

The Surgical Experience: A Pilot Study of Patients' Information Needs and Their
Internet Use

by

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ABSTRACT

Background. While many Canadians search online for information, it is unclear to what extent those having surgery access the internet to meet their information needs.

Purpose. A pilot study was conducted to examine adult surgical patients' information needs and internet use.

Methods. Participant recruitment occurred on four surgical units. Sixty patients completed an online survey following discharge.

Findings. Considerable variability was observed in participants' perceptions of the extent their information needs were met. Participants whose information needs were met to a greater extent tended to be more satisfied with their surgical experience. Participants who searched the internet tended to agree their information needs were met to a greater extent than those who did not.

Conclusion. Findings provide preliminary evidence of the reliability and validity of the survey and suggest it may yield useful information to advance our understanding of how the internet might be used to address patients' information needs.

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Table of Contents

| | |
|----------------------------------------------------------------------------|------|
| ABSTRACT | ii |
| ACKNOWLEDGEMENTS | iii |
| Table of Contents | iv |
| List of Tables..... | vii |
| List of Figures | viii |
| Chapter 1: Introduction | 1 |
| Background | 3 |
| Chapter 2: Literature Review | 8 |
| Search Strategy..... | 8 |
| Summary of Review Articles | 12 |
| Summary of Primary Articles | 13 |
| Data Collection Methods in the Primary Studies..... | 17 |
| Phases of the Surgical Experience Examined in the Primary Studies | 17 |
| Themes About Information Needs Identified in the Qualitative Studies | 17 |
| Measurement Instruments Used in the Quantitative Studies | 17 |
| Information Needs Across the Reviewed Studies..... | 22 |
| Chapter 3: Methods..... | 23 |
| Research Aims and Objectives..... | 23 |
| Survey Instrument | 23 |
| Target Population, Accessible Population, and Sample | 25 |
| Study Protocol..... | 25 |
| Ethical Considerations | 27 |

| | |
|--------------------------------------------------------------------------------------|----|
| Data Management and Analysis..... | 29 |
| Chapter 4: Findings | 30 |
| Sample Characteristics | 30 |
| Information Needs..... | 32 |
| Overall Amount of Information Received | 34 |
| Online Health Information Seeking | 35 |
| Satisfaction with the Surgical Experience..... | 38 |
| Associations Among Information Needs and Satisfaction | 38 |
| Comparison Between Information Needs and Online Health Information Seeking.... | 39 |
| Post-Hoc Power Analysis..... | 40 |
| Open-Ended Responses Addressing Information Needs | 40 |
| Chapter 5: Discussion | 44 |
| Feasibility of the Study Protocol..... | 44 |
| Reliability and Validity of Items Measuring Surgical Patients’ Information Needs ... | 46 |
| Potential Utility of the OHIS-SE Survey | 48 |
| Limitations | 49 |
| Conclusion | 50 |
| References | 52 |
| Appendix A: Online Health Information Seeking – Surgical Experience Survey | 63 |
| Appendix B: Staff Information Flyer | 67 |
| Appendix C: Participant Recruitment Flyer..... | 68 |
| Appendix D: Participant Recruitment Email | 69 |
| Appendix E: Participant Follow-Up Email | 72 |

Curriculum Vitae

List of Tables

| | |
|-------------------------------------------------------------------------------------------------------|----|
| Table 1: Frequency of Measures of OHIS Used in the Reviewed Studies on OHIS in Surgical Patients..... | 6 |
| Table 2: Search Strategy and Results from Bibliographic Databases..... | 10 |
| Table 3: Summary of Primary Research Articles Investigating Surgical Patients’ Information Needs..... | 14 |
| Table 4: Information Needs Measurement Instruments Used in the Primary Research Articles | 20 |
| Table 5: Descriptive Statistics for Sample Characteristics | 31 |
| Table 6: Descriptive Statistics for the Extent to Which Information Needs were Met.... | 33 |
| Table 7: Frequencies for Online Health Information Seeking | 36 |
| Table 8: Frequencies for Those who Searched the Internet Regarding their Surgical Experience..... | 37 |
| Table 9: Spearman’s rho Correlations for Information Needs and Satisfaction | 38 |
| Table 10: Mann-Whitney U Tests Comparing Information Needs based on Internet Use | 39 |

List of Figures

| | |
|----------------------------------------------------------------------|----|
| Figure 1: The Phases of the Surgical Experience..... | 2 |
| Figure 2: PRISMA Flow Diagram of Article Selection Process..... | 11 |
| Figure 3: Box Plot: Extent to Which Information Needs were Met | 34 |

Chapter 1: Introduction

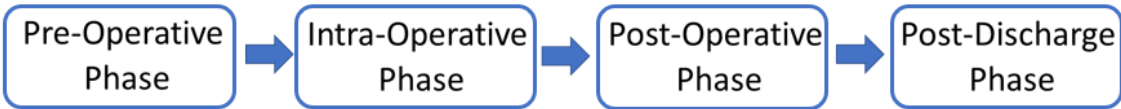
It is generally assumed that patients who are informed about their surgical experience have better outcomes. Research has demonstrated that in-person educational interventions can reduce patients' anxiety, occurrence of complications, length of hospital stay, and rates of readmission, while improving patient satisfaction (Burgess et al., 2019; Fredericks & Yau, 2017; Jones et al., 2011; Kalogianni et al., 2016; Ortiz et al., 2013; Ramesh et al., 2017). However, improvements in surgical techniques combined with efforts to reduce health care expenditures have resulted in shorter hospital lengths of stay and an expanding repertoire of procedures performed on a day surgery (outpatient) basis (Glass, 2014; Kruzik, 2009). Furthermore, the COVID-19 pandemic resulted in the suspension of in-person surgical appointments in many health care facilities (Stone & Sheib, 2021). These changes have resulted in fewer opportunities for the delivery of in-person education, which may prompt some patients to access different resources to address their health information needs. Health information needs is conceptualized as the gap between the information on health and healthcare that patients have and the information that they think they require (Baloochi Beydokhti et al., 2020). In the literature, the term information needs is often used interchangeably with learning needs and education needs (Baloochi Beydokhti et al., 2020). To ensure consistency, the term information needs will be used in this document.

The information that patients seek about their surgical experience may pertain to the pre-operative, intra-operative, post-operative, or post-discharge phases (see Figure 1). The pre-operative phase begins when the decision to have surgery is made and ends

when the patient enters the operating room, the intra-operative phase covers the patient's time in the operating room, the post-operative phase begins upon the patient's admission to the post-anesthesia unit and ends upon discharge from hospital, and the post-discharge phase covers the remainder of the patient's recovery until healing is complete (Kozier et al., 2010). To address the needs of surgical patients, it is important for nurses to be aware of the information needs of their patients and the sources that they access when looking for information. Traditionally, patients have acquired information about their surgical experience through a variety of mediums including in-person education, asynchronous learning channels such as written materials or videos, and anecdotal accounts shared by family and friends (Suhonen & Leino-Kilpi, 2006). Another medium for health information acquisition that is increasingly being used is the internet (Zimmerman & Shaw, 2019). In 2020, Statistics Canada stated that 69% of Canadians reported engaging in online health information seeking (OHIS). However, it is not clear to what extent patients are accessing the internet for information pertaining to their surgical experience.

Figure 1

The Phases of the Surgical Experience



Background

To develop a foundation for my thesis, two guided studies were completed. In the fall of 2020, a review of published research studies on OHIS in adult surgical patients was conducted to examine how OHIS has been defined and measured in this context (Cailes, 2020). Of the 26 studies reviewed, none offered a conceptual definition for OHIS and it was operationalized (measured) in multiple ways (see Table 1). All 26 studies used different measurement instruments, with most developed specifically for the study. In 23 of the studies, OHIS was measured as a dichotomous variable indicating use/non-use, with rates of OHIS reported in these studies ranging from 12% to 98% (median = 43.5%; see Table 1). Differences were evident in the type of information collected for the various studies including the sources accessed (n = 14), the usefulness of the information (n = 8), the type of content sought (n = 8), the perceived quality or credibility of information accessed (n = 8), the reasons for seeking information online (n = 4), and the frequency of information seeking (n = 2; see Table 1). Following this review of the research, I attempted to create a conceptual definition by using definitions for OHIS from other patient populations (e.g., people with chronic illness, urgent care patients) and considering how OHIS had been operationalized (measured) in the studies involving surgical patients. I defined OHIS during the surgical experience (OHIS-SE) as patients' efforts to address their information needs about the surgical experience by using the internet.

After generating a definition for OHIS-SE, a second guided study was completed to examine the extent that hospital websites provide content that addresses surgical patients' information needs (Cailes, 2021). The websites of 22 randomly selected non-

teaching hospitals in Ontario were examined to determine how many provided generic information applicable to all adult patients undergoing a scheduled surgical procedure and to appraise the quality and content of the materials available. Twenty-one (96%) of the hospital websites provided information on the surgical experience. The quality of the generic surgical online content provided on the 21 hospital websites was then examined in terms of its reading grade level, understandability, and actionability. The median reading grade level of the content on the websites was 12 (IQR, 11-13), which exceeds the Canadian Public Health Association's (n.d.) recommended reading level of grade 8 to 10 for health materials. An examination of the understandability and actionability of the content was conducted using the Patient Education Materials Assessment Tool – Print, developed by Shoemaker et al. (2014). This examination revealed that few websites offered visual aids or cues to assist patients to understand the information provided, or tools to support their ability to act on this information. Next, the hospital websites' content was analyzed and grouped into themes. The hospitals mainly organized their generic surgical information based on the different phases of the surgical experience. While most of the websites provided content on the pre-operative phase (e.g., what to expect during pre-operative appointments [71%] and what to expect in the hospital pre-operatively [67%]), fewer websites provided information on the intra-operative phase (e.g., anesthesia [38%] and the operating room [38%]), the post-operative phase (e.g., what to expect during recovery in the hospital [33%] and potential complications [10%]), and post-discharge phase (e.g., recovery following discharge [24%]). Findings from this examination of hospital websites suggest improvements could be made to the content provided to patients. However, before recommendations

are offered for revising these websites, it is important to identify what information surgical patients are seeking and their current use of the internet as a source of information.

