The Experience of Preoperative Patient Education for Women Preparing for and Recovering from Total Knee Replacement

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Abstract

The purpose of this qualitative study was to explore the experiences of eight women undergoing total knee replacement surgery who participated in preoperative patient education classes. The primary research question was: How do eight women who experienced total knee replacement make sense of their preoperative education and recovery? This study utilized interpretative phenomenological analysis to investigate and make sense of the women’s lived experience in class and while preparing for and recovering from knee replacement surgery. The eight women who participated were interviewed to explore how experiences in preoperative education classes were evaluated and translated into empowerment. The data analysis revealed six superordinate themes: Preoperative uncertainty, Information assimilation, Role development, Behavioral triggers, Engagement, and Empowerment. Four recommendations for practice address the increasing availability of information and the use of technology to mediate the messages delivered in preoperative education classes.

Keywords: preoperative education, patient engagement, interpretative phenomenological analysis
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Chapter 1: Introduction

Knee replacement surgery is the only curative approach for addressing chronic symptoms of osteoarthritis (OA). It is quickly becoming the most common orthopedic procedure in the United States (U.S.). Along with such promise and growth, there is also a need to deliver high-quality patient education and to engage patients in their care. It has been suggested that the future of the U.S. healthcare delivery system will be shaped by the degree to which patients become engaged in their health and health care (Bodenheimer, Lorig, Holman, & Grumbach, 2002), and, conversely, the extent to which delivery organizations accept and act upon patient-centered outcomes research (Bechtel & Ness, 2010).

Patient-centered outcomes research unites the process of delivering care with the voice of the patient to better understand how meaningful improvements can be made in the delivery of patient education (Fleurence et al., 2013). M. Smith et al. (2013) suggested that healthcare organizations may harness the potential of patients by engaging them in their health (defined as the individual experience or feeling of health) and healthcare (defined as the process of receiving care or caring for oneself) as if they were members of the healthcare team. Research suggests there is a collective realization that the system needs change, and that patient involvement is a bridge to that change (Weil, 2016). This perspective implies a shared responsibility between the patient and the provider to effectively and efficiently alleviate symptoms of chronic illness and to better manage health and health care (Carman et al., 2013).

Alongside this focus on the patient’s role in the process of care, public and private payers have increasingly pressured providers (hospitals) to restrain the costs of care. These pressures are felt through bundled payments or value-based payments, shrinking insurance payments, increased costs to the consumer (patient), and shortening the number of inpatient day (DiGioia
III, Greenhouse, Giarrusso, & Kress, 2015). A shorter stay for patients increases the demands on the patient in health and healthcare (Berwick & Hackbarth, 2012) as well as on providers, who must educate patients more quickly because opportunities for teaching at the bedside are significantly reduced. Even with technology decreasing the physical effects of a total knee arthroplasty (TKA), the importance of patients’ role in the process of healthcare cannot be underestimated (Pellino et al., 1998). Yet even though the importance of engaging patients in the process of care has been recognized, the voice of the patient has not always been present. Therefore, research should make sense of how patients understand their experiences in engaged health care. “Only by grounding healthcare interventions in a deeper understanding of patients’ experiences, priorities, and expectations can they become truly effective in engaging patients” (Graffigna & Barello, 2015, p. 27).

Engagement of patients has been driven by the increasing prevalence of chronic illnesses like osteoarthritis (OA). This illustrates the evolving nature of the many complex forces influencing and reshaping the healthcare delivery system (Felson, 2006). OA and obesity are among the most prevalent causes of the increased use of TKA, which is the only curative approach to end-stage OA of the knee (Losina, Thornhill, Rome, Wright, & Katz, 2012). TKA, in lay terms, is the surgical excision of the diseased bone and cartilage of the knee joint and fixation of a prosthetic joint comprised of metal and specialized plastics (Kurtz, Ong, Lau, Mowat, & Halpern, 2007). In the United States, use of TKA has nearly doubled from 1999 to 2008, as the efficacy and outcomes of TKA have been significantly improved; it is more prevalent among women (Losina et al., 2012).

Advances in technology and knowledge transfer, as well as changes in patient demographics, are continuing to hasten the use of TKA to treat end-stage osteoarthritis,
especially in younger patients (Katz, 2006). According to the Center for Disease Control’s "Inpatient Surgery Report," as of 2014 over 719,000 total knee replacements were performed on an annual basis; this number likely has since increased, as predicted by Losina et al. (2012). As the number of TKA operations increases, so too has the overall costs associated such a high level of care (DiGioia, III, Greenhouse, Giarrusso, & Kress, 2015). As costs have increased, hospitals have been challenged by payers at all levels, including the government, to demonstrate greater accountability by delivering improved patient outcomes (Bechtel & Ness, 2010).

One way to improve outcomes is thought to be increasing patients’ engagement in their health and healthcare. This is done by providing enhanced personalized education related to specific conditions, the care patients receive, and the care that they can coordinate, influence, or manage on their own (Pellino et al., 1998; Ronco, Iona, Fabbro, Bullone, & Palese, 2012). A push for engagement and education as a component of patient-centered care has come at a national level from the Institute of Medicine (IOM), which advocates for greater engagement of patients in health and healthcare, as well as from The Joint Commission, one of the most prominent healthcare accrediting bodies. Both groups recommend patient and family education as a primary improvement focus (Forbat, Cayless, Knighting, Cornwell, & Kearney, 2009). At the state and local level, demands for greater engagement have been developing: in 2009, Massachusetts became the first state to mandate patient and family advisory committees (Conway, 2015).

Research has shown that patient education has a positive effect on the management of chronic conditions (Lagger, Pataky, & Golay, 2010), yet there remains a lack of consensus about what constitutes an “involved” or “engaged” patient (Gerteis, Edgman-Levitan, Daley, & Delbanco, 1993, p. 28). The push for patient engagement and patient education is playing a more
significant role in the process of chronic care beyond TKA alone. The primary example explored in this research is preoperative knee replacement education programs. Interestingly, patients perceive preoperative education for TKA as a standard practice, but providers view it as an additional, albeit required, service (Johansson, Nuutila, Virtanen, Katajisto, & Salanterä, 2005). Healthcare leaders suggest the role of healthcare providers may also be changing from paternalistic decisionmakers to facilitators through the use of education and transfer of health information (Longtin et al., 2010). As the roles of patients and providers evolve, and patient education and engagement become central influences on patient-reported outcomes (results in the words of the patient), discovering how patients understand and translate their educational experience is increasingly important.

**Problem of Practice**

The timing and focus of preoperative education make it a vehicle to serve the different needs of hospitals, payers, and patients. Preoperative education is also viewed as a method to alleviate mounting pressure from the healthcare system by addressing postsurgical ambulation, wound care, and maintenance of proper medication regimens (Cox et al., 2015; Mitchell et al., 2014). The traditional mantra has been that increasing the patient’s understanding through education should translate to greater empowerment; in other words, more engagement and improved patient outcomes as measured by fewer re-admissions, enhanced pain control, and patient satisfaction (Institute of Medicine, 2011a). However, these results do not capture or express how a patient makes sense of the educational experience, or how the experience influences empowerment. Also, no standard educational approach has been defined, nor have the efforts to engage and educate joint replacement patients been rigorously evaluated to determine the best way to meet patients’ individual needs (Johansson et al., 2005).
The shift to preoperative education rather than teaching at the bedside following surgery has several potential benefits for patients and providers. In theory, patients have increased ability before surgery to learn and prepare for surgery, more significant opportunity to address questions, greater opportunity for meaningful engagement, and less anxiety (McDonald, Hetrick, & Green, 2004; McDonald, Page, Beringer, Wasiak, & Sprowson, 2014). TKA surgeries are complex and often daunting for patients who increasingly have high expectations and complex needs (Zywiel, Mahomed, Gandhi, Perruccio, & Mahomed, 2013). Likewise, providers may not only be able to better educate patients, but also create opportunities to build connections amongst providers, patients, and hospitals. As the focus on engagement through preoperative education programs increases, it is increasingly important to understand the sense-making process for patients participating in them.

As providers (hospitals) have placed greater emphasis on preoperative education, research has focused on evaluating outputs, such as whether preoperative education has affected re-admissions, post-surgical complications, pain control, and length of stay (McDonald et al., 2004; Ronco et al., 2012). Johansson et al. (2005) noted that the primary focus of patient education might not translate directly to the outcomes measured in current research, which raises valid questions about whether the body of preoperative education research reflects the patient experience. The choice of which patient outputs to measure, such as the length of inpatient stay, is strongly influenced by contractual arrangements and the established standards of care (Suhonen & Leino-Kilpi, 2006). Even with improved technology and innovative surgical processes, the standard hospital stay is based on customary approaches (Johansson et al., 2005).

Research that focuses on matching preoperative education with physical outcomes is complicated by these ordinary and customary bounds of the healthcare system. It is important to
note that the initial systematic analysis presented by McDonald et al. (2004) noted two distinct and significant findings: Patients were all more likely to have a higher level of knowledge related to their procedure (TKA), and all reported some decrease in their levels of anxiety before surgery. Both of these findings were consistent with the follow-up analysis presented by McDonald et al. (2014) and indicated that there is value in understanding how the experience in preoperative education influences subsequent decisionmaking and self-care.

**Purpose of the Study**

The purpose of this interpretative phenomenological study was to explore the experiences of eight women who had participated in a preoperative education class, through the process of recovery. Furthermore, this study aimed to understand how the experience in a preoperative education class was evaluated and translated to empowerment by these women. Despite the growing body of research on patient engagement, the process by which patients themselves make sense of education, such as preoperative joint replacement classes, is not addressed explicitly in the literature, especially for women. The voice of the patient, or the patient narrative, is notably absent in current research on TKA education outcomes (Leov, Barrett, Gallagher, & Swain, 2015). McDonald et al. (2004) completed the first high-level meta-analysis that found preoperative education to have modest benefits for patients, but an updated meta-analysis in 2014 by the same authors introduced considerably more skepticism about the influence of education on clinical patient outcomes. Understanding the experience of women in preoperative education classes may identify new aspects of preoperative education that can be explored, or may confirm the skepticism of existing research.

Finally, the literature demonstrates a fundamental lack of understanding of the process by which patients become involved in their care and of the factors that influence and empower
patient behavior in their own care, again especially for women (M. Smith et al., 2013). The precise nature of science and technology have spurred clinical developments; meanwhile, the qualitative and subjective nature of patient experiences has been less of a focus, in part because it is difficult to measure and understand using the quantitative approaches that are most common in medicine (Gerteis et al., 1993). Because there is little research related to the experiences of women in preoperative education, there is a need to investigate how preoperative education delivered through the hospital and other healthcare delivery organizations affects women. There is also a need to understand how OA patients translate the experience of pre-operative education into self-care following TKA.

**Research Question**

How do eight women who experienced total knee replacement make sense of their preoperative education and recovery?

**Significance of the Problem**

Understanding the experience of women in preoperative education has significance in three areas: first, the quality of approach in preoperative patient education; second, in understanding the translation of that experience to patient empowerment and engagement; and finally, in generating an understanding of the effect of preoperative education on patient-reported health outcomes for women.

