling of being disappointed occurred.

The proportions of patients rating 3 or greater in the item *having difficulty taking care of my personal hygiene* ranged between 22% and 45%, and in the item *having difficulty returning to*

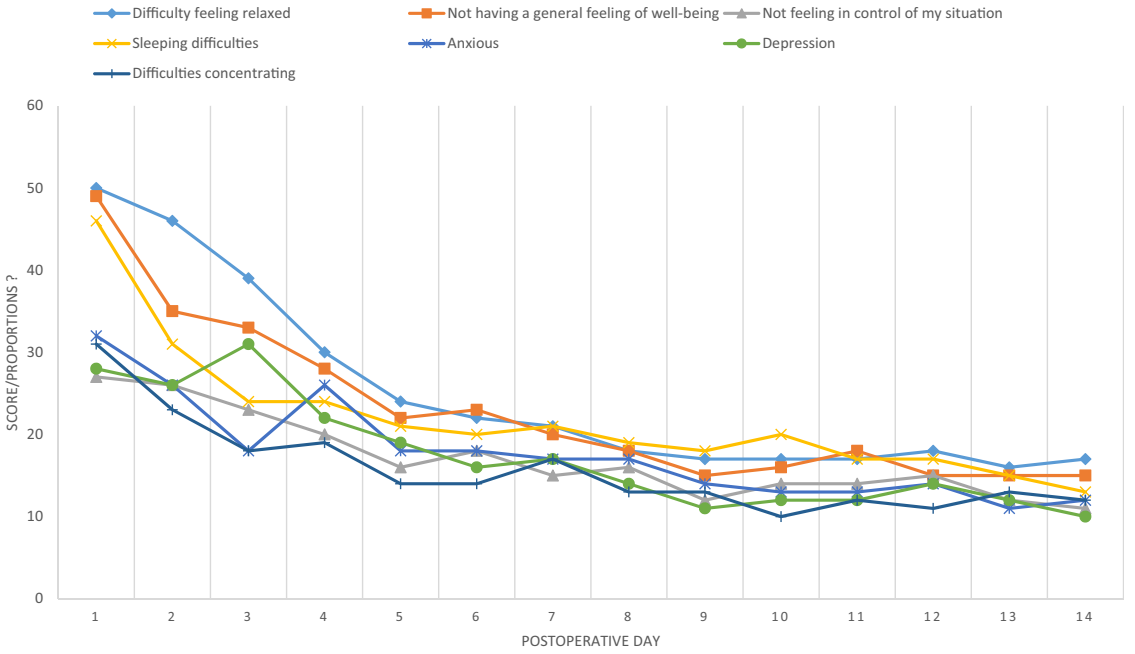

Figure 4. Proportions of patients rating 3 or greater in the items of psychological discomfort, within postoperative days 1 to 14. This figure is available in color online at www.jopan.org.