Table 1*Frequency of Measures of OHIS Used in the Reviewed Studies on OHIS in Surgical Patients (N=24^a)*

| Author(s), Year | OHIS Use % | Usefulness | Quality/ Credibility | Sources Accessed | Content Searched | Reasons for Accessing | Frequency of Access |
|--------------------------------|------------|------------|-------------------------|---------------------|---------------------|--------------------------|------------------------|
| van Uden-Kraan et al., 2020 | 63.0 | | | X | X | | X |
| Fode et al., 2019 | 71.8 | | | X | | | |
| Fu et al., 2019 | 35.7 | | | | | | |
| Rao et al., 2019 | 45.0 | X | | X | | | |
| Coleman et al., 2018 | | | X | X | X | | |
| Abdul-Muhsin et al., 2017 | | | X | X | | | |
| Atci et al., 2017 | 66.0 | | | | | | |
| Lussiez et al., 2017 | 60.0 | | X | X | | | |
| Nucci et al., 2017 | 48.0 | | | X | X | | |
| Wieser et al., 2017 | 34.2 | X | | X | X | | |
| Ozkan et al., 2016 | 43.0 | X | X | | | | |
| Martins et al., 2015 | 98.0 | | | X | X | | X |
| Montemurro et al., 2015 | 95.0 | X | | | | | |

| | | | | | | |
|--------------------------|------|---|---|---|---|---|
| Xu et al., 2015 | 89.9 | | | | X | X |
| Costello & Murillo, 2014 | | | | | | X |
| Walsh et al., 2014 | 65.0 | | | | | |
| Kurup et al., 2014 | 16.7 | X | | X | | |
| Kurup et al., 2013 | 41.0 | X | | X | X | |
| Aloweni & Mostafa, 2011 | 52.0 | X | X | | | X |
| Baker et al., 2010 | 14.7 | | | | | |
| Tamhankar et al., 2009 | 18.0 | | X | X | | |
| Soueid & Wilson, 2008 | 12.0 | | | X | | X |
| Jariwala et al., 2004 | 10.0 | | X | | | |
| Murero et al., 2001 | 22.0 | X | X | X | X | |

Note. The data in this table was adapted from Cailes, N. (2020). *Online health information seeking in adult surgical patients: A review of the literature* [Unpublished manuscript]. University of New Brunswick.

^aOne paper in the review, by Curry et al. (2014) did not address any of the frequently identified measures of OHIS. They examined the sociodemographic factors affecting orthopedic surgery patients' use of social media and physician rating websites.

Chapter 2: Literature Review

Search Strategy

A systematic search of the CINAHL and Medline bibliographic databases was conducted to retrieve the published research on adult patients' information needs related to the surgical experience and their use of the internet to address these needs. A combination of keywords and subject headings were used to search for the concepts of "surgery", "information needs", "patients", and "internet" (see Table 2). Truncation was used on keywords where multiple word endings were possible. The Medical Subject Headings (MeSH) term "Surgical Procedures, Operative" in Medline was exploded to include 61 MeSH terms and the subject heading "Surgery, Operative" in CINAHL was exploded to include 79 subject headings that were indexed under the major subject heading, each pertaining to different procedures and phases of the surgical experience such as "Ambulatory Surgery", "Perioperative Care", and "Preoperative Period". While the subject heading "Information Needs" was searched in CINAHL, an equivalent MeSH term was not found. Therefore, an additional keyword term, "learning needs", was added to the Medline search¹. The subject heading "Internet" and the keywords "online", "internet", and "web*" were searched in both databases. An additional subject heading, "World Wide Web", was also searched in CINAHL but was not available in Medline. Search results in both databases were limited to articles published in English.

¹ In hindsight, the search strategy might have been strengthened by searching learning needs in both databases, however this omission was not identified until after the search had been completed.

Search results in CINAHL were also limited to academic journals and dissertations, however this limit was not available in Medline. The initial search yielded 91 results in CINAHL and 159 results in Medline (see Table 2). Title and abstract screening did not yield any relevant articles about adult surgical patients' use of the internet to address their information needs related to the surgical experience. A decision was therefore made to remove the concept of the internet from the search strategy to retrieve studies investigating the information needs of surgical patients.

A PRISMA flow diagram of the article selection process is presented in Figure 2. A total of 1,977 article titles and abstracts were screened. Articles were excluded if the study population was not adult surgical patients 19 years and older, and if the dependent variable or phenomenon of interest was not information needs related to the surgical experience. One hundred and seventy-five articles were retained, and after duplicates were removed, 126 articles underwent full-text screening. As two review articles published in 2006 were found that synthesized the information needs of surgical patients, primary articles published before 2006 were excluded during full-text screening. Finally, the reference list of articles that met the inclusion criteria were searched, which did not yield any additional articles. A total of 14 articles, including 2 review articles and 12 primary research articles, were selected for review.

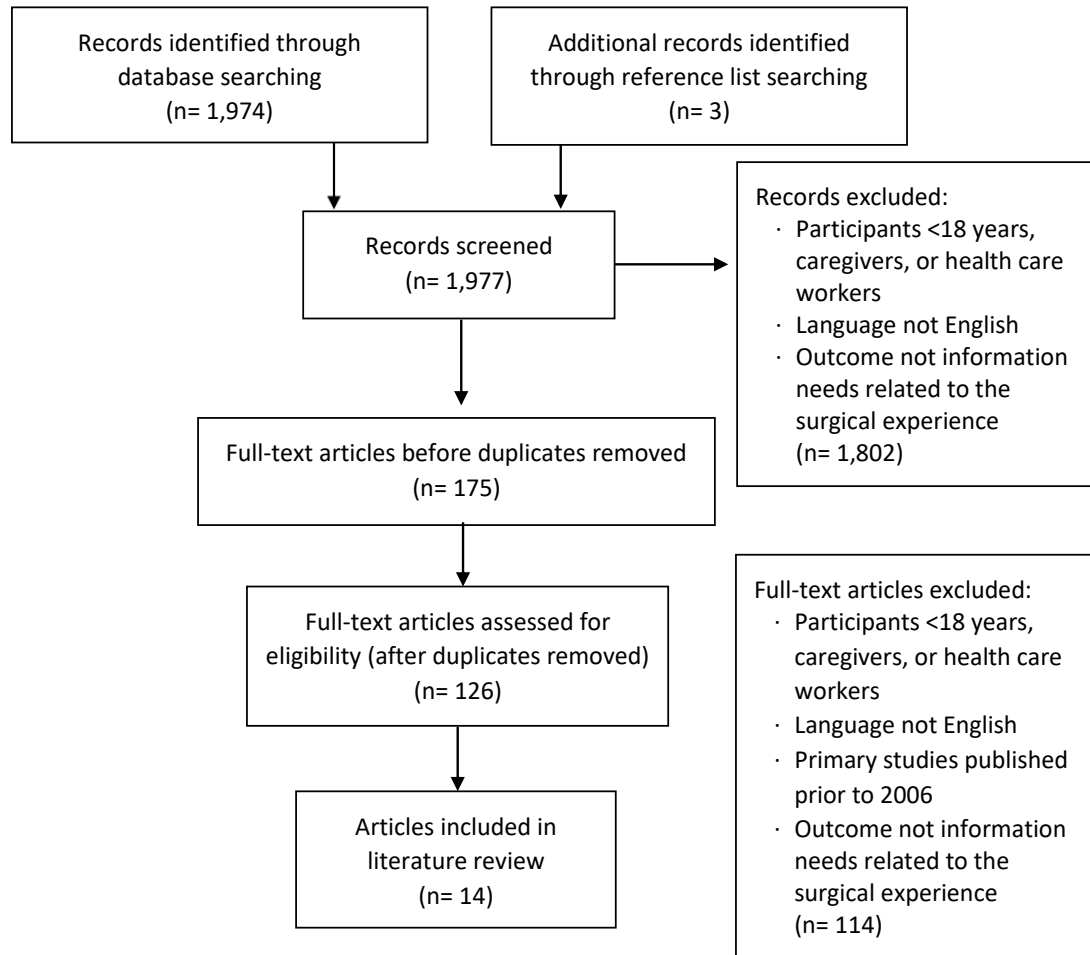
Table 2*Search Strategy and Results from Bibliographic Databases*

| | Number of Results Retrieved by Database | |
|-------------------------------------------------------|----------------------------------------------------|----------------|
| | CINAHL | Medline |
| Concept: Information Needs | | |
| S1. “Information* needs” | 13,853 | 5,506 |
| S2. “Education* needs” | 7,582 | 4,813 |
| S3. SH Information Needs | 11,578 | |
| S4. “Learning needs” | | 2,171 |
| S5. S1 OR S2 OR S3 OR S4 | 16,787 | 12,235 |
| Concept: Surgery | | |
| S6. Surg* | 710,343 | 4,433,211 |
| S7. Operat* | 288,270 | 1,311,617 |
| S8. SH Surgery, Operative (exp.) | 696,108 | |
| S9. SH Surgical Procedures, Operative (exp) | | 3,294,651 |
| S10. S6 OR S7 OR S8 OR S9 | 1,079,344 | 6,227,226 |
| Concept: Patients | | |
| S11. Patient* | 2,219,892 | 7,582,776 |
| S12. SH Patients | 9,480 | 22,090 |
| S13. SH Surgical Patients | 10,516 | |
| S14. S11 OR S12 OR S13 | 2,219,892 | 7,582,776 |
| Concept: Internet | | |
| S15. Online | 83,422 | 214,388 |
| S16. Web* | 178,937 | 305,348 |
| S17. Internet | 146,538 | 141,098 |
| S18. SH Internet | 51,648 | 75,599 |
| S19. SH World Wide Web | 77,001 | |
| S20. S15 OR S16 OR S17 OR S18 OR S19 | 282,832 | 585,342 |
| Combining Concepts | | |
| S21. S5 AND S10 AND S14 AND S20 | 91 | 159 |
| S22. S5 AND S10 AND S14 | 1,071 | 1094 |
| S23. S22 Limit to academic journals, dissertations | 993 | |
| S24. S23 Limit to English | 913 | 1061 |

Note. SH=Subject Heading. Exp=exploded term.

Figure 2

PRISMA Flow Diagram of Article Selection Process



Summary of Review Articles

Two review articles were retrieved which summarized the research on the information needs of surgical patients published from 1990 through 2004². Pieper et al. (2006) examined 16 articles about the information needs of post-operative surgical patients at discharge. Suhonen and Leino-Kilpi (2006) conducted an integrative literature review that was much broader in scope, examining surgical patients' information needs, opinions about information provision, and the effects of individualized information. Of the 58 articles included in Suhonen and Leino-Kilpi's review, 12 focused on information needs. Piper et al. (2006) searched the PubMed and CINAHL databases using the keywords "patient discharge", "hospital discharge", and "patient teaching". Suhonen and Leino-Kilpi (2006) searched the Medline and Cochrane databases using the keywords "information", "surgical", "patient", "adult", and "nursing". The search strategies between the two review articles were significantly different and only four of the articles overlapped between the two reviews. However, many of the same information needs were identified between the reviews: wound care, complications, pain, activity, treatment, and symptoms. Pieper et al. (2006) also identified fatigue, elimination, and well-being/quality of life as distinct information needs, while Suhonen and Leino-Kilpi (2006) identified anesthesia and pain medication.

² As the review articles include studies published only up until 2004, and primary articles published before 2006 were excluded from this review, it is acknowledged that there is a two-year gap in this review. This omission was identified after the review had been completed.