Unless the approach to chronic illness evolves, the costs, number of patients, and poor patient outcomes will threaten the economic stability of the country (Hester, 2010). By 2020, there will be an estimated 53 million adults aged 65 or older in the United States; chronic illnesses, such as diabetes and osteoarthritis, will be more prevalent (Bodenheimer et al., 2002). This population is also more likely to have multiple chronic conditions, which require more
complex care and greater resources. The IOM has estimated that the U.S. healthcare system spends $765 billion annually on treatments, medical devices, and testing that is contraindicated by standard practice guidelines (Institute of Medicine, 2011b). Given the changing patient population and the growing cost of managing chronic illnesses, the economic cost of healthcare in the United States will be nearly 20 percent of the Gross Domestic Product by 2022 (Cuckler et al., 2013). Despite the costs of care, the providers are beholden to provide patients with the best possible experience and to ensure the best possible outcomes.

Given the economic and patient imperatives, the importance of engaging patients in their health and healthcare cannot be overlooked. Jim Conway, the former CEO of Dana-Farber Cancer Institute, asserted the importance of education and engagement in remarks at the Healthcare for All Massachusetts Patient and Family Engagement symposium saying “80 percent of the typical care patients receive is performed in their living room, kitchen, or bedroom; our impacts are greater outside of the hospital” (Conway, 2015). The Institute of Medicine has demonstrated that patient engagement improves patient experiences in care, increases health quality, and also improves economic outcomes (M. Smith et al., 2013). The better we understand the process of engagement and education for patients, the more successful we can be in tailoring approaches to patient needs. Gerteis et al. (1993) suggested:

> What patients experience, and what they think of that experience, should also matter to the health care planners, policymakers, and managers, because that experience, as much as the technical quality of care, will determine how people use the health care system and how they benefit from it (p. 5).
Theoretical Framework

The research conducted in this study was framed by the patient health engagement model (PHE), which was developed to answer how patient engagement evolves through the experiences of the patient receiving chronic care. The framework defines patient engagement as “a function of the synergic evolution of the patients’ cognitive, emotional, and behavioral attitudes towards their health and care management” (Graffigna & Barello, 2015, p. 40). The PHE model focuses on uncovering the process by which patients become engaged and how they move through the continuum of care. Graffigna and Barello (2015) suggested that this understanding will develop through discerning how patients living with chronic illnesses interpret experiences in care and subsequently reason, behave, and feel about the process of engaging in health.

The PHE framework is supported by the patient health education scale, which has been validated through empirical research (Graffigna & Barello, 2015). The PHE model draws from consumer perspectives, including the engaging consumers in health and healthcare communities framework (ECHC) developed by Mittler, Martsolf, Telenko, and Scanlon (2013). The focus on consumer psychology in engagement has gained support in part because of characterizations of engagement as a “wild card” (Mittler et al., 2013) and also as the next “blockbuster” drug (Dentzer, 2013). There is a developing psychological conception of the process of engagement that is rooted in seeing patients as consumers and understanding their behaviors from a consumer perspective. Graffigna and Barello (2015) suggested that only by “grounding healthcare interventions in a deeper understanding of patients’ experiences, priorities, and expectations” (p. 27) can interventions such as preoperative patient education be truly effective. The PHE model recognizes patients as informed decisionmakers, as mediators of individual priorities, and as
evaluators of intellectual interests, which shifts the patient from “merely disease carriers to people who make realistic decisions” (Graffigna & Barello, 2015, p. 29).

The PHE adopts a broader focus on the patients’ experience and interactions with providers, considers the environment that surrounds care, and calls into question the concept of empowerment in health and healthcare (Graffigna, Barello, Bonanomi, & Lozza, 2015). The experience of being diagnosed and living with a chronic illness triggers and develops an identity that is intertwined with individual and patient perspectives, mediated by experiences and the sense-making processes that surround those experiences. The framework suggests that within this personification of the patient living with chronic illness, engagement has value in several contexts (Graffigna & Barello, 2015). These contexts include self-management, patient empowerment, patient activation, and participatory involvement in care.

Figure 1. The process of patient health engagement. Reprinted from Graffigna et al. (2016, p. 37).

As shown in Figure 1, the PHE model suggests that a patient’s progress through stages of engagement begins with a precipitating event or blackout. Blackout is similar to the initial shock of a diagnosis and the emotional state that ensues. Patients progress from this blackout stage into
arousal, the period in which the patient has an emotional reaction to disease and begins to assimilate with the concept of disease. During arousal, patients increasingly rely on their relationships with providers for information about disease management and treatment experiences. Patients then move from arousal to adhesion, when they confront their emotions surrounding disease and begin to recognize their own role in care, accepting the transference of responsibility from their providers to themselves. Finally, patients transition from adhesion to the eudaimonic, a position of complete and total acceptance. Patients at this stage are fully engaged and are also focused on sense-making, assigning meaning to their healthcare experiences.

The process from adhesion to eudaimonic represents the confluence of education and behavioral skills, so it is the most salient point from which preoperative education programs may be viewed to better understand the experience of the patient and subsequent empowerment (Barello, Graffigna, Vegni, & Bosio, 2014). This point in the patient engagement process is represented by a cognitive understanding that is moving towards sense-making, acceptance that is shown through elaboration, and self-management practices that are becoming situated in the life of the patient. In empowerment, the focus shifts to the psychosocial aspects of health as well as self-efficacy (Pellino et al., 1998).

As patients move through their experience with a chronic illness, a dynamic relationship between the patient, the disease, and the providers continually forms and changes. This dynamic relationship can influence patients’ evolving sense making, as well as their experience of illness and treatment. Patient education plays a vital role in “providing occasions for patients to improve their self-efficacy and confidence towards health management” (Graffigna et al., 2016, p. 37).
Criticism of the Framework

The PHE framework is relatively new, first published in 2015. As of yet, there are no specific critiques of the framework available in the literature. However, the framework draws on a strand of growing emphasis in health services research that focuses on the experiences of patients and on understanding how patient experience in care affects the delivery of care. The journal *Health Affairs* held a roundtable meeting in support of a special issue focused on patient experiences in health on April 7, 2016. At the meeting there was discussion and recognition of the role of the “patient narrative” and “patient voice,” as well as the growing reliance of the health system on patient engagement. There was also a strong recognition that developing tools and methods to aggregate and understand the experience of patients in the care they receive is critical to the future of the health system.

Applying the Framework

Patients move within the engagement continuum, guided by experiential levers that are continually evaluated and re-evaluated as information is compiled and understanding achieved (Graffigna & Barello, 2015). Given the relationship between experience and engagement, the PHE framework supports the application of experiential understanding to improve the delivery of preoperative education. The PHE framework provides specific guidance on the process of engagement, creating an understanding of the patient’s potential actions and assigning priorities based on the patient’s stage in health engagement.

As patients living with chronic illness move through the process of engagement and begin to increase understanding of their disease, such as OA, along with the feelings, priorities, and desires it causes, an emotional, behavioral, and cognitive understanding develops. The PHE model provides guidance on how to break down and understand a patient’s use of information
and the interpretation of that information in specific circumstances. Finally, the framework guides understanding of a patient's psychosocial experiences in relation to healthcare and presents guidance for making sense of patient experiences in preoperative education and ultimately engagement in healthcare. “Only by understanding the interpretations and experiences and interpretations of patients about their diseases and their treatment is it possible to orient interventions that can answer their needs and expectations” (Graffigna et al., 2016, p. 41).

**Conclusion**

This chapter introduced the significance of patient engagement and patient education as bridges between the complex reality of healthcare costs and the needs of patients. It supported understanding the complex relationships formed between patients, their health, and their perceptions through understanding how patients make sense of engagement experiences.

The voice of the patient is increasingly recognized as an essential factor in the design, development, and delivery of healthcare (Gallivan, Kovacs Burn, Bellow, & Eighenser, 2012). The significance of engagement, preoperative education, and the factors that influence patient evaluations of their own experiences with care, as well as related theoretical considerations, will be presented in the following chapter. The next chapter thoroughly reviews the relevant literature related to the use and development of preoperative education for TKA patients. Chapter 3 then will outline the research methodology, along with the study rationale.
Chapter 2: Literature Review

This chapter thoroughly reviews the literature related to patient engagement, preoperative education, and how patient perceptions of teaching and engagement translate into behavior. Gruman et al. (2009) noted, “sick or well, people will not benefit from their health care unless they bring to bear considerable knowledge, skills and motivation to participate actively in the care that is available to them” (p. 350). Although conceptually different, patient engagement and patient education share a patient-centric focus, the cognition-behavior relationship, and encouragement of patients as participants in health and health care. This chapter explores these concepts in four sections, beginning with patient engagement. The first section discusses patient engagement along with our current understanding and application of it. The second section details the idea of patient education as well as the delivery of preoperative education for TKA patients and its relationship to patient engagement. The third section of the literature review deals with patients’ perceptions of preoperative education, empowerment, and their own experiences. The final section presents empowered behaviors and possible barriers.

Patient Engagement

*Patient engagement* is the “actions individuals must take to obtain the greatest benefit from the health care services available to them” (Gruman et al., 2010). Gerteis et al. (1993) noted that “almost every patient wants to participate in their care to the extent that they want accurate, honest, and complete information about the illness, treatment options, and prognosis” (p. 28). This perspective reflects the origins of patient engagement in the patient bill of rights and the process of informed consent, as does the adoption of diagnostically related groupings for payments by the Center for Medicare and Medicaid Services, which directed a more significant influence for the patient role in care (Graffigna et al., 2016).
Patient engagement with chronic illnesses was initially studied in relation to patient adherence to medication regimens during the treatment of diabetes. Research demonstrated that diabetic patients who were given information about their diagnosis and disease participated more in their care and consequently were more likely to take better care of themselves, thereby increasing safety and decreasing the cost of managing their healthcare (Greenfield, Ware, Jr., Yano, & Frank, 1988).

There has been a dramatic increase in the use of the term patient engagement and increased consideration of engagement as a way to improve costs and quality of the healthcare system (Barello, Graffigna, Vegni, & Bosio, 2014). Coulter (2011) noted differing perspectives on engagement, seen in definitions that included capturing attention, commanding interest, and creating actions. Coulter (2011) ultimately described engagement as a “set of reciprocal tasks, as follows: working together to promote and support active patient and public involvement in health and healthcare and to strengthen their influence on healthcare decisions, at both the individual and collective level” (p. 10).

Patient engagement has evolved into an umbrella term describing a host of programs and initiatives and sometimes even desired patient actions related to the patient’s health and the healthcare processes (Gallivan et al., 2012). Patient engagement programs are typically aimed at increasing patient involvement, primarily through providing information and support that expands the patient’s capacity to understand and use accurate information to modify or improve health and healthcare experiences. Patient engagement is, therefore, multidimensional, bridging the relationship between patients and their health through the performance of specific actions (Mittler et al., 2013).
Developing such a definition of patient engagement is complicated in that it must be based on patients’ own perception of their health and experiences (Shin, 2014). The “patients’ preferences for involvement, however, it is defined, is not static. Time, experience, and the course of illness can dramatically affect both the ability and desire to participate” (Gerteis et al., 1993, p.28). In addition, there are no agreed-upon definitions that express which behaviors are engaged, nor are there boundaries defining the actual capacity of patients to become engaged through patient engagement initiatives (Mittler et al., 2013).