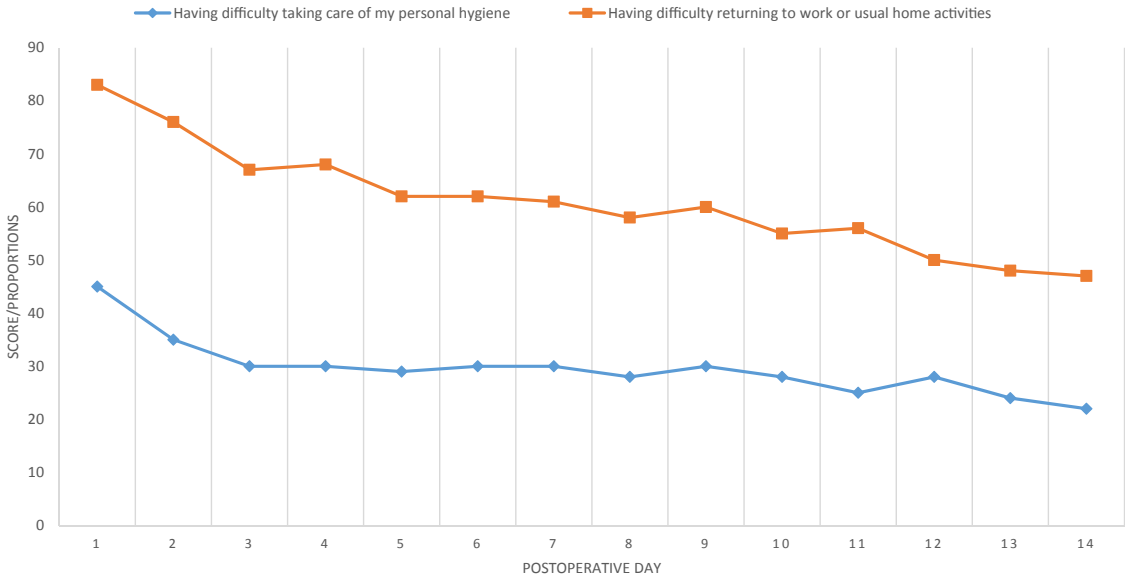

Figure 5. Proportions of patients rating 3 or greater in the items having difficulty taking care of my personal hygiene and returning to work or usual home activities, within postoperative days 1 to 14. This figure is available in color online at www.jopan.org.

work or usual home activities between 47% and 83% (Figure 5). The consequences of not being able to take care of oneself or not being able to participate in daily work or social activities lead to that the participants felt isolated and lonely.

Feeling Well. Despite problems like pain or practical limitations, a general feeling of well-being was described by several participants in the qualitative interviews. They described their recovery process as expected, and also expressed a strong belief in their ability to recover. The participants described how they had adapted to their state from both a practical and mental viewpoint, to minimize any negative impact on everyday life, or problems like pain or other symptoms.

> *I think, in general, that this has been okay so far… Sure, I wish that this had not happened, but now when it has it is like it is for these six weeks, and I have to make the best I can of it…*

> *I felt like a princess, I tell you. I had no discomfort to speak about. It was painless and I could walk, so I think it was really a good experience.*

Experienced health problems could be attributed to causes other than the surgery itself, such as tiredness related to overload at work.

Discussion

To the best of our knowledge, this is the first study with a mixed methods design describing patients' experiences of their postoperative recovery after discharge as well as comparing differences between types of anesthesia, and the results emphasize the complexity of the process. We found that patients undergoing surgery with GA assessed significantly more postoperative discomfort than those undergoing surgery with RA. Discomfort included physical, psychological, and social problems, and the general experience and dealing with these seemed to be related to personal expectations of the recovery process. The reason behind the differences in discomfort between GA and RA is unclear, and the qualitative data cannot confirm these results. However, there were significant differences in age, gender, type of surgery, and duration of surgery between the groups, which are confounders to take into account. Still, it has been reported that the risk of perioperative complications is generally considered to be higher with GA as compared with RA.[5,6] Yet these studies were conducted before discharge. Also it is hard to find any studies measuring patient-related outcomes such as patients' experiences of quality of postoperative recovery. Therefore, further research is needed using a randomized controlled trial design to evaluate whether there

are any differences in postoperative recovery after discharge between different types of anesthesia.

In the qualitative findings, participants expressed that they experienced fatigue and tiredness and that it had a great impact on their daily lives. Tiredness was described as a feeling of being in need of sleep, and fatigue as a state of severe physical and mental exhaustion. Fatigue has also earlier been described by patients undergoing day surgery.[18] The etiology of postoperative fatigue is most likely to be multifactorial, with interactions among biological, psychological, and possibly social factors. The biological aspect of it can be divided into the surgical stress response, a decline in nutritional status, and a reduction in physical fitness after surgery. Generally, major abdominal and cardiac surgeries are associated with greater postoperative fatigue than are minor surgeries. Factors such as stress, anxiety, depression, pain, and changes in sleep patterns also seem to influence the severity of fatigue.[19] Fatigue and tiredness are not measured using SwQoR, which is a weakness, and it is possible these are items that should be included. In an earlier study by Dahlberg et al. from 2016, patients undergoing day surgery, as well as surgeons, anesthesiologists, and nurses were asked if there were any symptoms or discomfort missing in the SwQoR that they thought should be included. Remarkably, in the light of these results, tiredness or fatigue was not a postoperative symptom or discomfort that was mentioned.[15] When comparing SwQoR with the postoperative recovery instrument Postdischarge Surgical Recovery Scale,[20] tiredness is measured. Yet, several instruments such as the Postoperative Recovery Profile questionnaire,[21] the Postoperative Quality Recovery Scale,[22] Quality of Recovery-40,[23] and Quality of Recovery-15[24] are lacking items that measure tiredness or fatigue, despite postoperative recovery having been defined as an energy-requiring process.[9] It is therefore of great importance to continue to amend an instrument and to always have patients' participation in all steps of the development.