Summary of Primary Articles

Twelve primary research articles, published between 2009 and 2017, were reviewed (see Table 3). Five studies were conducted in Turkey (Deniz et al., 2017; Findik, 2017; Goktas et al., 2015; Sendir et al., 2013; Yesilyurt & Findik, 2016), four in Canada (Fredericks et al., 2009; Gillespie et al., 2017; Kennedy et al., 2017; Pedlow et al., 2014), and one each in Sweden (Nilsson et al., 2017), Yemen (Alkubati et al., 2012), and Syria (Omari et al., 2014). The studies described the information needs of patients undergoing various surgical procedures such as coronary artery bypass graft (CABG; n = 3; Alkubati et al., 2012; Fredericks et al., 2009; Omari et al., 2014), cancer surgery (n = 3; Findik, 2017; Gillespie et al., 2017; Yesilyurt & Findik, 2016), joint replacement (n = 2; Kennedy et al., 2017; Sendir et al., 2013), and vascular surgery (n = 2; Nilsson et al., 2017; Pedlow et al., 2014). Most of the studies involved inpatients, with only one study specifically addressing the information needs of day surgery patients (Goktas et al., 2015). Eight studies were quantitative with one being descriptive (Yesilyurt & Findik, 2016) and seven being descriptive correlational (Alkubati et al., 2012; Deniz et al., 2017; Findik, 2017; Fredericks et al., 2009; Gillespie et al., 2017; Goktas et al., 2015; Omari et al., 2014). Three studies were qualitative (Kennedy et al., 2017; Nilsson et al., 2017; Pedlow et al., 2014) and one was mixed methods (Sendir et al., 2013).

Table 3*Summary of Primary Research Articles Investigating Surgical Patients' Information Needs (n = 12)*

| Author(s), Year Country | Population, Sample Size Design Method | Time of Data Collection Data Collection Method | Study Purpose Phase of Surgical Experience Examined |
|--------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alkubati et al., 2012 Yemen | CABG patients, N=120 Quantitative Descriptive correlational | 24-48h before discharge Modified Cardiac Patients Learning Needs Inventory | Determine patients' information needs before discharge and if learning needs differ according to demographics Post-discharge |
| Deniz et al., 2017 Turkey | Surgical inpatients, N=57 Quantitative Descriptive correlational | 24-48h before discharge Patient Learning Needs Scale | Assess patients' learning needs Post-discharge |
| Findik, 2017 Turkey | Breast cancer surgery patients, N=55 Quantitative Descriptive correlational | Day of discharge Patient Learning Needs Scale | Evaluate patients' information needs and the level to which their needs have been met Post-discharge |
| Fredericks et al., 2009 Canada | CABG patients, N=38 Quantitative Descriptive correlational | 24-48h before discharge Modified Patient Learning Needs Scale | Describe patients' learning needs and examine the relationship between patients' learning needs and demographic characteristics Post-discharge |
| Gillespie et al., 2017 Canada | Hepato-pancreato-biliary cancer surgery patients, N=36 | Pre-operative or 5-6 weeks post-operative | Assess patients' information needs and preferred method of receiving information |

| Author(s), Year Country | Population, Sample Size Design Method | Time of Data Collection Data Collection Method | Study Purpose Phase of Surgical Experience Examined |
|------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Quantitative Descriptive correlational | Questionnaire adapted from past study | Pre-operative, intra-operative, post-operative, post-discharge |
| Goktas et al., 2015 Turkey | Day surgery patients, N=291 Quantitative Descriptive correlational | At discharge Patient Learning Needs Scale | Describe patients' discharge information needs and nursing care satisfaction and determine the effect of demographics on information needs Post-discharge |
| Kennedy et al., 2017 Canada | Hip and knee replacement patients, N=32 Qualitative Descriptive | 6 weeks or 1 year post- operative Focus group/interview guide | Describe patient information needs and delivery preferences Pre-operative, intra-operative, post-operative, post-discharge |
| Nilsson et al., 2017 Sweden | AAA repair patients, N=14 Qualitative Descriptive | 3-24 months post-operative Focus group guide | Describe patients' perceived learning needs and experience of methods for patient education Pre-operative, intra-operative, post-operative, post-discharge |
| Omari et al., 2014 Syria | CABG patients, N=135 Quantitative Descriptive correlational | 24-48h before discharge Modified Cardiac Patients Learning Needs Inventory | Describe patients' perceived learning needs before discharge and determine the effect of demographics on learning needs Post-discharge |

| Author(s), Year Country | Population, Sample Size Design Method | Time of Data Collection Data Collection Method | Study Purpose Phase of Surgical Experience Examined |
|---------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pedlow et al., 2014 Canada | Major limb amputation patients, N=16 Qualitative Descriptive | Within 2 years post-operative Interview guide | Explore patients' perceived information needs from the decision to have surgery until discharge from acute care Pre-operative, intra-operative, post-operative |
| Şendir et al., 2013 Turkey | Hip and knee replacement patients, N=74 Mixed methods | 24-48h before discharge Patient Learning Needs Scale | Describe patients' discharge information needs Post-discharge |
| Yeşilyurt & Findik, 2016 Turkey | Mastectomy patients, N=72 Quantitative Descriptive | During post-operative admission Questionnaire | Determine patients' information needs Post-operative, post-discharge |

Data Collection Methods in the Primary Studies

Variation was observed in when and how data collection occurred in the 12 studies (see Table 3). Most of the studies collected data post-operatively: eight studies collected data during patients' post-operative hospital stay (Alkubati et al., 2012; Deniz et al., 2017; Findik, 2017; Fredericks et al., 2009; Goktas et al., 2015; Omari et al., 2014; Sendir et al., 2013; Yesilyurt & Findik, 2016) and three studies collected data post-discharge (Kennedy et al., 2017; Nilsson et al., 2017; Pedlow et al., 2014). Gillespie et al. (2017) collected data from surgical patients either at a pre-operative appointment or at their first follow-up appointment but did not provide an explanation for the timing of data collection. Data were collected via semi-structured interview in all three qualitative studies: Pedlow et al. (2014) conducted individual interviews, Nilsson et al. (2017) conducted focus groups, and Kennedy et al. (2017) used a combination of focus groups and individual interviews. In all eight quantitative studies, data were collected via structured questionnaire administered either by paper or by interview, and in the mixed methods study a structured questionnaire was administered by interview, followed by open-ended questions that asked patients to elaborate on their responses.

Phases of the Surgical Experience Examined in the Primary Studies

Patients were asked to describe their information needs during the pre-operative phase in 4 studies (see Table 3; Gillespie et al., 2017; Kennedy et al., 2017; Nilsson et al., 2017; Pedlow et al., 2014), the intra-operative phase in 4 studies (Gillespie et al., 2017; Kennedy et al., 2017; Nilsson et al., 2017; Pedlow et al., 2014), and the post-operative phase in 5 studies (Gillespie et al., 2017; Kennedy et al., 2017; Nilsson et al.,

2017; Pedlow et al., 2014; Yesilyurt & Findik, 2016). In all but one of the studies, patients were asked to describe their information needs during the post-discharge phase (Pedlow et al., 2014).

Themes about Information Needs Identified in the Qualitative Studies

In the three qualitative studies, researchers aimed to examine participants' information needs (Kennedy et al., 2017; Nilsson et al., 2017; Pedlow et al., 2014). Kennedy et al. (2017) also described participants' information delivery preferences, and Nilsson et al. (2017) also explored participants' experience of different methods for patient education. Researchers across all three studies found that participants identified different information needs within the pre-operative phase (e.g., treatment options), intra-operative phase (e.g., details about the operation, potential risks and complications during surgery), post-operative phase (e.g., pain management, wound care, rehabilitation), and post-discharge phase (e.g., self-care at home, how to wean off pain medication, community social supports). The degree to which information needs were met in all three studies was described in terms of the "amount" of information that participants obtained, for instance Nilsson et al. (2017) found that participants identified unmet information needs not only when they had too little information on a particular topic, but also when they had too much information. Participants in all three studies described searching for information on the internet. Participants interviewed by Nilsson et al. (2017) discussed that while they had searched for information about the surgical experience on the internet, they sometimes had difficulty finding relevant information. Kennedy et al. (2017) reported that the majority of participants in their study had

searched the internet for information about their surgical experience, but that some did not think the information they found was useful. Lastly, participants interviewed by Pedlow et al. (2014) suggested that hospitals should have a website available where patients can access information about the surgical experience.

Measurement Instruments Used in the Quantitative Studies

Five different measurement instruments were used in the quantitative and mixed methods studies: one instrument designed to measure the generic information needs of acute care patients (Deniz et al., 2017; Findik, 2017; Goktas et al., 2015; Sendir et al., 2013) and four instruments designed to measure the information needs of patients undergoing specific surgical procedures (see Table 4; Alkubati et al., 2012; Fredericks et al., 2009; Gillespie et al., 2017; Omari et al., 2014; Yesilyurt & Findik, 2016). The response options used in the various instruments to gather information about participants' perceptions of their information needs varied from dichotomous (want/do not want, Yesilyurt & Findik, 2016) to 5-point Likert type scales measuring the perceived importance (Alkubati et al., 2012; Deniz et al., 2017; Findik, 2017; Fredericks et al., 2009; Goktas et al., 2015; Omari et al., 2014; Sendir et al., 2013), and the perceived importance and desired depth (Gillespie et al., 2017). The number of items included in the various instruments ranged from 9 to 50 items. The number of subscales in the various instruments ranged from none to 10. While there was some overlap among the information needs included in the different instruments, none of the instruments addressed the same information needs or organized information needs based on the phases of the surgical experience (see Table 4).

Table 4*Information Needs Measurement Instruments Used in the Primary Research Articles*

| | Patient Learning Needs Scale | Modified Patient Learning Needs Scale | Modified Cardiac Patients Learning Needs Inventory | Gillespie et al. (2017) | Yesilyurt & Findik (2016) |
|------------------------------------------------|---------------------------------------|------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------|
| Items (N) | 50 | 13 | 44 | 44 | 9 |
| Rating Scale | 5-point Not to extremely important | 6-point Not to extremely important to learn | 5-point Not to very important | 5-point Not to extremely important No to detailed information | Dichotomous Want /do not want information |
| Subscales (N) | 7 | None | 10 | 6 | None |
| <u>Information Needs Addressed^a</u> | | | | | |
| Surgical Treatment Options | | | | X | |
| Preparing for Surgery | | | | X | |
| Surgical Procedure | | | | X | |
| Post-operative Hospital Care | | | | | X |
| Home Care | | | | | X |
| Adverse Effects | X | X | | X | X |

| | | | | | |
|----------------------------|---|---|---|---|---|
| Complications | X | X | X | | |
| Pain | | | | X | |
| Medications | X | X | X | | |
| Physical Activity | | X | X | X | X |
| Wound/Skin Care | X | | X | | |
| Diet | | | X | | |
| Activities of Daily Living | X | | | X | X |
| Emotional/Psychological | X | X | X | X | |
| Social/Community | X | | | X | |
| Spiritual | | | | X | |
| Surgery-Specific | | | X | X | X |

^a For the measurement instruments that did not contain subscales, items are listed. For the measurement instruments that included subscales, except for the instrument used by Gillespie et al., the subscales are listed. As the subscales used in Gillespie et al.'s (2017) instrument (i.e., medical, physical, practical, emotional, social, spiritual) do not indicate specific information needs, items were listed instead.