Research on patient engagement has increasingly focused on the experience of patients in the care that they receive and the “expectation of an improved quality of life” that results from life-extending treatments (Graffigna et al., 2016, p. 7). Medical professionals and policy researchers focus the bulk of engagement research on the translation of patient interactions to the outcomes of their care, a perspective that neglects the patient experience (Greenfield & Jensen, 2010). Finally, there are some researchers whose goal is to identify which psychological traits are most indicative of patients who are willing to engage in their care.

Hibbard, Stockard, Mahoney, and Tusler, (2004) identified and validated the primary relationship between the level of patient engagement and the patient’s ability to become involved in care. Hibbard termed this concept patient activation, which empirical research has shown predicts the patient’s ability to manage and participate in health encounters. Activation also correlates with the patient’s health behavior and ability to remain involved in care (Hibbard, Mahoney, Stockard, & Tusler, 2005; Hibbard et al. 2004). Activation is not only linked to clinical and economic outcomes, but also to the patient’s experiences. More highly activated patients have more positive experiences with the care they receive (Hibbard & Greene, 2013; Hibbard et al., 2004). Recognizing the social elements of patient engagement and linking them to
patient attributes is one of the most significant advances in our understanding of the psychological aspects of behavioral change.

**Patient Engagement in the Management of Chronic Illnesses**

Engagement of patients in their health and healthcare has been characterized as a patient right, an approach to cost savings, an opportunity for systemic renewal, and a method for facilitating improved patient outcomes. Carman et al. (2013) suggested that engagement shifts the patient role from passive to active. Gallivan et al. (2012, Table 4) defined the concept as “engagement in one’s health care and treatment.” In general terms, the goal of engagement is to link patient involvement and education to the development of a specific avenue for patients to achieve informed actions. The enhanced focus on patient engagement in chronic illness has become standard, in part because chronic diseases require continuous management of symptoms. The number of studies and their focus in part reflects the pressure being levied upon medical professionals to improve care for patients living with chronic illnesses (Blank, 2012).

The umbrella of patient engagement in the context of chronic illness includes terms like *self-care* and *self-management*, which are areas of intense policy focus related to chronic diseases (Bodenheimer et al., 2002). Graffigna et al. (2016) suggested that the healthcare system is in the midst of a paradigm shift, wherein there is a presumed answer to chronic illnesses through the engagement of patients in their own care. There is an assumption that patients will be able to recognize “the importance of taking an active role in one’s health [and] having knowledge, skills, and confidence to manage health/chronic conditions” (Simmons, Wolever, Bechard, & Snyderman, 2014, p. 6).
As noted by Mittler et al. (2013), engagement is a multifaceted application of the psychosocial and behavioral factors that surround patient experiences. Carman et al. (2013 described these factors as those:

that can affect patients’ motivation, willingness and ability to engage within and across different levels [to include] patients’ knowledge, attitudes, and beliefs, such as their beliefs about patient role; their experience with the healthcare system; their self-efficacy; and their functional capacity. (p. 226)

In the context of chronic illness, support in the form of timely and individualized information can affect how these factors influence patient behaviors. The evolving view of chronic illnesses and education is also underscored by the transition of illness from acute to chronic, in which the disease becomes part of the patient’s identity (Nettleton, 2006). Treatment for chronically ill patients, including patients with OA, requires them to be more adept and able to manage their experiences in concert with ongoing life activities.

**Patient Self-management**

Improvements in healthcare systems are now predicated on including the patient as an active participant. This progressive view has researchers focusing on the patient from a behavioral perspective, which includes the emotional and cognitive aspects of care (Graffigna et al., 2016). These changing views have helped develop approaches to OA treatment that are centered on patients and their ability to manage and cope with symptoms until knee replacement becomes necessary (Shin, 2014). The primary importance of these shifts in the system is the introduction of OA patient education at earlier stages. The American College of Rheumatology and the American Pain Society have recommended enhanced patient education in concert with
therapies, which demonstrates a professional practice approach advocating for patient education as a component of the treatment plan.

Providing patients with information and opportunities to become active in their own care supports their ability to self-manage their health and healthcare, and thereby assume a more significant role in managing care (Jordan, Briggs, Brand, & Osborne, 2008). Hibbard and Tusler (2007) found that active engagement of patients in their care is tempered by its impact on their behavior, as well as by the patient’s stage of activation. For patients to assume a meaningful role in their own care, they must have a sense of competency and control of events related to their health (Hibbard & Tusler, 2007). They also noted that interactions with providers affect patients’ ability to manage events related to their health, especially adherence to drug regimens. Hampson, Glasgow, and Zeiss (1994) noted that the perspective of older adults might be very different from that of younger patients, as exemplified by their approach to stressful situations and how the symptoms of OA are experienced.

Some elements of self-care are formed as part of a mental model that determines how patients view their state of health and how they believe the management of behaviors will affect them (Hampson et al., 1994). This understanding of patients’ perception of their self-care role lends more importance to the identity and the timeframe in which the patient undertakes self-care. Identifying these personal models of care is critical to tailoring communications to patients, which is a primary focus of preoperative education.

Barlow (2001) attempted to distinguish self-care as a preventive approach to managing OA and healthcare, as much of the focus was on the care received by patients. Patient self-management is similar to self-care, but differs in that it is centered more on patients’ ability to manage their symptoms, such as pain, or make decisions in context with physical or psychosocial
outcomes (Barlow, 2001). Shin (2014) identified the importance of self-management as stemming from the life-long affliction of OA and an identified a lack of patient voice in research. Shin further suggested that interpretative research could support “a broad understanding of how older adults care for their health” (p. 145).

Grande et al. (2014) noted that the likelihood of engagement depends on factors, primarily that the burden on the patient is not too excessive, that providers can address by implementing programs that have little or no impact on practice. They also suggested that the success of an engagement initiative must be based on “finding a sweet spot” (p. 285). The sweet spot, according to Pomey et al. (2015), is learning: patients with chronic illnesses become ensconced in a pattern of learning from disease, from coping with it, and from interactions with the healthcare system. It stands to reason that there is even more opportunity for engagement through targeted patient education.

**Health Literacy**

Patients seek varying amounts and types of information from providers to facilitate their life with chronic illnesses (Gerteis et al., 1993). Health literacy plays a significant role in mediating education and engagement; it conceptually links the patients’ cognitive abilities to recognize, retain, filter, and communicate information related to their health (Baker, 2006). Therefore, *health literacy* can be considered “an important moderator of relationships between communication and outcomes because it affects a patient’s ability to understand clinical and health-related information” (Duggan & Street, 2015, p. 256). Hochhalter, Song, Rush, Sklar, and Stevens (2010) studied the efficacy of patient engagement for older adults with multiple chronic illnesses. They suggested that older adults tend to be less easily engaged because of lower health literacy scores. Furthermore, older adults may be less likely to understand their presumed role in
care, given the complexity of their healthcare needs (Hochhalter et al., 2010). Roter et al. (2001) cited American Medical Association reports on patient literacy levels that described lower health literacy as a “threat” to patient autonomy, primarily among immigrant populations and patients over 85 years old.

Given the importance of health literacy and the relationship between education and engagement, it is an essential consideration in the context of preoperative patient education. Ronco et al. (2012) raised an interesting question about the relationship between health literacy and the reinforcement of information provided to patients. Specific patient education programs, such as preoperative joint replacement classes, have emerged that focus on information transference underpinned by psychological and behavioral concepts (Hoving, Visser, Mullen, & Van den Borne, 2010). The growing importance of the patient in the process of care and the maintenance of health highlights the emerging relationship between engaging patients, patient education, and outcomes as they relate to reimbursements.

Self-Management

Nolte, Elsworth, Sinclair, and Osborne (2007) reviewed patient self-management classes related to chronic illnesses and identified effects using the Health Education Impact Questionnaire (HEIQ) developed by Osborne, Elsworth, and Whitfield, (2007). The HEIQ measures patient education classes and proximal outcomes using measures of positive active engagement, health-directed behaviors, skill and technique acquisition, constructive attitudes and approaches, self-monitoring and insight, health service navigation, emotional well-being, and social integration and support. Patient satisfaction with the outcomes of education classes was found to be greater for younger participants across all measures except for their emotional well-being. Nolte et al. (2007) observed substantial improvements for “about one-third of participants
who attend self-management classes.” The areas of greatest achievement were skill and technique acquisition, as well as self-monitoring and insight. Nolte et al.’s (2007) findings are of interest in three primary areas: the facilitation of problem-solving, the facilitation of patient decision-making, and the development of action plans related to patient health: “While the average impact of self-management classes on individuals has been found to be modest across settings, previous studies have provided little insight into the proportion of persons who receive substantial changes as a result of participation” (p.357).

The evolution of the concept of patient engagement to more specifically target actions such as self-management behaviors demonstrates the attention paid to the concept, and perhaps the importance of individual patients assuming greater responsibility for their health. Regardless of the intent of engagement, it is clear that patient engagement and patient education are related.

**Patient Education**

This section explores the relationship between patient engagement, patient education, health literacy, and self-management from the perspective of the patient in preoperative education. It should be noted that patient education is very different from other formalized educational approaches (Pellino et al., 1998). The difference in educational approach can be explained in part by the evolution of healthcare and science, the increased speed and ability to share information, and relationships between patients and providers.

Healthcare evolved from providing comfort to encompassing a scientific diagnosis, symptom identification, and the treatment of symptoms. The development of modern medicine was focused on the medical model, not necessarily on educating patients or changing the health-related behaviors of patients (Osborne et al., 2007). However, even as the science of healthcare has evolved, the role of the patient and educating the patient lagged behind. Only recently have
the emotional experience of patients, their expectations, and their role been included in both the preoperative and postoperative timeframes (Gustafsson, Ponzer, Heikkilä, & Ekman, 2007).

*Patient education* is an “interactive process, distinct from the one-way didactic transfer of information that is associated with patient teaching” (Gerteis et al., 1993). Patient education in the hospital setting developed in response to the information asymmetry that could leave patients without a clear understanding of what was happening to them and why (Hoving et al., 2010). Patient education can be generalized as the communication of specific information to a patient with the intent of achieving the desired behavior (Gruman et al., 2010).

Patient education as a discipline arose from health promotion, and it is relatively new as a scientific pursuit. As health promotion evolved from a focus on information transference into more psychological and behavioral conceptualizations, the role of education in patient well-being has become more evident (Hoving et al., 2010). Patient education is distinguished from health promotion by its focus outside the biomedical and social determinants of health and its more specific attention to individual patients. Aiming education at individual patients allows information to be targeted towards their specific behaviors (Hoving et al., 2010).

As the importance of individual patient education has been recognized over time, the link between engaged patients and healthcare education has become more pronounced. This is seen in patient-centered care and other initiatives directed at improving patients’ understanding of their care (Forbat et al., 2009). Patient education, in a perfect setting, delivers information that is relevant to the patient, offers opportunities to address questions, and provides avenues for patients to seek additional or supplementary information when specific issues arise (Gruman et al., 2010). The information transferred to the patient is then actionable by the patient; this ability of the patient to act upon the information is perhaps the most critical aspect of patient education.
However patient education is defined and applied, it is an opportunity for patients to experience information transference, direct dialogue, and discussion related to their disease or condition (Ronco et al., 2012). The specific information and resulting behaviors are not as well defined in the research on patient education, but the movement to engage patients requires patient education to reach the point of empowerment and to maintain patient activation (Forbat et al., 2009). The future of patient education is fluid, as this is a period of adoption and adaptation. “Providers are trying to apply these (new) techniques into daily practice,” and “it can be challenging” when viewed in concert with other competing demands (Hoving et al., 2010, p. 278). They also suggested that patients should be trained to use the education and tools, as well as empowered to seek and utilize information to improve their knowledge about, and therefore their experience in care.