Our findings also show that pain management was mentioned as a potential cause of dizziness, nausea, or tiredness, which confirms earlier findings reporting an association between pain and the severity of fatigue.[19] In our findings pain as a postoperative problem was reported frequently, and when it was perceived to occur in unexpected places or at unexpected times, it was perceived to be worse than expected pain. These findings reflect those of Leegaard and Fagermoen,[25] in which women undergoing cardiac surgery suffered from unexpected pain, such as neck, shoulder, and back pain, more than the pain from the surgical wound; they emphasized the importance of knowing why a certain pain is experienced, because this information made it easier to cope with the pain. When the pain was unexpected, the women felt more uneasy and experienced more intense pain. Still, they often did not follow the recommended dosage of analgesic and wanted to take as little medication as possible.[25] Our findings stress the importance of promoting realistic expectations of the recovery process not only to manage inconvenience but also to be aware of normal recovery problems and complications. To support an adequate mental and practical preparation for the postoperative recovery, an optimal information structure and dissemination need to be identified. Berg et al. stated that for the day surgery patients, organizational time savings affected the information given when patients were ready for discharge still suffering from residual effects of anesthesia. They were forgetful. Thus, the information did not sufficiently support their recovery at home, resulting in insecurity and feelings of being a burden.[26,27] For patients undergoing joint replacement, it has been reported that their psychological function was significantly impaired 1 month postoperatively.[28] This is confirmed by our results showing that psychological discomfort during the two postoperative weeks ranged between 17% and 50%, with highest discomfort on day 1 and in *having difficulty feeling relaxed.* From day 5 the psychological discomfort stabilized, yet remained between 10% and 23%. Emotional support from family and friends in the postoperative recovery process is as important as practical support[26]; also there is a relation between patients' perceptions of their quality of recovery and satisfaction.[29]

Methodological Considerations

When merging qualitative and quantitative data, the researcher will look for confirmation, expansion, and discordance in the two data sets. Confirmation

occurs when the data confirm each other, that is, the results from the qualitative and quantitative analyses confirm the results in the respective strands. The data can also expand, that is, when the two strands diverge and expand or complement the results from the qualitative and quantitative findings. Discordance results when the two data sets conflict or disagree with each other.[12] When results from the quantitative and qualitative study do not match completely, this does enhance the robustness of the study by illustrating the complexity of the problem studied.[30] In this study, significant differences in recovery between patients who had undergone GA versus RA were found in the quantitative analysis. This finding could not be confirmed by the qualitative interviews. The cause for this discordance could be that the data collections were not drawn from the same sample and that the qualitative interviews were not primarily designed to focus on differences between the two groups but to describe experienced recovery.

Merging and interpretation of data in a mixed methods study can be made at different stages of the research process. In this study, the data collections were conducted totally separately, and the individual researchers were involved in either the quantitative or the qualitative data collection and analysis in order not to influence the results. This procedure minimized the risk of the qualitative results being influenced by the quantitative results,[12] but an embedded study sample or a matched qualitative sample might have been even more useful to further explore the quantitative findings. Even so, to enable an integrated analysis and interpretation of the quantitative and qualitative results, the same phrases were used to describe the findings in both quantitative and qualitative results. By an integration of data transformation, performed by a thematic prevalence analysis,[17] a further merging of the results occurred.[31] The merging process and interpretation of the overall results were done by all authors.

Limitations

This study has some limitations. The study was conducted in Sweden and included only patients with Swedish-speaking backgrounds, so the results may not apply in other settings. Preoperative SwQoR values were not measured, and only day surgery patients undergoing some specific types of surgery were recruited. Furthermore, at baseline there were significant differences in age, gender, type of surgery, and duration of surgery between the groups, which are confounders to take into account.

Conclusions

These results offer an insight into day surgery patients' postoperative discomfort after discharge; yet, with this mixed methods design the result could not clearly differentiate that postoperative experiences are dependent on the type of anesthesia. However, the quantitative results suggest that there seemed to be a poorer postoperative recovery after GA compared with RA. The results show a variability of distressing symptoms, setbacks, and actions taken by the patients to have a smooth postoperative recovery process.

It is important for health care personnel to know that unexpected problems in the postoperative process affect the patient's feeling of well-being. Therefore, patients should be informed about the types of discomforting symptoms they could experience during their postoperative recovery process.

This study also highlights that postoperative fatigue is not only present after major surgery with GA but is also described after minor day surgery with RA. The nurses should therefore inform the day surgery patient and the relative about this before discharge, because postoperative fatigue has an impact on patients' postoperative recovery. However, this needs to be investigated further.

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