Information Needs Across the Reviewed Studies

Based on this preliminary work, I identified four main areas of disconnect between how information needs were measured in research and how I had seen them addressed on hospital websites. First, while most of the research studies focus on information needs for a specific type of surgery, all but one of the hospital websites that I reviewed provide generic information applicable to all surgical patients. A second area of disconnect is that most of the instruments used to measure the information needs of surgical patients organize them by specific symptoms or treatments rather than by phases of the surgical experience, which is how many hospital websites organize information. Third, while most of the instruments used in research focus on the post-operative and post-discharge phases, hospital websites tend to provide more information on the pre-operative phase. Finally, patients' perceptions of their information needs in quantitative studies have been primarily measured in terms of their importance rather than the adequacy of the information available, which is how information needs were often described in the qualitative studies. To address these areas of disconnect, the decision was made to create a new research instrument measuring surgical patients' perceptions of their information needs throughout the phases of the surgical experience and the extent they attempt to address these needs by accessing information on the internet.

Chapter 3: Methods

Research Aims and Objectives

The primary aim of this cross-sectional, descriptive-comparative pilot study was to obtain preliminary evidence of the reliability and validity of a survey developed to measure adult surgical patients' online health information seeking (OHIS) and the extent to which they seek to meet their information needs about the surgical experience using the internet.

The specific research objectives were:

1. To describe patients' perceptions of the extent to which their information needs are met for the surgical experience.
2. To describe the proportion of patients who seek information about their surgical experience on the internet.
3. To examine the associations between patients' perceptions of the extent to which their information needs are met, the amount of information received, and their satisfaction with their overall surgical experience.
4. To compare differences in patients' perceptions of the extent to which their information needs are met based on their internet use.

Survey Instrument

A new survey instrument, the Online Health Information Seeking – Surgical Experience (OHIS-SE) Survey, was developed to operationalize patients' information needs based on the phases of the surgical experience. The survey was developed from my clinical and research experience and that of the members of my thesis committee, as

well as insights gained from the literature. It consists of three parts: Part 1 addresses the perceived adequacy of information received about the surgical experience, Part 2 addresses the internet as a source of health information, and Part 3 collects information about the demographic and surgical characteristics of participants. A first draft of the survey was reviewed by five content experts: two nurse managers and two clinical nurse educators in a surgical program, and a layperson who had recently undergone elective surgery. They were asked to review the survey and rate items based on their clarity, understandability, importance, and comprehensiveness on a 5-point Likert scale; and to provide comments on the survey's overall layout and any suggestions for improvement. All the content experts either "agreed" or "strongly agreed" that the items in the first two parts of the survey were clearly written, easily understood, and addressed important information. Minor revisions to the survey were made based on the comments received (e.g., adding "surgery on your breasts" to description of general surgery).

The final survey consists of 23 items and is estimated to take 15 minutes to complete (see Appendix A). The online survey was developed and administered via Microsoft (MS) Forms. Participants had the ability to skip any survey item that they chose not to answer. MS Forms was set up so that submissions were anonymous and assigned a unique serial number. Data collection occurred for 7 weeks (April 11 – May 30, 2023), including 4 weeks for participant recruitment followed by 3 weeks for participants to complete the survey after their discharge. After the data collection period was complete, the MS Forms survey was deactivated.

Target Population, Accessible Population, and Sample

The target population for this study was adult surgical patients. Inclusion criteria were patients 19 years of age and older, who were admitted to hospital as an inpatient or outpatient for elective surgery and were scheduled for discharge within the next two days, spoke English, had internet access, and had the capacity to understand and complete the survey. Children were excluded from this project as they and their caregivers typically have different information needs than adult patients (Park et al., 2016; Park & Kwon, 2018). Individuals with cognitive impairment or memory loss who cannot reliably remember their information needs or internet use patterns were also excluded. The accessible population was patients receiving surgery through the surgical out-patient clinic or one of three surgical inpatient floors at a regional hospital located in central Ontario, which performs about 27,000 surgical procedures annually. The sample consisted of patients who completed the survey within the 7 weeks allocated for data collection.

Study Protocol

Initial contact was made with the managers of the four surgical units to seek their support for the study and to discuss options and timing for participant recruitment. Nursing staff on these units were notified about the study approximately 2 weeks prior to the commencement of participant recruitment and were given a brief overview of the study's purpose, how participant recruitment and data collection would occur, and their role when patients ask about the study, which was to provide them with a copy of the recruitment flyer. Staff were informed about the study by email and flyers posted in

staff-only areas around the units (e.g., break rooms and staff washrooms; see Appendix B). I also attended several staff “huddles” on the unit to share the information verbally and to answer questions.

When participant recruitment began, recruitment flyers were posted in patient and visitor common areas and at the nursing station on each unit (see Appendix C). During the participant recruitment period, I spent between 45 minutes and 2 hours per day, 4 to 5 days per week, visiting the units to identify potential participants. I visited the outpatient clinic and then rotated through the three inpatient floors, visiting between two and four units per day. Upon arriving on each unit, I consulted with the staff nurses to identify potential participants. I then approached each patient individually, introducing myself as a nurse at the hospital and a Master of Nursing student at the University of New Brunswick who was conducting a research study on surgical patients’ information needs and internet use. Each patient was then asked if they might be interested in hearing more about the study and if they assented, I reviewed the inclusion criteria, nature and purpose of the study, what participation involved, the time commitment, and the potential risks and benefits with them. I emphasized that participation was voluntary and whether they participated would not affect the care they received, that their responses to the survey were anonymous, and that they did not need to decide whether to participate until after their discharge. After answering any questions, I asked if they were interested in receiving an email invitation to the study after their discharge. If they assented, their email address was recorded, and they were given a copy of the recruitment flyer. Each potential participant was only approached once. During subsequent visits to each unit, it was confirmed that those who had agreed to provide an

email address were successfully discharged home, and their discharge dates were recorded.

Preferred names, email addresses, and discharge dates of potential participants were transcribed into an MS Excel document. Potential participants were sent an email invitation 7 days after their discharge date, allowing them time to recover and to experience the post-discharge phase of the surgical experience before completing the survey. The email invitation contained information about the nature and purpose of the study, what participation would involve, the potential risks and benefits, and who to contact with questions or concerns, followed by an embedded link to the survey (see Appendix D). A reminder email was sent 7 days after the initial email (see Appendix E). Paper copies of study materials are stored in a locked cabinet and will be shredded after the thesis has been successfully defended. Emails were permanently deleted from my outbox after data collection was completed. All the information collected pertaining to the study is stored on my password protected computer and has only been shared with thesis committee members. After a manuscript of the study has been accepted for publication, the email list and survey data will be transferred to the faculty supervisor's password protected computer to be stored for 7 years, after which time it will be permanently deleted.

Ethical Considerations

Prior to commencement of participant recruitment, ethical approval was obtained from the University of New Brunswick Faculty of Nursing Research Ethics Committee, the University of New Brunswick Research Ethics Board (REB-2003-004), and the

hospital Research Ethics Board. The study was developed to adhere to the guidelines outlined in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2; Canadian Institutes of Health Research, Natural Sciences and Engineering, Research Council of Canada, & Social Sciences and Humanities Research Council, 2018). According to the TCPS2, respect for human dignity is central to conducting research involving humans and is expressed through three core principles: Respect for Persons, Concern for Welfare, and Justice. While signed consent was not obtained, participants indicated their consent by submitting the completed survey. This study is deemed to be of minimal risk as the only foreseeable risk that participants were subjected to was the inconvenience of completing a short survey recalling their surgical experience and internet use. However, the email invitation provided information on contacting the hospital's Patient Relations department, which could be used by participants who wanted to discuss a negative surgical experience. While participants did not directly benefit from taking part, they were advised that knowledge gained from the study will assist in improving the information provided to future surgical patients. Efforts were taken to ensure that the study materials were readable for participants. The reading grade level for all participant materials was at grade 7 or lower, conforming to the Canadian Public Health Association's (n.d.) recommended reading grade level of 8 to 10 for health materials. Additionally, participants were advised that they could enable the "Immersive Reader" function on MS Forms, which allows the options of increasing the text size or having the survey read aloud.

Data Management and Analysis

After the MS Forms survey was deactivated, data were first imported to MS Excel and then to IBM SPSS version 29 for Windows. Prior to any analysis, a preliminary check of the data was done to determine the amount of missing data and the presence of any extreme or nonsensical values. String variables were recoded into numeric variables. Variables where participants could select multiple responses were recoded so that each potential response option was an individual, binary (yes/no) variable. Participants' birth year was recoded to approximate age by subtracting the birth year from 2022. The time taken to complete the survey was computed by subtracting the start time from the end time, both of which were recorded by MS Forms. Numerical and graphical descriptive statistics were generated for each variable based on its level of measurement. For variables approximating an interval level, statistics of shape were examined, which supported the use of non-parametric statistical tests as the distributions were skewed. The internal consistency of the eight variables measuring the extent to which participants' information needs were met was examined using Cronbach's alpha. A Cronbach's alpha ranging from .70 to .95 is typically used to indicate an acceptable internal consistency (Tavakol & Dennick, 2011). Then, a new variable was computed to represent the average summative score for the extent to which participants' information needs were met, from 1.00 to 5.00. For all analyses, a two-tailed test was conducted, and alpha was set at .05. Prior to examining the correlations among variables, scatterplots were generated to ensure the nature of the associations were linear. Finally, the open-ended responses were analyzed by reading and re-reading them to identify common themes about participants' perceptions of their information needs.

Chapter 4: Findings

One hundred and forty-six patients were approached to participate in the study. Twenty-three patients did not fit the inclusion criteria: six were excluded as their surgery was not elective, and 17 did not have internet access. Eight patients declined to provide an email address: three had internet access but stated they were not comfortable using it, two stated they were too busy, one wasn't interested in completing a survey, and two did not provide a reason. One hundred and fifteen patients provided an email address. Of those who provided email addresses, two emails to separate addresses were undeliverable, and two patients' discharge dates were delayed beyond the survey closure date. A total of 111 patients received email invitations to complete the survey, meaning that 93% of those who were approached and were eligible to participate received an email invitation. Sixty-one participant surveys were received, so the response rate of surveys received compared to email invitations sent was 55%. However, one case was deleted because the participant indicated that they had emergency surgery, so data for 60 cases were included in the analysis. Eight missing data points were noted across seven survey items and from seven different cases. Given the newness of the survey, no attempt was made to replace the missing data. Based on the information recorded by MS Forms, 54 participants (90%) finished the survey within the estimated 15-minute timeframe for completion.