**Group and Social Influences on Patient Education**

Learning was initially thought of as peripheral to its effects, which is to suggest that it cannot be self-reinforcing (Bandura, 1977). Research has changed this view; learning is now represented as a cognitive process developed through modeling (observation) and feedback through environmental cues. In the context of patients undergoing TKA, environmental cues can include preoperative education and social influences from networks, groups, and family.

Nettleton (2006) noted that “from before the moment that we are conceived to the time that we die, social processes impinge upon our health and well-being” (p. 1). The concept of health changes in parallel with the ability, capacity, and knowledge that surrounds it, but peers, family, and experts influence the individual conception of health. The role of physicians and other caregivers has been incrementally changing from expert to facilitator, reflecting changing social perspectives on health and patient roles. The perceived role of healthcare and physicians is
also changing to reflect more modern views that include patients as experts on their own experiences with illness and their ability to understand and interact with their care. The change in role is emblematic of a growing challenge to the biomedical conception of disease, paternalistic views, normalization of experience, and superiority to other treatments (Nettleton, 2006).

When looking at the scope of health education and desired health behaviors, it is likely that “interventions at multiple levels are often needed to initiate and sustain behavior change effectively” (Glanz & Rimer, Viswanath, 2008, p. 4). Understanding health behavior by including multilevel theories supports the practitioner’s ability to develop and test preoperative education initiatives and achieve results through research. Research suggests a focus on the development of a more effective health education approach, yet Brewer and Rimer (2008) also recognize that no one theory can define behavior, due to the influences that occur beyond the individual level.

“Health behavior is a product of influences at multiple levels – individual, interpersonal, organization and societal” and therefore demonstrates a reliance on information and influence derived from intrapersonal relationships that can be both formal and informal (Viswanath, 2008, p. 272). The importance of these relationships in health and healthcare is seen in their effects on health behavior and the influence of family, friends, and others who may share some level of familiarity with or reliance upon the individual. Although these are important influences on behavior, they also become a normative barometer by which individual actions may be judged.

**Preoperative Patient Education**

McDonald et al. (2004) defined *preoperative education* as an intervention delivered before surgery that is intended to “improve people’s knowledge, health behaviors, and health outcomes” (p. 2). This definition of preoperative education reflects the more specific focus
previously noted by Suhonen and Leino-Kilpi (2006) and Johansson et al. (2005), but it also demonstrates the general assumption that education will change physical outcomes for patients. Lucas (2006) suggests that “education has traditionally been viewed as the means to allay anxiety and improve patients’ psychological status, but this is too simplistic” (p. 52). Even though education is directed at particular healthcare functions, there is a wide variation in the content of preoperative programs.

Johansson et al. (2005) noted that preoperative patient education has become more diffuse, but remains focused on areas that include those identified by Suhonen and Leino-Kilpi (2006):

- biophysical signs and symptoms that can occur before or after surgery;
- functional elements and activities of daily living and caring for oneself;
- cognitive domains, including the ability to receive, interpret, and use information in care;
- social focuses, such as belonging to and receiving support from social networks;
- integration of feelings, expectations, and experiences in the process of care;
- ethical, having unique and appreciative feelings for outcomes and providers; and
- financial aspects, the relationship between health care and patient outcomes.

Some have considered preoperative education to be a nursing function, as it delivers patients timely and targeted information related to the procedure, expectations, and experiences through written, verbal, or visual methods (Ronco et al., 2012). Despite the emphasis on the transmission of knowledge, there is a wide variation in educational content and the teaching approaches utilized in preoperative joint replacement programs (Suhonen & Leino-Kilpi, 2006).

Suhonen and Leino-Kilpi (2006) and Ronco et al. (2012) conducted a thorough integrative literature review of patient education from a preoperative perspective, similarly
suggesting that the reduction of inpatient days has increased the burden on providers to educate and transmit information to patients in a shorter time period. Given the time constraints, most research has centered on the overall process without considering specific groups or educational processes. They identified a gulf between the information that is being transmitted to the patient, the research that is being conducted, and the needs of patients; this was also noted by Ronco et al. (2012). One of the most critical aspects of education for the patient is the ability to raise questions, as well as to establish a relationship between patient and provider (Suhonen & Leino-Kilpi, 2006).

Suhonen and Leino-Kilpi (2006) also noted the role of information in patient satisfaction. Even if patients’ physical outcomes, such as pain, length of stay, or readmission rates, were not affected, they were more likely to be satisfied with the experience. Information presented by the Cochrane Collaborative and others identified education as important, yet did not demonstrate any significant physical effects on patients. Grande et al. (2014) suggested that the ability and desire to engage with preoperative education varies with the patient’s willingness and capacity, but more importantly that tailored messages and methods may be required.

**Preoperative Educational Approaches for TKA**

Liechtenstein, Semaan, and Marmar (1993) developed a preoperative education program for joint replacement patients consisting of face-to-face education with a qualified nurse practitioner, options to discuss concerns patient-to-patient with volunteers who had undergone joint replacements, and a support group providing emotional support and an outlet for patient feelings. This program was one of the first to be evaluated from a qualitative perspective; it showed consideration for patient feelings and understanding before and after surgery. Perhaps most importantly, the program addressed lifestyle changes that may be required during the
postoperative period, as well as what the experience of living with a joint replacement could entail for patients (Liechtenstein et al., 1993). In a review of the preoperative education program from 1987-1991, nearly all 96 patients reported satisfaction with the program at one year; over 97% of them had not encountered a problem that was not covered in the educational experience. The program was perceived as beneficial by 90% of all patients (Liechtenstein et al., 1993).

The National Association of Orthopedic Nurses (NAON) developed a specific patient education process that included written instructions, information, checklists, and suggestions including physiotherapy for patients following surgery. The NAON indicated that the educational materials should be combined with the preoperative joint replacement class and should pay attention to patient questions, which is aligned with the findings of Suhonen and Leino-Kilpi (2006) and Pellino et al. (1998).

Lucas (2006) noted, “Education has traditionally been viewed as the means to allay anxiety and improve patients’ psychological status, but this is too simplistic” (p. 52). Even so, this is in line with the findings of McDonald, Page, Beringer, Wasiak, & Sprowson (2014), who suggested that preoperative education reduces patient anxiety. Lucas (2006) differentiated between preoperative and postoperative self-efficacy and suggested that individual patients may have different needs. Before joint replacement, most patients are experiencing transitions in feeling and function that generate worry about the outcomes and how surgery will change the quality of life. Following surgery, patients may experience periods of great emotional and physical distress. These experiences can range from having an unfamiliar feeling from the joint to pain and short-term disability (Gustafsson et al., 2007).

**Preoperative Education - Research Gap**
The body of literature focused on preoperative education for joint replacement patients has grown exponentially, and, through its relationship with patient engagement, has become a major emphasis of patient-reported outcomes research. The Cochrane Collaborative produced a report on the preoperative education of joint replacement patients, which included TKA and total hip arthroplasty (THA) (McDonald et al., 2004). Its second systematic analysis, published in 2014, included a smaller proportion of TKA studies (three focused on TKA and three were both TKA and THA), but the studies were considered methodologically and fundamentally robust and representative (Johansson et al., 2005). The systematic reviews conducted by McDonald et al. 2004, and McDonald et al., 2014, sought to determine the effect of preoperative education, particularly on the health-related quality of life, anxiety, and other factors related to the patient’s post-operative experience, such as the length of stay, complications, and pain management. The study determined that often there was little or no improvement in patient outcomes based on the information reviewed (McDonald et al., 2014).

However, Johansson et al. (2005) made an important observation about the initial systematic analysis, noting that the physical outcomes that were being researched in relation to preoperative education had been predefined by healthcare finance and the standards of care, rather than by the desires of patients or their experience in care. In essence, if bundled payments imply that patients should be in the hospital for three days after the operation, preoperative education is less likely to influence the length of stay, which was a measure commonly evaluated by researchers assessing the efficacy of preoperative education. This is important because the experience of patients in preoperative education and its subsequent effects on patients could be missed unless a specific study is undertaken.
The findings of McDonald et al. (2014) suggest that the patient-centric nature of preoperative education supports patients with their experience with surgery more than with their physical or clinical results, such length of stay. In current preoperative education approaches, improving the outcomes of surgery remains a significant focus that increasingly relies on factors outside the control of surgeons and medical staff. They suggested that attention should be paid to interventions and understanding how preoperative education can be centered on individual patients and their psychosocial factors.

Finally, even though they introduced doubt about the efficacy of preoperative education as a tool for improving postoperative clinical outcomes, McDonald et al. (2014) recognized in comparison to the 2004 systematic review that opportunities for stratified and more personalized education are increasing in the current environment of care. They also noted that offering preoperative education has become a standard of care and therefore it would be “unethical” to withdraw it at this point. They specifically noted that preoperative education might be a useful adjunctive therapy for patients who are experiencing emotional instability, depression, or unusual expectations.

**Empowered Patients**

As stated previously, most patients experience changes in how they feel and in their ability to physically function before joint replacement surgery, which generate patient expectations for surgical outcomes. As the research focused on patient engagement, patient education, and individual outcomes deepens, so too does the need to better understand the experience of patients in their care, particularly experiences that lead to *patient empowerment*. Empowerment is described as a state, reached through education, where patients achieve control of their health (Graffigna et al., 2016). For example, after surgery patients may experience
periods of great emotional and physical distress, ranging from an unfamiliar feel from the prosthetic joint to pain and even short-term disability (Gustafsson et al., 2007). If patients are taught methods to allay emotional or physical distress, this experience may empower the patient.

**Empowering the Patient**

Patient education before surgery has an empowering effect because it allows time for questions and curiosity and strengthens the relationship between patient and providers, which if poor could also be a barrier to engaging and empowering patients (Pellino et al., 1998). Education has been associated with better outcomes by patients themselves (Lane-Carlson & Kumar, 2012). Pellino et al. (1998) developed a focus on empowerment and patient self-efficacy that recognized interactive teaching strategies where patients could receive answers to questions and have an opportunity to raise issues in a semistructured learning environment before surgery. The patients studied were better able to care for themselves before surgery and were also more likely to have a greater perceived self-efficacy related to their role in care. Graffigna et al. (2016) noted:

> The concept of empowerment and the concept of engagement seem to be strongly connected in a reciprocal and virtuous relationship. It is possible to hypothesize that empowerment mediates the engagement process as an intervening factor that modulates the relationship modalities between the patient and the healthcare system. (p. 19)

**Experience of the Patient**

Glanz and Rimer (2008) suggested that “individuals [patients] are fundamental units of health education and health behavior theory… All other units, whether they are groups, organizations, communities or larger units, are composed of individuals” (p. 41). The important aspect to consider is that the individual patients may have very different experiences in
preoperative education classes and therefore are empowered on an individual basis. Roter, Stshefsky-Margalit, and Rudd (2001) suggested a relationship between educating the individual patient and empowering action, which, supporting the claims of Graffigna et al. (2016), indicates that patient education is one of the first steps in changing health-related behaviors.