Sample Characteristics

Participants ranged in age from 43 to 88 years, with a mean of 66 (see Table 5). The majority of participants were female (65%) and had post-secondary education

(80%). Most participants were inpatients (60%), and interestingly all but five had had surgery before (92%). Participants had surgery under a variety of specialties, with the most common being orthopedic surgery (38%).

Table 5

Descriptive Statistics for Sample Characteristics (N = 60)

| Variable | Descriptive Statistics |
|------------------------------------------------|------------------------|
| Age in Years | |
| Mean (SD) | 66.2 (10.7) |
| Gender Identity | |
| Male | 21 (35.0%) |
| Female | 39 (65.0%) |
| Other | 0 (0.0%) |
| Highest Level of Education Completed, (n = 59) | |
| High school diploma | 12 (20.3%) |
| Apprenticeship or college diploma | 23 (39.0%) |
| Bachelor's degree | 11 (18.7%) |
| Master's or Doctorate degree | 13 (22.0%) |
| Type of admission | |
| Outpatient | 24 (40.0%) |
| Inpatient | 36 (60.0%) |
| First Time Having Surgery, (n = 59) | |
| Yes | 5 (8.5%) |
| No | 54 (91.5%) |
| Type of Surgery | |
| Orthopedic | 23 (38.3%) |
| Vascular | 10 (16.7%) |
| Ear, Nose, or Throat | 8 (13.3%) |
| Gynecologic | 7 (11.7%) |
| Urologic | 7 (11.7%) |
| General | 4 (6.6%) |
| Plastic | 1 (1.7%) |

Information Needs

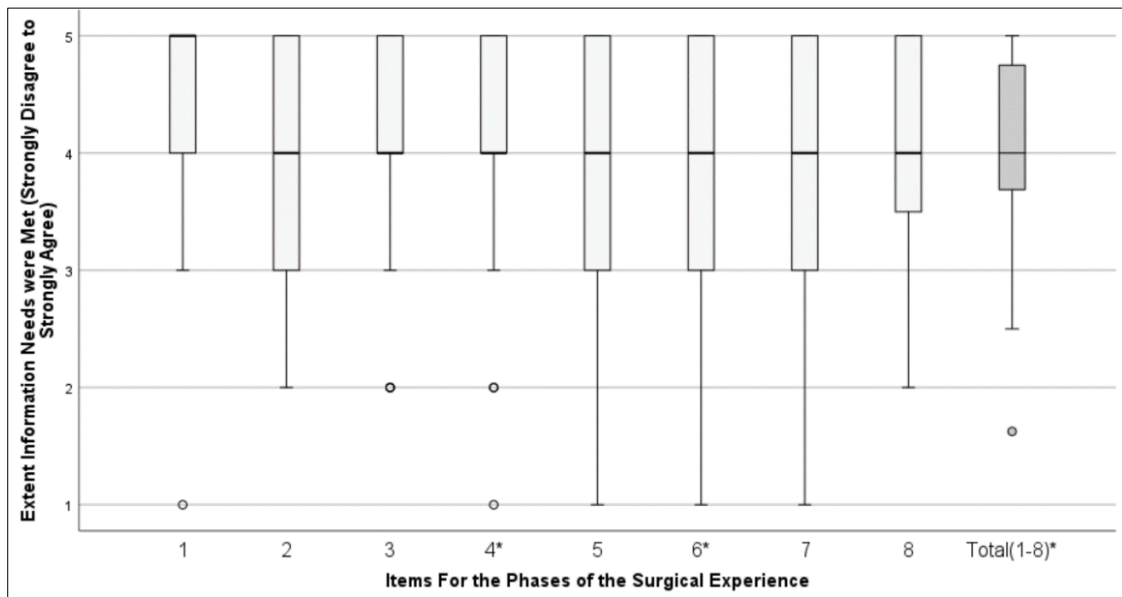
The eight items pertaining to the extent to which participants perceived their information needs were met throughout the phases of the surgical experience were examined on a 5-point Likert scale from “strongly disagree” to “strongly agree”. Descriptive statistics for the items are depicted in Table 6 and Figure 3. Variability was evident in the responses, which spanned the range of possible scores for all but three items. The item with the highest agreement that information needs were met, as well as the least variability, was ‘how to prepare for surgery’ ($M = 4.6$, $SD = 0.7$). Responses to the eight items exhibited acceptable internal consistency, as evident by a computed Cronbach’s alpha of .91 ($n = 59$). Next, an average summative score for responses to the items was computed to represent participants’ perceptions of the extent to which their information needs were met for the total surgical experience. Fifty percent of participants had a score of 4.00 or higher ($M = 4.07$, $SD = 0.75$), but variability was evident with values ranging from 1.63 to 5.00.

Table 6*Descriptive Statistics for the Extent to Which Information Needs were Met (N = 60)*

| Items Pertaining to Phases of the Surgical Experience | Mean (SD) |
|------------------------------------------------------------------------|------------------|
| Pre-Operative Phase | |
| 1. How to prepare for surgery | 4.6 (0.7) |
| 2. What to expect on the day of surgery | 3.9 (1.0) |
| Intra-Operative Phase | |
| 3. What happens in the Operating Room | 4.3 (0.8) |
| Post-Operative Phase | |
| 4. What happens in the Post-Anesthesia Care Unit, (<i>n</i> = 59) | 4.1 (0.9) |
| 5. What to expect during your recovery in hospital | 3.9 (1.0) |
| 6. Potential complications in hospital after surgery, (<i>n</i> = 59) | 3.9 (1.1) |
| Post-Discharge Phase | |
| 7. What to do after you are discharged home | 4.0 (1.1) |
| 8. What to do if something unexpected happens after discharge | 4.0 (1.0) |

Figure 3

Box Plot: Extent to Which Information Needs were Met (N = 60)



Note. See Table 6 for item labels.

* $n = 59$

Overall Amount of Information Received

The final item pertaining to participants' information needs was on a 10-point numerical rating scale measuring the amount of information that participants received, where 1 was labelled as "far too little", 5 was labelled as "just the right amount", and 10 was labelled as "far too much". One case did not provide a response for this item, so data for 59 cases were analyzed. Scores for this variable ranged from 1 to 8, with a mean of 5 (SD = 1.5). This item was then recoded into a new, categorical variable. Twenty-eight participants (48%) had a score of 5, which was labelled as "just the right amount", 15 participants (25%) had a score of less than 5, which was labelled as "too little", and 16 participants (27%) had a score of greater than 5, which was labelled as "too much".

Online Health Information Seeking

Items pertaining to participants' OHIS were examined. More than half of participants (53%) reported searching the internet for health information a few times a month or more frequently (see Table 7). Only five participants (9%) reported never searching the internet for health information. Thirty-four participants (57%) reported searching the internet for information about their surgical experience; these participants were prompted to respond to four additional survey items (see Table 8). Participants were able to select multiple reasons for searching the internet about their surgical experience: the most frequently selected reasons were because they 'were curious or wanted to see what other information could be found' (71%) and because they 'felt it was important to have as much information as possible' (56%). Eight participants (24%) selected at least one item suggesting an unmet information need: 'did not get all the information they needed from other sources', 'got conflicting or confusing information from other sources', 'could not remember information from other sources', or 'did not have a chance to ask questions'. When asked to identify all of the information topics pertaining to the phases of the surgical experience that they searched for, participants most frequently reported searching for 'what to do after discharge' (63%), and least frequently for 'what to expect on the day of surgery' (6%). Participants were then asked to rate the amount of information that they found on the internet on a 10-point numerical rating scale, where 1 was labelled as "far too little", 5 was labelled as "just the right amount", and 10 was labelled as "far too much". Scores ranged from 3 to 10 with a mean of 5 (SD = 1.7). This item was then recoded into a new, categorical variable. Twenty participants (59%) had a score of 5, which was labelled as "just the right

amount”, 5 participants (15%) had a score of less than 5, which was labelled as “not enough”, and 9 participants (26%) had a score of greater than 5, which was labelled as “too much”. It is noteworthy that only eight participants (24%) reported searching the hospital website for information about their surgical experience.

Table 7

Frequencies for Online Health Information Seeking (N = 60)

| Variable | Frequency (%) |
|--------------------------------------------------------------------------|----------------------|
| Frequency Search Internet for Health Information in General, (n = 59) | |
| Never | 5 (8.5%) |
| Once a year or less | 7 (11.8%) |
| Every few months | 12 (20.3%) |
| Once a month | 4 (6.8%) |
| Several times a month | 16 (27.1%) |
| Several times a week | 6 (10.2%) |
| Nearly every day | 9 (15.3%) |
| Searched Internet Regarding Surgical Experience | |
| Yes | 34 (56.7%) |
| No | 26 (43.3%) |

Table 8*Frequencies for Those who Searched the Internet Regarding their Surgical Experience**(n = 34)*

| Variable | Frequency (%) |
|------------------------------------------------------------------|----------------------|
| Reasons for Searching the Internet* | |
| Curious to see what other information could be found | 24 (70.6%) |
| Felt it was important to have as much information as possible | 19 (55.9%) |
| Thought of more questions after meeting with the doctor or nurse | 12 (35.3%) |
| Wanted to check information from other sources | 8 (23.5%) |
| Did not get all the information needed from other sources | 6 (17.6%) |
| Got conflicting or confusing information from other sources | 3 (8.8%) |
| Could not remember information from other sources | 2 (5.9%) |
| To pass the time while waiting for surgery | 2 (5.9%) |
| Did not have a chance to ask questions | 1 (2.9%) |
| Topics Searched For, (n = 32)* | |
| 1. How to prepare for surgery | 4 (12.5%) |
| 2. What to expect on the day of surgery | 2 (6.3%) |
| 3. What happens in the Operating Room | 18 (56.3%) |
| 4. What happens in the Post-Anesthesia Care Unit | 4 (12.5%) |
| 5. What to expect during your recovery in hospital | 7 (21.9%) |
| 6. Potential complications in hospital after surgery | 10 (31.3%) |
| 7. What to do after you are discharged home | 20 (62.5%) |
| 8. What to do if something unexpected happens after discharge | 8 (25.0%) |
| Amount of Information Found on the Internet | |
| Too little | 5 (14.7%) |
| Just the right amount | 20 (58.8%) |
| Too much | 9 (26.5%) |
| Searched the Hospital Website | |
| Yes | 8 (23.5%) |
| No | 26 (76.5%) |

*Participants were able to select multiple responses for these items.

Satisfaction with the Surgical Experience

Participants were asked to rate their satisfaction with their overall surgical experience on a 10-point numerical rating scale where 1 was labelled as “not at all satisfied” and 10 was labelled as “very satisfied”. Satisfaction scores ranged from 3 to 10, with a mean of 8.6 (SD = 1.8). Half of participants (50%) reported being “very satisfied”.

Associations Among Information Needs and Satisfaction

The correlations among participants’ perceptions of the extent to which their information needs were met, the amount of information they received, and their satisfaction with the surgical experience are depicted in Table 9. Participants who reported receiving more information tended to perceive that their information needs were met to a greater extent ($r_s = .492, p < .001$). Additionally, participants who reported a higher satisfaction with their surgical experience tended to perceive that they had received more information ($r_s = .518, p < .001$) and that their information needs were met to a greater extent ($r_s = .547, p < .001$).

Table 9

Spearman’s rho Correlations for Information Needs and Satisfaction

| Variable | <i>Mdn</i> <i>IQR</i> | 1 | 2 | 3 |
|-----------------------------------------------------------|--------------------------|---------------------|---------------------|-------|
| 1. Extent information needs were met ($n = 59$) | 4.00 3.63-4.75 | 1.000 | | |
| 2. Overall amount of information received ($n = 59$) | 5.00 4.00-6.00 | .492 ($<.001$) | 1.000 | |
| 3. Satisfaction ($n = 60$) | 9.50 8.00-10.00 | .547 ($<.001$) | .518 ($<.001$) | 1.000 |

*Note. IQR = 25th and 75th percentile. *p*-values in parentheses.*

Comparison Between Information Needs and Online Health Information Seeking

To evaluate differences in participants' perceptions of the extent to which their information needs were met and the amount of information received for those who searched for information about their surgical experience on the internet compared to those who did not, two Mann-Whitney *U* tests were conducted (see Table 10). A statistically significant difference was noted in participants' perceptions that their information needs were met, with those who searched the internet tending to report that their information needs were met to a greater extent ($z = -2.254, p = .024$). No statistically significant difference was found, however, in the amount of information received by use of the internet ($z = -0.667, p = .505$).

Table 10

Mann-Whitney U Tests Comparing Information Needs based on Internet Use

| Variable | <u>Searched the Internet</u> | | <u>Did not Search</u> | | Z |
|----------------------------------------|-------------------------------------|----------------------------------|------------------------------|----------------------------------|----------------------|
| | <i>n</i> | <i>Mdn</i> <i>IQR</i> | <i>n</i> | <i>Mdn</i> <i>IQR</i> | |
| Extent information needs were met | 33 | 4.25 3.75-5.00 | 26 | 4.00 3.50-4.22 | - 2.254 (.024) |
| Overall amount of information received | 34 | 5.00 4.75-6.25 | 25 | 5.00 4.00-5.50 | - 0.667 (.505) |

*Note. IQR = 25th and 75th percentile. *p*-values in parentheses.*

Post-Hoc Power Analysis

As this was a pilot study, sample size was based on the number of participants who were recruited in the four weeks allocated for participant recruitment. Given this, a post-hoc power analysis was calculated, using G*Power version 3.1.9.7, to determine the power achieved when comparing differences in participants' perceptions of the extent to which their information needs were met by their internet use. Achieved power was calculated for a Wilcoxon-Mann-Whitney test, using a two-tailed test, a calculated effect size of .51, an alpha of .05, and 26 and 33 participants in the two groups. Results indicate the achieved power was .47. To determine the sample size that would be required to achieve adequate power (.80) for future studies, an a-priori power analysis was conducted using the same parameters and a calculated allocation ratio of 1.27, indicating use of the internet by approximately 60% of participants. Results suggest a sample size of at least 132 participants would be required to achieve adequate statistical power.

Open-Ended Responses Addressing Information Needs

Twenty-seven participants took advantage of the opportunity to provide additional comments about their surgical experience. While the comments from 14 participants focused on the care received during their hospital stay, 13 participants' responses provided additional insights about their information needs and their preferences in terms of how their information needs were addressed.

Variability was evident in the comments regarding the amount of information that participants wanted to receive. For example, one participant wrote:

Any internet search I did was about my condition not the surgical experience. All [hospital] info about surgery was enough. (Female, 49 years old, inpatient, General Surgery. Satisfaction with surgical experience: 10/10)

While another participant wrote:

Its never too much information. Patients are scared and want to know what to expect! (Female, 53 years old, inpatient, Gynecologic Surgery. Satisfaction with surgical experience: 7/10)

The sentiment expressed by this participant was also evident in her responses for the items pertaining to the extent to which her information needs were met, all of which she rated as either “strongly disagree” or “disagree”, and the amount of information she received, which she rated as “far too little”.

Participants’ comments highlighted the need for information across all four phases of the surgical experience, with some also giving an indication of the frustration that can occur when conflicting or vague/nonspecific details are received.

Pre-operative:

The surgeon’s and hospital’s instructions did not agree about drinking a glass of water up to 3 hours pre-op. (Female, 72 years old, inpatient, Orthopedic Surgery. Satisfaction with surgical experience: 8/10)

Intra-operative:

The handout could have had more information about what was done [intra-operatively] and left in my nose. (Male, 70 years old, outpatient, Ear, Nose, and Throat Surgery. Satisfaction with surgical experience: 3/10)

Post-operative:

Need clarity on side effects of nerve block/epidural re: bladder control. (Female, 78 years old, inpatient, Orthopedic Surgery. Satisfaction with surgical experience: 6/10)

Post-discharge:

I would think more information about what to expect after discharge would be helpful to most. (Female, 75 years old, inpatient, Orthopedic Surgery. Satisfaction with surgical experience: 10/10)

Variability was also reflected in participants' responses about the mediums through which they would have liked to receive information. Some of the comments indicated participants' preference for receiving information via the internet:

Better if been given access to internet based info/links. (Female, 62 years old, outpatient, Ear, Nose, and Throat Surgery. Satisfaction with surgical experience: 5/10)

However, other mediums were also highlighted. For example, one participant wrote that they would have preferred access to a phone service:

One night in hospital and then the patient feels left totally alone with nothing but the internet for medical knowledge/help. A phone line for calling the hospital to seek information/advice would be helpful. (Female, 78 years old, inpatient, Orthopedic Surgery. Satisfaction with surgical experience: 6/10)

One participant wrote that they did not have enough verbal information:

I found there were handouts but not enough one on one information given. (Female, 64 years old, inpatient, Gynecologic Surgery. Satisfaction with surgical experience: 8/10)

While another participant indicated that they did not have enough written information:

I was told "it will all be written down for you", but it wasn't, at least not what I wanted to know. (Male, 58 years old, outpatient, Orthopedic Surgery. Satisfaction with surgical experience: 4/10)

Three participants commented on the timing of the information they received, a variable that was not addressed in the survey:

There was information given, and questions asked (by me)...but, right before surgery, or in the recovery room – not the best timing. VERY little was retained. (Male, 58 years old, outpatient, Orthopedic Surgery. Satisfaction with surgical experience: 4/10)

Received a handout from surgeon about recovery and name of surgery performed. The latter would have been helpful before surgery so I could have looked it up online. (Male, 70 years old, outpatient, Ear, Nose, and Throat Surgery. Satisfaction with surgical experience: 3/10)

Information I rec'd from hospital was WAY too late, 4 days before surgery. (Female, 62 years old, outpatient, Ear, Nose, and Throat Surgery. Satisfaction with surgical experience: 5/10)

Overall, responses to the open-ended item showed considerable variability in individuals' preferences about how their information needs are met including the amount, topics, mediums, and timing. There was insufficient data to examine differences in these preferences by participants' age, gender, or surgery type. It is interesting to note that many of the participants who provided comments indicative of unmet information needs also tended to rate their satisfaction with the surgical experience lower than the computed mean ($M = 8.6$), which offers further support to the notion that the extent to which information needs are met may affect patients' perceptions of their overall surgical experience.

Chapter 5: Discussion

In this study, I built on previous efforts to conceptualize and operationalize surgical patients' information needs and examined the extent to which patients seek to meet these needs using the internet. Following an initial review of the literature, online health information seeking during the surgical experience (OHIS-SE) was defined as patients' efforts to address their information needs about the surgical experience by using the internet. Information needs during the surgical experience was conceptualized as the gap between the knowledge that patients have and what they think they require during the surgical experience. The OHIS-SE Survey was then developed to address discrepancies noted between how patients' information needs have been addressed in clinical practice and previous research studies by: (a) operationalizing generic information that is applicable to all surgical patients as opposed to focusing on a specific type of surgery, (b) organizing information based on the phases of the surgical experience rather than specific symptoms and treatments, (c) including all four phases of the surgical experience as opposed to focusing only on the post-operative and post-discharge phases, and (d) measuring information needs based on the perceived adequacy of information received instead of its perceived importance. The decision was then made to conduct a pilot study to examine the feasibility of the study protocol, reliability and validity of the survey instrument, and the potential utility of the survey instrument.

Feasibility of the Study Protocol

The response rate in this pilot study was deemed to be acceptable, as 93% of patients who were approached and eligible to participate provided an email address and

of these 55% submitted a completed survey. Nevertheless, several challenges were encountered with participant recruitment. The process followed to recruit participants involved visiting the four surgical units four to five times per week, speaking with the nurses to identify potential participants, and then approaching each person individually to explain the purpose of the study and what participation would entail. This approach is consistent with a recommendation from Sammut et al. (2021); based on their review of 45 studies to investigate strategies to improve response rates for online surveys, they reported that engaging potential participants by notifying them about a survey prior to sending an invitation increases response rates. While I believe that meeting with potential participants during their hospital stay increased my response rate, identifying and meeting with each person individually is labor-intensive, especially for an unfunded, part-time master's student who undertook this project while maintaining a full-time clinical position. Additionally, this approach may not have yielded a representative sample of all elective surgical patients as the dates and times of participant recruitment were limited to outside my work hours, so I potentially missed groups of patients who had been discharged earlier in the day or whose surgeries were only performed on particular days. If this study is replicated, strategies that could be implemented to increase the representativeness of the sample include recruiting over a longer time period, devoting full days to recruitment, and randomly selecting the days when recruitment is done.

Findings from this study suggest that it is feasible to collect data on patients' surgical experience using an online survey. Online surveys can be more practical in terms of reducing cost and streamlining the distribution process compared to in-person

or mailed surveys (Sammut et al., 2021). The use of online survey programs such as MS Forms also allows for automatic data entry, which reduces the potential for data entry errors (Sammut et al., 2021). Unfortunately, I was not able to compare my response rate of 55% to that obtained in similar studies, since none of the published papers that I reviewed reported a response rate. If the study is replicated, additional strategies that might improve the response rate are personalizing email invitations by addressing potential participants by name; sending a second reminder email; and using incentives such as money, gift vouchers, or entry into a prize draw (Sammut et al., 2021).

Reliability and Validity of Items Measuring Surgical Patients' Information Needs

Findings from this study provide preliminary evidence to support the reliability of the measures obtained to indicate the extent to which surgical patients perceived their information needs were met. Reliability testing involves examining the consistency of the measures obtained for a concept (Gray & Grove, 2021). The reliability of multi-item instruments is commonly assessed by computing the Cronbach's alpha, which examines the internal consistency, or degree of intercorrelation, among the responses to the items (Gray & Grove, 2021). In this study, the internal consistency of the eight items measuring the extent to which participants perceived their information needs were met was found to be acceptable (Cronbach's alpha =.91).