When looking at the scope of health literacy, patient education, and the desired changes in behaviors, it is likely that “interventions at multiple levels are needed to initiate and sustain behavior change effectively” (Glanz, Rimer, & Viswanath, 2008, p. 4). Understanding the patient experience in preoperative education presents opportunities to specifically address the way information is presented to patients, as opposed to focusing on the content delivered during the perioperative class (Pellino et al., 1998).

**Empowered Attitudes and Expectations**

Given the bidirectional nature of patient perceptions, the influence of patient expectations also becomes an important consideration both before and after surgery (Da Silva, Santos, de Sampaio Carvalho, Jr., & Matos, 2014). Research suggests that surgical outcomes and patient satisfaction with the surgery are strongly correlated with patient expectations (Zywiel et al., 2013). They noted that as TKA has progressed from a measure for severely debilitated patients to a more widely adopted treatment, the expanded application of the surgery has led expectations for outcomes to change dramatically. This supports the importance of the patient experience with OA and patient expectations of the surgical outcomes. The relationship between expectations and results is of particular interest as TKA becomes more widely utilized.

Research on the attitudes of patients suggested that expectations and beliefs about the attributes of a particular behavior related to health or healthcare experience influence the values assigned to that behavior and become the basis for related decisions (Forbat et al., 2009). As the
PHE model demonstrates, the assignment of patient values is mediated by individual factors, including age and gender. Many patient engagement programs emphasize a particular behavior, such as seeking information or learning about treatments, but that is not the only factor in a successful program. Montano and Kasprzyk (2008) suggested:

> Attitude is determined by the individual’s beliefs about outcomes or attributes of performing the behavior (behavioral beliefs), weighted by evaluations of those outcomes or attributes. Thus, a person who holds strong beliefs that positively valued outcomes will result from performing the behavior will have a positive attitude toward the behavior. (p. 71)

Patient expectations about their experiences in care can be influenced by what the patient believes is likely and the value that is attached to the desired outcome (Zywiel et al., 2013). Davis, Jacklin, Sevdalis, and Vincent (2007) noted the emotional experience of patients can influence the patient-specific attributes that mediate the patients’ level of involvement in their own care. In particular, patients’ expectations about their physicians, their illness, and the setting in which they are receiving care influence their involvement.

Preoperative education can be considered as an intervening factor in the patient’s attitudes and expectations about TKA and ultimately in how they make sense of their experiences in TKA and subsequent self-care (Haanstra et al., 2012). Haanstra et al. (2012) also noted that the “amount of information provided and the interaction with the practitioner/physician seems to have a substantial influence on the [patient] expectations” (p. 13).

The final section of this literature review picks up where health literacy, patient education, and patient engagement are intertwined, and addresses the experience of patients in preoperative education and understanding how patients make sense of that experience.
Empowered Behaviors

“The central concern of health education is health behavior” (Glanz, Rimer, & Viswanath, 2008, p. 11). In other words, the goal of preoperative education is engaging patients in managing their health through providing personalized and actionable information (Kruzik, 2009). The collective understanding of the patient’s ability to manage health and health behaviors has evolved, as has knowledge of the relationship between education and engagement, to the point where there is a reliance upon the patient to maintain certain behaviors outside of the hospital (Gruman et al., 2010). The patient experience is central to eliciting the behaviors that are sought in the continuum of care. This change in focus, as noted by Glanz et al. (2008), was influenced in part by the epidemiology of chronic illnesses and recognition of how health determinants were related to individual lifestyle choices. Such recognition brought greater value to the patient narrative.

Mittler et al. (2013) introduced the importance of understanding behavioral aspects of patient encounters from the perspective of consumer psychology. Mittler et al. (2013) expanded the conceptual model of patient engagement to include the social perspectives of patient activation that were first noted by Davis et al. (2007). Hibbard et al. (2004) identified the common behavioral theme and posited that the high personal importance of health-related decisions created a significant threshold for changes in patient behaviors. This supports the idea that there is a multidimensional relationship between patient perceptions, patient education, and patient engagement.

Shin (2014) suggested that the more educated and involved patients were, the more likely they were to maintain the proper “proficiency and compliance” required to manage their health.
Shin (2014) further noted that greater involvement and activation may translate to increased coping and control of symptoms by chronically ill patients before TKA, which agrees with the notion of patient activation and engagement described by Hibbard et al. (2004) and Hibbard (2009). Despite these suggestions, it should be noted that the relationship between patient and disease is incredibly complex and dynamic. The chronic illness and its symptoms become a defining element of the patient and his or her personality (Shin, 2014; Toye, Barlow, Wright, & Lamb, 2006).

**Barriers to Empowerment**

Information asymmetry has been noted as an obstacle to effective communication and patient engagement and as a factor contributing to patient anxiety before surgery (Kindler, Szirt, Sommer, Häusler, & Langewitz, 2005). Preoperative education can help patients address information asymmetry by expanding the scope of actionable information to include more than just the process of surgery (Graffigna et al., 2016). Suhonen and Leino-Kilpi (2006) suggested that information provided to patients in preoperative education should be matched to their level of literacy, as well their ability to carry out the intended behaviors. Patients have varying levels of need for information, and they suggested the needs occur at different points in time. Lucas (2006) suggested this may be a factor in the 2004 findings of the Cochrane Collaborative, which suggested preoperative education was valuable to the patient experience.

While nurses tend to focus on the technical aspects of care, patients seek nontechnical education and information about the events and milestones of surgery (Suhonen & Leino-Kilpi, 2006). There has been a remarkable change in the availability of and ease of access to medical information, which has created a newer cohort of informed patients by reversing the asymmetry.
The availability of information and patients who can understand and apply it presents a challenge to the paternalistic role of physicians (Topol, 2015).

**Stress, Coping, and Health Behaviors of Patients**

Stress is an individual experience that can be both a symptom of chronic illness and a cause of patient actions. “How individuals experience and cope with stress affects whether and how they seek medical care and social support, and how well they adhere to health professionals’ advice” (Glanz & Schwartz, 2008, p. 212). Heaney and Israel (2008) stated, “when people experience stressors, having enhanced individual or community resources increases the likelihood that stressors will be handled or coped with in a way that reduces both short term and long term adverse health consequences” (p. 194). Lack of social connections is related to mortality; an increased number of connections correlates with improved mortality, although this does not necessarily indicate that social connections improve mortality (Heaney & Israel, 2008).

Most patients evaluate stress with a primary and secondary appraisal. In the primary appraisal, the event is evaluated as to whether it is a threat or irrelevant (Glanz & Schwartz, 2008). If there is a threat perceived, the patient may then assess her or his ability to control the situation or the occurrence of the stressor. The result is coping behavior, the strategies developed by that individual to alleviate the stressors.

**Summary**

The process by which patients themselves make sense of their experience in preoperative education is not explicitly addressed in published research on TKA. Medical research and health services research has tended to be more quantitative in nature: less than one-third of the studies identified included a meta-analysis of patient education programs or were qualitative (Suhonen & Leino-Kilpi, 2006). Furthermore, available research often excludes the patient narrative and
the experience of the patient (Leov et al., 2015). The ultimate conclusion of McDonald et al. (2014) was that the use of preoperative education may be “a relatively low-risk” and “high reward” approach for those patients who are at increased risk of depression or anxiety or who maintain unrealistic expectations about surgery.

The literature reviewed in this chapter demonstrates the value of patient engagement and patient education, as well as elements of how they are translated into patient behavior, particularly empowerment following education. Preoperative education purports to offer patients the opportunity to manage expectations and better align their needs with specific information, provided through individualized education. While the literature, as noted by McDonald et al. (2014), suggests that preoperative education lacks any significant clinical results, it recommends additional research into the patient-centric focus of preoperative education. The research suggestion includes learning how patients experience preoperative education and further understanding how that experience translates into empowerment and self-care.
Chapter 3: Methodology

This chapter presents and discusses the methodology utilized for this research study. The purpose of this qualitative study was to understand the relationship between preoperative patient education classes and the lived experience of female total knee replacement patients as they prepared for and recovered from surgery. This chapter details the research design and research tradition, as well as the participants, their recruitment, and their selection. Trustworthiness and validation are discussed, along with data security and protections for human subjects. Finally, the perspective of the researcher is discussed as it relates to this qualitative study.

Research Design

A qualitative research approach created opportunities to develop an idiographic understanding of the patient experience, the subjective nature of health encounters, and the personal meanings that develop in health encounters (Biggerstaff & Thompson, 2008). This supports distillation of the highly personal and non-generalizable experiences of patients preparing for TKA (Beaton & Clark, 2009). The nature of the individualistic attributes and social and group influences identified in the current research aligned with a qualitative research approach and the goal of understanding patients’ sense-making (Davis, Jacklin, Sevdalis, & Vincent, 2007; Mittler et al., 2013). Furthermore, this approach recognized that the attributes were individual and not necessarily generalizable, but also assumed that a theory of cognition can be distilled from patterns within the individual patient interviews (Thompson, Locander, & Pollio, 1989).

Research Tradition

The central research question -- How do eight women who experienced total knee replacement make sense of their preoperative education and recovery? -- may best be understood
through interpretative phenomenological analysis (IPA). IPA provides distinct pathways for approaching and understanding the experience and thereby accessing the meanings hidden in the experiences of TKA patients (Biggerstaff & Thompson, 2008). “IPA is concerned with human lived experience and posits that experience can be understood via an examination of the meanings which people impress upon it. These meanings, in turn, may illuminate the embodied, cognitive-affective, and existential domains of psychology” (Shinebourne, 2011, p. 28).

IPA enables exploration of the lived experiences and understanding of the individual interpretation of the educational experiences that were the phenomenon under investigation (J. A. Smith, Flowers, & Osborn, 1997). IPA as a research tradition is relatively young, but it has become more prevalent in health services research because of its ability to focus inquiry upon individual patient experiences, which can be idiographic and subjective (Biggerstaff & Thompson, 2008).

J. A. Smith, Flowers, and Larkin (2009) suggested that as researchers we “are concerned with where ordinary everyday experience becomes ‘an experience’ of importance as the person reflects on the significance of what has happened and engages in considerable [cognition] trying to make sense of it” (p. 33). Given this focus, it is no surprise that interpretative phenomenology evolved from phenomenology, hermeneutics, and ideography (Shinebourne, 2011).

**Phenomenology**

Phenomenology is the study of experience, seeking to understand the “life world” of participants. The world of individual experience is constructed by developing an understanding of the experiences and the individual perceptions drawn from them (J. A. Smith et al., 1997). J. A. Smith et al. (2009) noted Husserl’s suggestion that the experiences of humans should be analyzed at the individual level by quoting “…we focus exclusively on the specific thing,
thoughts, values, goals or means involved, but not on the physical experience as such” (p. 12). Such a perspective leads a researcher to focus on how the “object appears to consciousness” (Shinebourne, 2011).

**Hermeneutics**

Heidegger expanded Husserl’s concepts by focusing on the “hermeneutic circle,” recognizing “the process of revealing and making manifest what in perceptions of individual experience engages the question of interpretation” (Shinebourne, 2011, p. 19). Health services research is increasingly embracing hermeneutics and recognizing that patient accounts of experiences in care can reflect hidden experience (Mackey, 2005). Merlau-Ponty expanded upon both Husserl and Heidegger to focus upon categorizing experience in discovering time, space, body, and relations (Dowling, 2007). Sartre focused upon the existence of self, which agrees with Mead’s reification of self. Van Manen suggested expanding rational inquiry to include an imaginative process where verification of theme occurs through elaboration (Dowling, 2007).