Validity testing involves examining the degree to which an instrument is actually able to measure what it is intended to measure (Gray & Grove, 2021). There are multiple ways to examine the validity of an instrument, two of which are content validity and concurrent validity (Gray & Grove, 2021). Content validity pertains to the degree to

which an instrument includes all the major aspects of the concept being measured based on evidence obtained from the literature, representatives from the population-of-interest, and/or content experts (Gray & Grove, 2021). During the planning stage for this study, I generated an item pool based on findings from an examination of existing tools used to measure information needs, a review of hospital websites, my clinical experience as a surgical nurse, and input from my thesis committee. The initial items were then refined and modified to capture patients' perceptions of the extent to which their information were met for the different phases of the surgical experience. Once the OHIS-SE survey had been developed, it was reviewed by one individual who had recently undergone elective surgery plus four Registered Nurses who had experience working with surgical patients. All five agreed that the survey addressed important aspects of surgical patients' information needs, which provided preliminary support of its content validity.

Concurrent validity pertains to the degree to which participants' scores for one variable can be used to infer their scores on another variable collected at the same time (Gray & Grove, 2021). Based on my review of the literature, it was hypothesized that associations would be observed between patients' perceptions of the extent their information needs are met, the amount of information received, and their satisfaction with the surgical experience, so that patients who perceived that their information needs were better met would also tend to report receiving more information and being more satisfied. Findings from the study offer support for these hypotheses, as moderate, positive correlations were observed between the extent to which participants' information needs were met and both the amount of information they received ($r_s = .492, p < .001$), plus their overall satisfaction with the surgical experience ($r_s = .547, p$

<.001). Although the existence of a linear association between the ‘amount of information received’ and the ‘extent information needs were met’ could be questioned, it seems reasonable to assume that someone who believed the amount of information received was “too much” would also “strongly agree” they had enough information about their surgical experience. It was also hypothesized that differences would be observed between participants’ perceptions of the extent their information needs were met depending on their use of the internet, so that patients who searched the internet for information about their surgical experience would perceive that their information needs had been better met than those who did not. Findings from the OHIS-SE Survey support this hypothesis, as participants who searched the internet tended to perceive that their information needs were met to a significantly greater extent than those who did not search the internet ($z = -2.254, p = .024$). In summary, the findings obtained from this study provide preliminary evidence indicating the validity of the measures obtained for patients’ perceptions of the extent their information needs were met using the OHIS-SE Survey.

Potential Utility of the OHIS-SE Survey

The OHIS-SE Survey adds to the repertoire of tools available to measure surgical patients’ information needs. Existing instruments primarily measure surgical patients’ information needs either as a dichotomous want/do not want response option or as a numerical rating of the perceived importance of the information. Prior research has demonstrated that patients who are better informed about their surgical experience tend to have better outcomes (Burgess et al., 2019; Fredericks & Yau, 2017; Jones et al.,

2011; Kalogianni et al., 2016; Ortiz et al., 2013; Ramesh et al., 2017), which suggests the benefits of patients having access to information on a wide range of topics spanning the different phases of the surgical experience. By measuring the perceived adequacy of the information that participants receive, the OHIS-SE Survey allows researchers to identify gaps in patients' knowledge of the surgical experience that may affect their outcomes.

Findings from this pilot study suggest that the OHIS-SE Survey may yield useful information to advance our understanding of surgical patients' information needs and the extent to which they seek to meet these needs using the internet. Comparing the findings from this study to the information available to surgical patients on a randomly selected sample of 22 non-teaching Ontario hospital websites suggests there may be opportunity to better match the information provided online to the information that surgical patients are searching for on the internet. For example, in this study the information topic with the highest mean rating and least variability for the extent that information needs were met was 'how to prepare for surgery'. In addition, only 13% of participants who reported searching the internet indicated they looked for information on 'how to prepare for surgery', and only 6% looked for information on 'what to expect on the day of surgery'. These findings are inconsistent with my observation that the information most often provided on hospital websites pertains to the pre-operative phase (Cailes, 2021).

Limitations

Findings from this pilot study need to be interpreted with caution due to the sample size, which was insufficient to achieve adequate statistical power. For this study,

the sample was determined based on the time allocated for participant recruitment (4 weeks) rather than a calculation of statistical power. Underpowered studies are at increased risk of both incorrectly rejecting a true null hypothesis (Type 1 error), as well as incorrectly accepting a false null hypothesis (Type 2 error; Kim & Mallory, 2017). Replication of this study using a larger sample is therefore warranted before recommendations are made for practice. The small sample size also limited my ability to conduct sub-analyses. For example, it would have been interesting to compare differences in the extent to which participants perceived their information needs were met between those who had day surgery versus inpatient surgery, or by demographic characteristics such as age, gender, or level of education.

Conclusion

The Canadian healthcare system is currently confronting multiple pressures stemming from factors including the COVID-19 pandemic, nursing labour shortages, high occupancy rates in hospital, and increasing healthcare costs (Baumann & Crea-Arsenio, 2023; Glass, 2014; Kruzik, 2009; Ontario Council of Hospital Unions & Canadian Union of Public Employees, 2021; Stone & Sheib, 2021). These factors have prompted efforts to find new ways of meeting the needs of surgical patients, including ways of providing them with information that will optimize their recovery (Coppens et al., 2021; Salem et al., 2020). Findings from the work completed during my graduate studies provide evidence to suggest that the internet may be an underdeveloped resource for meeting surgical patients' information needs. Hospital websites may be a useful tool for nurses and other healthcare providers to address patients' diverse information needs

and to provide access, either directly (i.e., hospital website) or indirectly (i.e., link to third party website), to credible information. While this study suggests that almost half of participants (48%) received just the right amount of information, 25% reported receiving “too little” and 27% reported receiving “too much” information. Hospital websites could address this by presenting essential information for all patients, while using features such as dropdown menus with links to additional webpages, audiovisuals, or graphics to satisfy the needs of those who want additional information offered through different mediums. To my knowledge, this is the first study that examines both the information needs and internet use patterns of adult surgical patients. It is hoped that findings from this study will inspire future research investigating surgical patients’ information needs and exploring the potential use of websites as a source of this information.

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Appendix A

Online Health Information Seeking – Surgical Experience Survey

The purpose of this survey is to help improve the experience for those who have surgery.

Part 1: Information Needs

Think back to your recent surgery and indicate how much you agree with the following statements. There are no right or wrong answers.

You had enough information about:

1. How to prepare for surgery (for example when you may last eat or drink, what to bring to the hospital)
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree
2. What to expect on the day of surgery (for example process for checking in, what happens after you arrive at the hospital but before you go to Operating Room)
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree
3. What happens in the Operating Room
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree
4. What happens in the Recovery Room/Post-Anesthesia Unit
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree
5. What to expect during your recovery in the hospital (for example length of stay, when and how you are discharged)
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree
6. Events that could happen in hospital after surgery (for example pain, nausea and vomiting, infection) and actions that might be taken to address them
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree
7. What to do after you are discharged home (for example what to eat, activity level, bathing, managing pain, driving, how to change bandage)
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree
8. What to do if something unexpected happens after you are discharged (for example bleeding, redness or swelling around wound)
 Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

9. Overall, the information you had about your surgical experience was:
1. Far too little – 2 – 3 – 4 – 5. Just the right amount – 6 – 7 – 8 – 9 – 10. Far too much

Part 2: Online Information Seeking

Think about your use of the internet, such as websites or social media. This may be through a computer, tablet, mobile phone, or other electronic device.

10. How often do you search the internet for health information in general?
- Nearly every day
 - Several times a week
 - Several times a month
 - Once a month
 - Every few months
 - Once a year or less
 - Never
11. Did you search the internet for information about your surgical experience?
- Yes (**Go to question 12**) No (**Go to question 16**)
12. Why did you search the internet for information about your surgical experience?
Select all that apply:
- Did not get all the information you needed from other sources (for example doctors, nurses, paper handouts)
 - Wanted to check the information you got from other sources
 - Got conflicting or confusing information from other sources
 - Could not remember the information you got from other sources
 - Did not have a chance to ask questions
 - Thought of more questions after meeting with the doctor or nurse
 - Were curious or wanted to see what other information you could find
 - Felt it was important to have as much information as you could find
 - To pass the time while waiting for surgery
 - Other: _____
13. What did you search the internet for? Select all that apply:
- How to prepare for surgery (for example when you may last eat or drink, what to bring to the hospital)
 - What to expect on the day of surgery (for example process for checking in, what happens after you arrive at the hospital but before you go to Operating Room)
 - What happens in the Operating Room

- What happens in the Recovery Room/Post-Anesthesia Unit
- What to expect during recovery in the hospital (for example length of stay, when and how you are discharged)
- Events that could happen in hospital after surgery (for example pain, nausea and vomiting, infection) and actions that might be taken to address them
- What to do after you are discharged home (for example what to eat, activity level, bathing, managing pain, driving, how to change bandage)
- What to do if something unexpected happens after you are discharged (for example bleeding, redness or swelling around wound)

14. The information you found on the internet about your surgical experience was:

1. Far too little – 2 – 3 – 4 – 5. Just the right amount – 6 – 7 – 8 – 9 – 10. Far too much

15. Did you search the hospital's website for information about your surgical experience?

- Yes No

Part 3: General Information

Answers to these questions will be used to describe the characteristics of those who took part in the study.

16. What type of surgery did you have?

- General Surgery (surgery on your intestines, gallbladder, appendix, stomach, esophagus, breasts)
- Vascular Surgery (surgery on your arteries or veins, amputation)
- Orthopedic Surgery (surgery on your bones, joints, muscles, or tendons)
- Gynecologic Surgery (surgery on your uterus, fallopian tubes, ovaries, or vagina)
- Urologic surgery (surgery on your kidneys, bladder, prostate, scrotum, ureters, urethra)
- Plastic Surgery (reconstructive or cosmetic surgery)
- Ear, Nose, or Throat Surgery
- Oral surgery (surgery on your mouth, teeth, or jaw)
- Other/Unsure: _____

17. Was your surgery done as an:

- Outpatient/Day Surgery Inpatient (overnight hospital stay)

18. Was this your first time having surgery?

- Yes No

19. Thinking back, how satisfied were you with your surgical experience?

1. Not at all satisfied – 2 – 3 – 4 – 5. Neither satisfied nor unsatisfied – 6 – 7 – 8 – 9 – 10. Very satisfied

20. Do you identify as:

- Male Female Other: _____

21. What year were you born?

22. What is the highest level of education that you have completed?

- Less than high school diploma
 High school diploma
 Apprenticeship or College diploma
 Bachelor's degree
 Master's or Doctorate degree


23. Thank you for completing this survey. Is there anything else you'd like to share to help us better meet patients' information needs during the surgical experience?

By submitting this survey, you agree that your responses can be used for research purposes.

This project has been reviewed by the University of New Brunswick Research Ethics Board and is on file as REB2023-004.

Appendix B

Staff Information Flyer



RESEARCH STUDY ON SURGICAL PATIENTS' INFORMATION NEEDS AND INTERNET USE

Hello colleagues,

My name is Naomi Cailes, I'm a Nurse Educator in Medicine and a Master of Nursing student at the University of New Brunswick. I am conducting a research study on surgical patients' information needs and internet use and would like your support as I recruit participants and collect data.

**QUESTIONS? CONTACT ME FOR MORE INFORMATION:
Naomi.Cailes@unb.ca**

What is the purpose of this study?
To investigate adult patients' information needs during their surgical experience and how they meet these needs through the internet.

Who is eligible to take part?
Individuals who:

- Are 19 years of age or older
- Are admitted as an inpatient or outpatient for elective surgery
- Are scheduled for discharge within the next two days
- Have the capacity to complete a survey about their surgical experience
- Speak English
- Have internet access

When and how will participants be recruited?

- Flyers will be posted in patient/visitor areas and nursing stations
- From April 11th to May 9th, I will recruit patients from Surgical Out-Patients, A5, B5, and A6.
- I will ask Charge Nurses on each unit for their suggestions on eligible patients
- I will approach eligible patients with information about the study and collect email addresses from those who are interested

What does the study involve?

- Potential participants will be sent an email 7 days after their expected discharge
- If they choose to participate, they will follow a link to fill out a short, 15 minute online survey
- Survey responses will be anonymous and participation is voluntary

What is your role as a staff member?


- If a patient asks you about the study, please give them a copy of the Recruitment Flyer (available at the nursing station) and direct them to contact me for more details

UNB Principal Investigator:
Naomi Cailes, RN
✉ Naomi.Cailes@unb.ca ☎ 705-559-2443

PRHC This project has been reviewed by the
Peterborough Regional Health Centre University of New Brunswick Research
Ethics Board and is on file as REB2023-004

Appendix C

Participant Recruitment Flyer



VOLUNTEERS NEEDED

RESEARCH STUDY ON SURGICAL PATIENTS' INFORMATION NEEDS AND INTERNET USE

Help us improve the hospital and recovery experience for surgical patients

WHAT'S INVOLVED?

YOU WILL BE ASKED TO FILL OUT A SHORT, ANONYMOUS ONLINE SURVEY ABOUT YOUR:

- Information Needs during your Surgical Experience
- Internet Use
- Background

ARE YOU ELIGIBLE?

YOU CAN TAKE PART IF YOU:

- Are 19 years of age or older
- Recently had elective surgery at Peterborough Regional Health Centre
- Can answer questions about your surgical experience
- Have internet access
- Will be discharged home soon

UNB Principal Investigator: Naomi Cailles, RN
Naomi.Cailles@unb.ca 705-559-2443

PRHC Peterborough Regional Health Centre
This project has been reviewed by the University of New Brunswick Research Ethics Board and is on file as REB2023-004

**INTERESTED IN TAKING PART?
WANT TO LEARN MORE? EMAIL:
Naomi.Cailles@unb.ca
FOR MORE DETAILS**

Appendix D

Participant Recruitment Email

Email Subject line: INVITATION TO TAKE PART IN RESEARCH STUDY

RESEARCH STUDY ON
**SURGICAL PATIENTS'
INFORMATION NEEDS
AND INTERNET USE**



Hello,

You are getting this email because we spoke during your recent hospital stay and you expressed interest in the study. My name is Naomi Cailles, a Registered Nurse at Peterborough Regional Health Centre and a Master of Nursing student at the University of New Brunswick. I would like to invite you to take part in a research study that I am completing as part of my degree.

Please read through the information below. Then, if you would like to take part in the study, click on the link to open the survey.

Participant Information

Project title: *The Surgical Experience: A Pilot Study of Patients' Information Needs and their Internet Use*

What is the purpose of this study? To learn more about adult patients' information needs during their surgical experience and how they meet these needs through the internet. Information needs are the gaps between the information that patients have and the information that they think they need.

Who can take part in this study? You may take part in this study if you:

1. Are 19 years of age or older.
2. Recently had elective surgery at Peterborough Regional Health Centre.
3. Can recall your surgical experience and fill out a survey about it.

4. Have internet access.
5. Have been discharged home.

What is your role if you choose to take part? You will fill out an online survey about your information needs, internet use, and background. This survey should take no more than 15 minutes to complete.

What are the possible risks and benefits of this study? We do not expect any risks from taking part in this study. If you had a bad experience during your surgery or recovery and would like to talk to someone from the hospital about it, you can contact the Patient Relations department ([Patient Relations - PRHC](#), phone # 705-743-2121 x 3674). By consenting to take part in this study you are not waiving any of your legal rights. While you may not benefit from taking part, the knowledge gained from this study will be used to improve the information that is given to future patients.

Is taking part in this study voluntary? Yes. You do not have to take part in the study or answer a specific question. Choosing not to take part will not affect the care that you get or your relationships with Peterborough Regional Health Centre, the University of New Brunswick, or anyone involved with this study. Submitting your completed survey indicates that you agree to take part in the study.

Will your identity be known? No. We will not collect your name or any data that could identify you.


How will information from this study be stored? The information will be stored on a password protected computer and only those involved in this research project will have access to it. The information will be stored for 7 years and then will be permanently deleted. The information could be used for another research study in the future but only if it has been approved by a research ethics board first.

What if you have questions or feedback about the research? Please contact the student investigator, Naomi Cailes (phone: 705-559-2243, email: Naomi.Cailes@unb.ca) or her faculty supervisor, Dr. Marilyn Hodgins (phone: 1-506-458-7628, email: mhodgins@unb.ca). If you have concerns about this research project, you may contact Natalie Beavis, chair of the Peterborough Regional Health Centre Research Ethics Board (phone: 705-743-2121 x3461, email: nbeavis@prhc.on.ca) or Renee Audet-Martel, Manager, Office of the Vice President (Research) at the University of New Brunswick (phone: 1-516-453-5189, email: ethics@unb.ca).

How can you learn about the results of this study? After the study is complete, you will be sent a short summary of the findings by email.

Want to Take Part?

Please → [CLICK HERE](#) ← to fill out the anonymous, online survey.

You can click on the  icon to use the “Immersive Reader”, where you can change the font size or have the survey read aloud.

Please only fill out the survey once.

This project has been reviewed by the University of New Brunswick Research Ethics Board and is on file as REB2023-004.

Thank-you,

Naomi Cailes, RN

Appendix E

Participant Follow-Up Email

Email Subject Line: REMINDER: INVITATION TO TAKE PART IN RESEARCH STUDY

RESEARCH STUDY ON
**SURGICAL PATIENTS'
INFORMATION NEEDS
AND INTERNET USE**



Hello,

I recently sent you information about my research study and an invitation to take part. If you have already filled out the survey, thank-you. Please do not fill out the survey a second time. If you have not filled out the survey yet, please follow the link below to take part.

Participant Information

Project title: *The Surgical Experience: A Pilot Study of Patients' Information Needs and their Internet Use*

What is the purpose of this study? To learn more about adult patients' information needs during their surgical experience and how they meet these needs through the internet. Information needs are the gaps between the information that patients have and the information that they think they need.

Who can take part in this study? You may take part in this study if you:

1. Are 19 years of age or older.
2. Recently had elective surgery at Peterborough Regional Health Centre.
3. Can recall your surgical experience and fill out a survey about it.
4. Have internet access.
5. Have been discharged home.

What is your role if you choose to take part? You will fill out an online survey about your information needs, internet use, and background. This survey should take no more

than 15 minutes to complete.

What are the possible risks and benefits of this study? We do not expect any risks from taking part in this study. If you had a bad experience during your surgery or recovery and would like to talk to someone from the hospital about it, you can contact the Patient Relations department ([Patient Relations - PRHC](#), phone # 705-743-2121 x 3674). By consenting to take part in this study you are not waiving any of your legal rights. While you may not benefit from taking part, the knowledge gained from this study will be used to improve the information that is given to future patients.

Is taking part in this study voluntary? Yes. You do not have to take part in the study or answer a specific question. Choosing not to take part will not affect the care that you get or your relationships with Peterborough Regional Health Centre, the University of New Brunswick, or anyone involved with this study. Submitting your completed survey indicates that you agree to take part in the study.

Will your identity be known? No. We will not collect your name or any data that could identify you.


How will information from this study be stored? The information will be stored on a password protected computer and only those involved in this research project will have access to it. The information will be stored for 7 years and then will be permanently deleted. The information could be used for another research study in the future but only if it has been approved by a research ethics board first.

What if you have questions or feedback about the research? Please contact the student investigator, Naomi Cailes (phone: 705-559-2243, email: Naomi.Cailes@unb.ca) or her faculty supervisor, Dr. Marilyn Hodgins (phone: 1-506-458-7628, email: mhodgins@unb.ca). If you have concerns about this research project, you may contact Natalie Beavis, chair of the Peterborough Regional Health Centre Research Ethics Board (phone: 705-743-2121 x3461, email: nbeavis@prhc.on.ca) or Renee Audet-Martel, Manager, Office of the Vice President (Research) at the University of New Brunswick (phone: 1-516-453-5189, email: ethics@unb.ca).

How can you learn about the results of this study? After the study is complete, you will be sent a short summary of the findings by email.

Want to Take Part?

Please → [CLICK HERE](#) ← to fill out the anonymous, online survey.

You can click on the  icon to use the “Immersive Reader”, where you can change the font size or have the survey read aloud.

Please only fill out the survey once.

This project has been reviewed by the University of New Brunswick Research Ethics Board and is on file as REB2023-004.

Thank-you,

Naomi Cailes, RN

Curriculum Vitae

Candidate's full name: Naomi Rebecca Cailes

Universities attended (with dates and degrees obtained):

Bachelor of Science in Nursing, Trent University, 2015

Publications: None

Conference Presentations:

Cailes, N. & Hodgins, M. (2023, August 31). *A pilot study of patients' information needs and their internet use during the surgical experience: Preliminary findings* [Conference presentation]. 28th Annual University of New Brunswick Nursing Research Day, Fredericton, NB, Canada.

Cailes, N. & Hodgins, M. (2022, September 1). *Developing a survey instrument to measure patients' information needs and internet use throughout the surgical experience* [Conference presentation]. 27th Annual University of New Brunswick Nursing Research Day, Fredericton, NB, Canada.

Cailes, N. & Hodgins, M. (2021, August 25). *Appraisal of surgical patient education materials available on Ontario hospital websites* [Conference presentation]. 26th Annual University of New Brunswick Nursing Research Day, Fredericton, NB, Canada.