**Idiography**

J. A. Smith et al. (2009) suggested that the “particular,” or the individual experience, is recognizable in IPA because information is gathered and interpreted at the level of the person as opposed to being generalized at a group or population level. This perspective, however much focused on the individual, does not eliminate the influences that are generated through contacts in groups or communities that lie outside of the individual experience, but rather lends itself to recognizing their effects through the sense-making processes of the person.

**Positionality**

IPA achieves “access to participants’ experience … through their accounts and the researcher’s fore-conception” (Shinebourne, 2011, p. 20). The interpretive paradigm, therefore,
recognizes that researchers cannot divorce themselves from ethical and moral stances, and accepts that their lived experiences cannot be segregated from the process of conducting and interpreting phenomenological research. J. A. Smith et al. (2009) suggested that the interpretative focus of IPA requires researchers to consider themselves as being “beside the participant,” as well as “in the shoes” of the participant while making sense of their experience through hermeneutical analysis. As such, the experience of the researcher enters into the interpretation, from the standpoint of experience and the assumptions that may be drawn from it.

Smith and Osborne (1997) identified the psychological world of the respondent as being of primary interest. Therefore, data analysis requires a researcher to “bracket off” personal conceptions. Personal conceptions may introduce bias and influence the interpretation of participant experiences (Biggerstaff & Thompson, 2008; Dowling, 2007). This research explored the experiences of patients undergoing total knee replacement surgery with preoperative education and their resulting sense of empowerment. J. A. Smith et al. (2009) interpreted Merleau-Ponty to suggest that embodiment, how a researcher perceives, influences a researcher’s interpretation of the experiences of others. Yet there is recognition that these interactions are clearly those being described by the participant, not the interpreter. Therefore it is acceptable to conclude that innate biases held by researchers are influenced by their own experiences and how they made sense of those experiences.

Given the importance of researcher experiences, it must be noted that I have been working with New England Baptist Hospital as a Patient and Family Advisory Council member since June, 2014, and as a member of the Patient Education Committee since January, 2016. In both roles, I had access to information related to the education of patients, operations, and the approach of the hospital. This level of insight could result in knowledge of processes and
understanding that is greater than that of a typical patient, who is experiencing education for the first time. It is also important to note that I identify as a person living with osteoarthritis, and have experienced the symptoms of osteoarthritis leading up to and including a knee replacement surgery in January, 2016.

My experiences with OA and TKA could influence my interpretation of participant responses. Given this possibility, I maintained a journal before and during my own experience with knee replacement. I subsequently identified experiences and assumptions and identified possible areas of influence; I ultimately began to discover areas of potential bias related to the focus of this research. These areas include the perception of pain and ability to undertake self-care, as well as other effects on perspective as detailed in the following paragraphs.

Living with the pain of osteoarthritis and enduring nine surgical interventions prior to beginning the research and writing process influenced my view of experiences related to OA, TKA, and surgical outcomes. Some self-identified views include perspectives on pain level, the requirement for physical therapy, early ambulation, self-care, and also increased health literacy related to knee anatomy, surgical interventions, and educational opportunities. Given my higher levels of health literacy and activation, it was easier for me to understand and apply information related to OA and TKA than patients experiencing their first encounter with orthopedic surgery. This level of experience could shape assumptions about how participants made sense of the information provided during the preoperative education classes, especially information with which the researcher is familiar.

Likewise, extensive experience with previous surgeries and pain management drives assumptions about the process of learning and the effects of the learning experience. Dekker (2013) noted that hindsight, knowing events as they have turned out, distracts researchers from
the environmental context that surrounds events as they unfold and could further distract my
evolutionary context that surrounds events as they unfold and could further distract my
exploration of patient experiences in preoperative education. Pain is a subjective experience, and
as such, it is an area in which all researchers are likely to encounter their own assumptions
because the understanding of another’s description of pain is drawn from our own experience;
reactions to pain can be automatic (Jackson, Meltzoff, & Decety, 2005).

Because I shared this experience with the research participants, I framed anxiety and
expectations of surgical outcomes from the standpoint of hindsight. This created a perspective
different from those of patients who underwent TKA for the first time. Although I had
experience with surgical interventions and coping following surgery, the process of journaling
and examining those notes was enlightening. It brought out hidden perceptions and assumptions
about pain, understanding, and the development of an identity related to OA and surgical
outcomes.

Participants

IPA research is not concerned with identifying a representative sample because it focuses
on building an idiographic understanding, and IPA is not concerned with making assumptions
that are representative of a population (J. A. Smith et al., 1997). Given IPA’s emphasis on
“detailed examination(s) of the human lived experience,” the sample was purposefully selected
to reflect those who had encountered the phenomenon being investigated, preoperative patient
education (J. A. Smith et al., 2009, p. 32). The participant pool for this study was therefore
comprised of unilateral TKA patients who participated in preoperative education classes no more
than six weeks before surgery. A sample of eight to 10 participants was sought; J. A. Smith et al.
(2009) suggested such a number would derive enough data for a meaningful analysis of the
similarities and differences among participant experiences.
The participants included patients who had completed preoperative joint replacement education prior to surgery and underwent TKA less than two months before the interview. The purposeful selection of participants was an effective way to reach the target audience and achieve the depth required by this research (J. A. Smith et al., 1997). The sampling criteria were:

- the participant was not employed by the operative hospital or educational provider, affiliated physicians, or Northeastern University;
- the participant was not directly related to the researcher or affiliated with the operative hospital or the educational provider;
- the participant had not had a previous joint replacement surgery within five years;
- the participant had no previous experience with knee replacement education classes;
- the joint replacement was unilateral, not bilateral;
- the preoperative joint replacement education was completed no more than six weeks prior to surgery;
- the surgery was within two months before the participant interview;
- the participant could read, write, and speak English; and
- the participant did not have a current diagnosis of dementia or any other self-identified neurological deficits.

**Recruitment and Access**

Recruitment began following Institutional Review Board (IRB) approval from Northeastern University. Access to research participants was achieved through affiliations with New England Baptist Hospital and MyKnee Guru, a social media platform for knee replacement patients operated by Dr. Axyl Sylvan. Through these affiliations, the researcher gained access to
potential participants who reviewed the selection criteria detailed above and indicated their willingness to participate on paper or by web form.

Participant recruitment targeted those who had recently completed preoperative education classes before their knee replacement surgery to ensure the experience would be more easily recalled. A letter requesting participation and explaining the research intent (see Appendix A) was handed out during the knee replacement classes and posted to a discussion board on the “MyKnee Guru” webpage. In addition, the recruitment information flyer was posted as a secure web form that allowed potential participants to enter information and complete the screening questions. The preoperative recruitment letters explained who was conducting the research and the purpose of the study. Perhaps most importantly, the letter also explained the ability to withdraw at any point without penalty.

Potential participants who completed the participation form and returned it to the class leader for mailing or who completed the web form were contacted by telephone to confirm their eligibility. While on the phone, the researcher reviewed the research intent and the participant criteria (see Appendix B) with each volunteer. After verbal approval, the researcher initiated the phone screening questions and explained participant rights during the research, including the ability to withdraw at any point. Volunteers who did not meet the screening criteria (see Appendix D) were dismissed and thanked for their time; those who did meet the criteria and who wished to continue were prompted for a date and time to conduct the interview. A follow-up letter confirming the willing participants’ interview date and time was sent (see Appendix C). This letter also fully explained the rights of research participants, the detailed nature of the research, and the potential benefits of the research study.
The response to the request for research participants skewed heavily towards females. Three of 16 responses were male, but they were either disqualified or lost during the follow-up. Even though nearly 20 percent of the volunteers were male, no males completed the interview. Although the design was initially intended to include both men and women, the participant panel was comprised of all females. Additional attempts to recruit male participants did not yield qualified volunteers.

**Data Collection**

J. A. Smith et al. (1997) suggested that the best way to collect data for analysis of participant sense-making is through the use of semistructured interviews (see Appendix E). Semistructured interviews allow for rapport and dialogue that can follow areas of interest and develop along participant concerns. Therefore, semistructured interviews with participants were conducted by telephone. J. A. Smith et al. (2009) indicated that interviews should be conducted in a way that is comfortable for participants, whether in the home, private conference room, or via telephone or video link.

To best accommodate participants and the aims of the research, a single interview with each participant was scheduled well in advance. The interviews with each participant were approximately 60 minutes in length and adhered as much as possible to the predefined schedule of questions (Appendix D). At the beginning of the interviews (see Appendix D), participants were asked to acknowledge verbally that their questions had been answered, that they were aware that they could withdraw participation at any point without justification, and finally that they had completed the informed consent (see Appendix G). Data collection was facilitated through audio recordings using Audacity, a readily available digital recording software tool, a microphone, and a laptop that served as the digital collection device.
Data Storage

Data collected included audio recordings before transcription, interview notes, and notations of nonverbal cues, as well as any other information that was presented, such as a diary or log kept by the participant. All electronic data were stored in an encrypted format on a password-protected hard drive. The laptop used for data collection recordings included a fully encrypted hard drive that required active directory login and password to access any stored materials. The laptop was maintained in a locked and fireproof cabinet except when in transit. The laptop was equipped with the ability to be erased remotely if it had been lost or stolen. Physical information collected was maintained in a locked fireproof file cabinet on the grounds that was safe, secure, and protected from catastrophe.

Additional steps were taken to ensure that any and all data that referred to a participant’s diagnoses, condition, or treatments were maintained with the utmost confidentiality. Disclosure of personally identifiable information was prevented via thorough redaction of all identifiable information. Also, all requirements of the Northeastern IRB and the Health Insurance Portability and Accountability Act (HIPAA) were upheld as required by law and institutional policy.

Data Analysis

The data analysis phase focused on understanding the psychological perspectives and relationships built by the participants. This understanding of the experience was established by linking it to the participants’ expressed narratives (J. A. Smith et al., 1997). Given the specificity required in the data analysis phase, this detail was achieved by thoroughly engaging participants during the interviews to garner strong results for this phase of analysis (Shinebourne, 2011). The desired engagement was accomplished by establishing rapport and through the use of guiding
and probing questions that focused each participant on her feelings and perceptions (J. A. Smith et al., 2009; J. A. Smith et al., 1997).

Data analysis in IPA studies focuses on the researcher developing a concise interpretation of the lived experience through the eyes of the participant (J. A. Smith et al., 2009). The primary emphasis of IPA research is identifying and understanding the lived experience of the participants. Therefore, presenting the participants’ words through rich and thick description ensured that the information uncovered was relatable (J. A. Smith et al., 2009).

A transcriptionist transcribed the digital recordings of the interviews conducted by the researcher. Each recording and transcript was reviewed and verified in concert before the recordings were destroyed and removed from the hard drive of the laptop used for recording. No identifiable information was included in the files sent for transcription, only the given pseudonym and the voice of the participant. The transcriptionist was directed to follow the suggestions of Smith and Osborne (1997) and include the semantic angle of every spoken word, including audible pauses, reiterations, and false starts. The transcribed and de-identified interview text was uploaded to a secure version of the analytical software MAXQDA.

Analysis of the interview data collected was carried out utilizing the analytical process outlined by J. A. Smith et al. (2009). Although analysis does not need to follow a predetermined path, in this study the analysis included the initial reading, initial noting, identification and development of emergent themes.

**The Initial Reading**

Initial readings of each transcribed interview were carried out several times until the transcript became familiar to the researcher (J. A. Smith et al., 1997). The first pass verified the accuracy of the transcript. The second ensured that all verbal cues were present, including
pauses, phrases like “um,” and other distinguishing aspects of the conversations. The initial reading presented the researcher with a developing understanding of the participant’s experience via her narrative, and also built the familiarity that J. A. Smith et al. (2009) advised.

The conceptual basis for this step includes slowing the reading, immersing oneself in the experience, and actively engaging with the data (J. A. Smith et al., 2009). As the initial reading progressed and familiarity with the transcript increased, the researcher began to annotate interpretations. Finally, the researcher began to “know” the interviewees and establish rapport with their interview and experiences.

**The Initial Notation**

J. A. Smith et al. (2009) indicated that the initial reading would give rise to the initial notation, which they recommended be separated into descriptive comments, linguistic comments, and conceptual comments. This was accomplished using the extensive notation features of MAXQDA software. The first notations occurred as familiarity with the transcript was established, and the researcher began to make some sense of the transcripts. Preliminary comments made on the right-hand margin of the transcript reflected areas of the interview seen as rich or meaningful (Smith & Osborne, 1997). J. A. Smith et al. (2009) indicated that the first notation would help the researcher locate and narrow in on rich aspects of the experience under investigation “while remaining close to the participant’s explicit meaning” (p. 83).

Descriptive comments provided an avenue for generalizing the content of the transcript in keywords and phrases that summarized what was vital in the participant’s experience (J. A. Smith et al., 2009). At this stage, the notations were assessed at “face value,” as they were only the starting point for analysis. Linguistic comments provided an avenue for generalizing the semantic value and participant emphasis by focusing on the use of language to emphasize
meanings that are valuable from the participant’s narrative (J. A. Smith et al., 2009). Finally, conceptual comments took an interrogative form, leading the researcher “towards the overarching understanding of the matters” (J. A. Smith et al., 2009, p. 88).

The confluence of notations and conceptions that arose at this stage of interpretation reflected the intersection of personal or professional knowledge with the emerging experience of the participants. J. A. Smith et al. (2009) reminded researchers to be conscious of preconceptions and their influences and to draw upon them to help make sense of the participant experience. The researcher was also continuously aware of the potential for bias to enter into the notations and emerging conceptions.

**Identification and Development of Emergent Themes**

The third step in the process of analysis was identifying and considering emerging themes, which often returned the researcher to the transcripts to convert the preliminary notations into more concise phrases. The short phrases were at a high level and generated the opportunity to create links within the notations that eventually emerged into themes that united the participants’ experiences (Smith & Osborne, 1997). The emergent themes were collated and organized into a table to facilitate more analysis and further extrapolation.

The process of memoing was combined with journaling to allow understanding of the process as it developed. As the memos were written for each of the transcripts, they were entered into a journal kept by the researcher to help identify and catalog the thinking behind the memos. The journal also chronicled the thought process behind assigning the memos, as well as the factors that were weighed during the coding and the general influence of the researcher. For example, at the outset of generating memos for one participant, the journal reflected doubts about the value of the interview data. In this case, the participant had a particularly bad experience with
the preoperative education class; however, later analysis at the point of coding showed that the transcripts and participant experience were indeed significant. Returning to the journal allowed the researcher to evaluate the initial memos and what they reflected. This change in the initial memoing would not have been as clear or conscious without the journal, which also carried a note explaining why the memoing was revised as themes emerged from all of the coded data.

**Mapping Connections**

The mapping of connections and interrelationships, according to J. A. Smith et al. (2009) was the fourth step, bringing together the initial and emergent themes to clusters of terms that were readily traceable back to the transcript for validation (J. A. Smith et al., 1997). Pattern identification occurred when the mapped themes and relationships were clustered together under an identifier that brought the themes together in a logically ordered and condensed fashion that captured the participants’ lived experience (Smith & Osborne, 1997). A table was used to identify the connections and ensure the interrelations were both viable and visible.

The initial memos and journal gave rise to some overarching themes that are identified in Chapter 4. At the point of identifying these themes, the researcher returned to the transcripts and began coding the data from the overarching standpoint of the emerging themes. The codes were spread into several categories and later aggregated into the mapped connections discussed above. This process was repeated for each interview. A master list of themes and patterns was maintained and aggregated, so convergences and divergences among the participant experiences were readily apparent (Smith & Osborne, 1997).

While identifying these themes the researcher followed a careful process that was documented in a research diary. Beginning with the interview transcripts and recordings, the transcripts were reviewed and verified to be accurate word for word, which also increased
familiarity with the words and tone of each participant. Next, the transcripts were annotated according to the method prescribed by J. A. Smith et al. (2009). As the initial notations were reviewed and considered for inflection, meaning, and intent, the participants’ sense-making was evaluated. The individual themes were distilled into a coding matrix that included the codes that would ultimately be condensed into the themes. The themes were aggregated and culled for relationships and meaning that would express the lived experience of the participants.

**Trustworthiness**

This study adhered to the standard IPA interpretation guidelines advised by J. A. Smith et al. (2009) to ensure process validity and integrity. The idiographic nature of IPA research required that careful attention be paid to details, from initial schedule development through data collection and analysis (Shinebourne, 2011). The guidance of J. A. Smith et al. (2009) significantly influenced the development of the interview schedule and the sensitivity of the focus on lived experiences. This sensitivity was reflected in the close reading, the three rounds of memos, the journaling, the subsequent coding of emergent themes, and finally the mapping.

**Field Testing**

The interview schedule was developed and field tested so the questions and probing responses could be evaluated before the final protocol was used for participants. The researcher sought out persons who had undergone preoperative education, who were familiar with the academic research proposed, and who would volunteer to test the semistructured interview protocol. Two volunteers were interviewed to test the interview protocol, giving the researcher an opportunity to evaluate the protocol, test its delivery, and become comfortable with the protocol and process. The results of the field testing were used to refine the interview protocol, but were not included in the data evaluated for the study.
Validation

The use of validation approaches for qualitative research is incumbent upon the researcher; these specifically include the use of member-checking or triangulation (Lincoln & Guba, 1985). Validation is in essence how well the account presented reflects the contextual reality of the participants and the degree to which it is ethically and substantively validated (Angen, 2000). Once the interview data had been collected, but before the research was formally summarized, the transcripts and initial notes were presented to those participants who wished to review them so they could comment if necessary. The interview transcripts, coding, and researcher interpretations were presented for review by the research participants via U.S. mail. This member-checking validated the data collection, transcription, and coding process. In addition, the final analysis of the interviews was presented to the participants who wished to receive them for confirmation (Angen, 2000). The researcher’s goal was to ensure the validity of the qualitative approach through accurate data collection, verification of coding, and review of accounts and translations.

Threats to internal validity for this research included the speed of change in healthcare and the timeframe during which patient health or mental status may change. These factors can be considered as history or maturation effects. The timeframe of the research study along with the acute nature of the research focus increased the opportunity for participant perceptions and contextual realities to change or evolve. Considering that most patients would continue to receive treatment following the interviews, member-checking was utilized in this protocol to ensure internal validity to the extent possible.
Protection of Human Subjects

The nature and intent of this research was to understand how patients experienced preoperative education and related its influence to their sense of empowerment following the preoperative class. The requirements for the research participants were rigorous, and there were stringent protections in place to ensure that participants fully understood the research process and were not rendered vulnerable by the process of research (see Appendices A - G for the specific documents and consent).

Following the guidelines defined by the National Institutes of Health (NIH) and the Northeastern University Institutional Review Board (IRB), specific measures were taken to protect the participants in this research. The protection of participant anonymity was a primary focus. Therefore, pseudonyms were used throughout the research and writing process to maintain the anonymity of the participants. Furthermore, all aspects of the research process were conducted in compliance with the guidelines outlined by the NIH.

Conclusion

The intent of this research was to understand the experience of patients in preoperative education and to consider the effect of their experiences and sense-making on the process of empowerment for women undergoing total knee replacement surgery. The primary research question focused on understanding how women patients made sense of their experiences in preoperative joint replacement education classes offered before total knee replacement surgery. The methodology and the steps taken to ensure trustworthiness, protection of human subjects, and proper selection were critical to developing and presenting clear and concise findings.
Chapter 4: Findings

The purpose of this qualitative study was to understand the relationship between preoperative patient education classes and the lived experience of female total knee replacement patients preparing for and recovering from surgery. The research question asked: How do eight women who experienced total knee replacement make sense of their preoperative education and recovery? This study explored the central phenomenon, the sense-making process for patients, using interpretative phenomenological analysis (IPA). “IPA is concerned with trying to understand what it is like, from the points of view of the participants, to take their side” (Smith & Osborn, 1997, p. 53). The voices of the patients emerged from their recollections of their experiences.

This chapter begins by describing the overall delivery of preoperative educational materials in the classes, followed by a description of the participants and their experiences, their involvement as participants in the educational classes, and the themes that emerged from their individual experiences. The superordinate and subordinate themes are presented with detailed quotes to ensure that the description of each participant’s experience is both thick and rich.

Preoperative Classes

Class Delivery

The preoperative classes were taught in a hospital setting, with only one of the participants attending a class at the surgeon’s office. The participants all physically attended the class; none took part in an exclusively online class or online video series, although such approaches are being offered more frequently. Only one participant mentioned that her in-person class included a video as a part of the educational experience.
The educational materials were delivered through a group lecture for seven of the eight participants, the exception being one participant who was the sole class attendee and had a one-on-one session. All participants described the class delivery method as using PowerPoints or other visual aids, and supplemental handouts were used in half of the classes. Two of the classes included an opportunity for participants to touch and feel examples of the prosthetics that would be implanted. The class leaders also added information and allowed time to answer questions from the participants and their care partners who attended the class. Four class leaders provided contact information so they could address questions or concerns that arose after the class.

In addition to materials handed out in the class, more than half of the participants mentioned receiving materials from their operating surgeon or a surrogate before attending the class. These materials contained information on preparing for surgery and references for exercises during recovery. The content and extent of the handout materials were not assessed or included in the design of this study.

Class Attendance

The knee replacement education classes were taught to groups of 6 to 14 attendees, except for the one participant who attended alone (other patients had been expected). Five of the eight participants brought family, friends, and care partners with them to attend the class. Each of the classes focused solely on total knee replacement and did not include anyone else, like hip or shoulder replacement patients. Previous research had noted that joint replacement classes are sometimes offered to mixed audiences. All but one of the classes was taught by a nurse or nurses. One participant was unsure about whether the class instructor was a nurse. In two classes, a nurse and a physical therapist or occupational therapist either participated or cotaught the class.
The attendance patterns of the participants varied. Three of them attended alone. The participants who attended with a spouse or family member relied upon them for care in the home following surgery, which was a recurring theme among all who attended with someone else. However, it is important to emphasize that some participants attended alone, and some recovered at home alone with ancillary support.

**Experience in the Class**

The participants all described their actions before and after surgery, as well as their preparations for surgery, which likely resulted from their experiences in preoperative education. Six participants described the classes in favourable terms, including “reassuring” and “wonderful.” One participant said the class “was the education everybody needs about what to expect.” One participant had a negative reaction to the class. Her adverse reaction primarily focused on the instructor and the delivery of class materials. Finally, one participant was ambivalent about the class, suggesting that she “didn’t have strong feelings one way or the other.”

**Participants**

The eight research participants interviewed for this study hailed from different areas of the United States. All participants reported undergoing total knee replacement surgery and attending preoperative patient education that focused on total knee replacement surgery. Table 1 lists each participant’s state, type of hospital, class delivery method, location, and class leadership.

All participants identified as being able to read and write proficiently in English, and they self-identified as being actively engaged in their preoperative patient education class. Given the protected nature of health information, the self-reporting of total knee replacement surgery was
not independently verified with providers or hospitals. The participants’ reports of class
attendance were not verified. All participants were female, although that was not the original
goal of the research design. Contact was made with three male volunteers, all of whom were
either unqualified or were lost to follow-up. Additional publicity did not yield any male
participants.

Table 1

Study Participants

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>State</th>
<th>Class location</th>
<th>Accompanied?</th>
<th>Class leader(s)</th>
<th>Hospital</th>
<th>Class delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colleen</td>
<td>NH</td>
<td>Hospital, conference room</td>
<td>Husband</td>
<td>Nurse and PT</td>
<td>Community</td>
<td>PowerPoints, no video, handouts were used</td>
</tr>
<tr>
<td>Julie</td>
<td>NY</td>
<td>Hospital, conference room</td>
<td>Husband</td>
<td>Nurse</td>
<td>Regional medical center</td>
<td>PowerPoint along with handouts</td>
</tr>
<tr>
<td>Molly</td>
<td>GA</td>
<td>Hospital, physician’s office</td>
<td>Unaccompanied</td>
<td>Non-nurse facilitator</td>
<td>Academic medical center</td>
<td>PowerPoint, video, and handouts</td>
</tr>
<tr>
<td>Annmarie</td>
<td>VA</td>
<td>Hospital, conference room</td>
<td>Unaccompanied</td>
<td>Two nurses</td>
<td>Regional medical center</td>
<td>PowerPoints, Q&amp;A, and use of joint replacement prosthetic</td>
</tr>
<tr>
<td>Shirley</td>
<td>NY</td>
<td>Physician’s office</td>
<td>Unaccompanied</td>
<td>Nurse</td>
<td>Regional medical center</td>
<td>PowerPoint</td>
</tr>
<tr>
<td>Francine</td>
<td>OR</td>
<td>Hospital, conference room</td>
<td>Husband</td>
<td>Nurse; PT expected but did not show</td>
<td>Academic medical center</td>
<td>No videos or PowerPoint, just discussion and Q &amp; A</td>
</tr>
<tr>
<td>Jennifer</td>
<td>PA</td>
<td>Hospital, conference room</td>
<td>Sister</td>
<td>Nurse</td>
<td>Regional medical center</td>
<td>PowerPoints; the surgeon had given an accompanying booklet</td>
</tr>
<tr>
<td>Suzanne</td>
<td>VA</td>
<td>Hospital, conference room</td>
<td>Husband, father, and stepmother</td>
<td>Two nurses</td>
<td>Regional medical center</td>
<td>PowerPoint and demonstration of equipment</td>
</tr>
</tbody>
</table>

Colleen
Colleen, a middle-aged woman from New Hampshire, was a practicing attorney and the mother of three grown children. She attended the knee replacement education with her husband for support. Her class was taught in a conference room at her local hospital. She was a volunteer at that same hospital and was therefore familiar with some of the staff. She talked about the decision to have surgery at the local hospital as opposed to “going to Boston,” which is a regional perspective reflecting the number of world-class hospitals in the Boston area that have exceptional reputations. She found that her relationship with the staff and the hospital was a significant factor that was reinforced by the preoperative class.

Colleen attended the preoperative class approximately three weeks before her knee replacement surgery. She described the class as being a “reassuring” experience. At the time of the interview, she was recovering well and was planning to return to a high level of activity at her local YMCA. She considered her operation to be successful, and at the time of the interview was very satisfied with the outcomes and her progress in recovery.

Julie

Julie was a mother and wife; she was dedicated to being active and maintaining exercise and fitness as much as possible. She hailed from New York. She attended the knee replacement education class with her husband on the campus of the regional hospital, approximately four weeks before her surgery.

Julie had an unnerving experience in her class, which seemed to presage her overall experience with knee replacement. She described the class as “horrible.” She felt the class leader was inappropriate, rude, and arrogant. A particular issue was how he approached and described the potential pain that knee replacement surgery could cause for patients. He described the pain as akin to being eaten by a bear, a visual that was disturbing to Julie.
She noted that she “was looking forward to being pain-free,” but yet she was anxious about surgery. She talked about a sort of balance that was important in her decision-making; she was conscious of how her knee pain interrupted her daily living. She felt that “[surgery] made sense” so she could recover her day-to-day activities before she “got older.” She recounted her decision in hindsight as “not an easy one.” At the time of her interview, she was uncertain that surgery had been the right choice for her. Recovery had been tough for her: as others also noted, the acute phase of recovery is short, but there is a much longer recovery period before returning to previous activity levels.

Molly

Molly was a middle-aged woman from just outside Savannah, Georgia. Molly was a registered nurse and sonographer, and had experience with other surgeries, including a hysterectomy. She attended the knee replacement education class by herself at the physician’s office. Her class took place on the same day as her prescreening (testing) before surgery, which was coordinated purposefully. She completed both education and prescreening three weeks before her surgery and was pleased. She described the class as a wonderful experience, and also surprising. As a nurse, Molly had experience working in labor and delivery and as a diagnostic medical sonographer. The content in the class was information that she had not considered, even as a medical professional.

She, like other participants, had talked with coworkers and friends about the prospect of surgery and gathered information ahead of the class. Even with the information gathered, her medical knowledge, and experience with other surgeries, including hysterectomy, she still felt attending the class was important. She noted:
To me, [preoperative education] shouldn’t be optional, patients need this. We have come so dang far from [being] hospitalized for four to seven days with a knee to going home the same day. Patients need this education, and I am very pleased that I did.

Molly viewed her class experience as “wonderful,” even though she was a nurse who had deep medical knowledge; she participated in the class because she felt it would be a good thing for her to do:

It was the education everybody needs about what to expect; these are the things that are going to take place from the moment I sign in to when my husband puts me in the car… nothing had prepared me any better for this experience than attending this class.

Molly believed that the class was delivered at a level and pace that anyone from any educational level could understand and apply; she felt that it was important “to gain knowledge.” Her class instructor was expecting additional attendees, but Molly was the only participant, so she benefitted from focused attention that may not have been available in every offering of the class. The class facilitator offered several amenities in the learning experience that the other participants did not describe, for example, water and snacks. Molly also described the classroom as pleasant and well suited as a comfortable learning environment.

**Annmarie**

Annmarie was middle-aged and hailed from Virginia. She attended the knee replacement education alone at the hospital where she would have surgery about 10 days later. She reported the class as being “an overall positive experience.” She lived alone and depended upon a son who lived nearby to help her get through the surgery and her recovery. She was completely independent and recognized the limitations of that independence, perhaps as a result of recovering at home, mostly on her own.
Annmarie had a positive experience attending her class. She “learned what to expect” and how things would go on the day of her surgery. She recounted that what she had heard while talking with others was not always reliable. In describing individual research, she noted that she began watching a video sent by a friend, but she “was not brave enough to watch” it all. However, she had seen a portion of the video where the surgeon “was hammering on somebody.” The action of chiseling cartilage and bone can seem violent, and that action triggered her to say in class, “I am really nervous about waking up.” She was able to ask questions about waking up during surgery in the class, where she was assured that all measures would be taken to make sure she would not awaken during her procedure.

Shirley

Shirley was a middle-aged woman from New York who attended the knee replacement education in a conference room at the office of her operating surgeon. She attended the class approximately five weeks before surgery, and reported the class to be “neutral.” She was a practicing nurse who was familiar with many aspects of healthcare and caring for herself as a patient. She noted that the class included people with various levels of education, which may be a valuable insight. She felt that the class did not expand enough beyond the operative experience to cover information on the recovery past the first week.

She described her experience as being lacking in interaction overall, “more of a presentation” that was basic in nature, allowing for mixed levels of understanding and education. She felt that several classmates had done research outside of the class, which contributed to questions that were discussed. She did not ask any questions in the class, as she had none.

Francine
Francine was a middle-aged woman from Portland, Oregon who attended the knee replacement education at the hospital with her husband. Her husband was a physician, so she felt she had a little more familiarity with the medical profession. They attended the educational class approximately two weeks before surgery, and reported the class to be “okay.” She brought more generalized experience to the class and admitted she attended because the surgeon advised all patients to participate in it.

The class delivery was not enriched by media; she described the class as a review of documents and handouts. In talking about the class, she noted, “I did not have strong feelings about it,” because she felt that she was well informed. Despite this, she was also impressed by the level of information delivered to her and the other class participants. She did have questions that were answered during the class, in particular about physical therapy. She noted that it was interesting how the class was able to “zero in on specific things, and even give us information about local places to get the equipment” they would need after surgery.

Jennifer

Jennifer as a middle-aged woman from New York. She attended the knee replacement education class at the hospital, three weeks before surgery. She had never had knee surgery before, so the whole experience was new to her: the equipment needed, crutches, assistive devices, etc. She felt that the class helped ease her anxiety because “it emphasized that they [the hospital] have the system down” and that “they have done this thousands of times.”

Jennifer summarized her experience by saying, “I would say that the class just made me feel like I would be successful.” Looking back and recounting her experience with the class and her knee replacement surgery, Jennifer made some interesting observations about alignments among the learning materials provided by her surgeon and the content delivered in the class. She
felt that the consistency of the information was emblematic of the overall organization and integration of information for the patient. She had gone through the handbook that she received before the class, but noted that there were aspects she did not understand until they were explained to her in the class.

**Suzanne**

Suzanne was an adult woman from Virginia who attended the knee replacement education at the hospital about three weeks before her surgery. She participated in the class along with her husband, father, and her stepmother, the most family members of any of the participants. She said that her class leaders had encouraged her to bring all of her family who would be involved in preparing for surgery and the recovery process. She described the class delivery experience as rewarding, and she related it to being how she felt healthcare should be. It was important to note that her husband was living with a disability, which made the class an interesting experience for her because she was used to delivering care for her husband. Therefore, she was an indirect provider who had dedicated time to learning and caring for someone else and now needed to rely on others.

Suzanne had an experience that was similar to the other participants, describing the class as being “informative.” She said:

I thought it was very informative because, of class, they actually even brought up a physical therapist… He was in the class; also, they had a table in there. He did show us exercises that we could do at home laying on a bed, or wherever we were at.”

This commentary demonstrated the value that she derived from having the physical therapist demonstrate exercises, as opposed to reading about them or viewing diagrams in the materials that were handed out.
Themes

The six superordinate themes presented in Table 2, Preoperative uncertainty, Information assimilation, Role development, Behavioral triggers, Engagement, and Empowerment, transcended the individual experiences described by participants and demonstrated the common elements of a shared experience among all of the participants. The superordinate themes and the subordinate themes detailed in the following section demonstrate how participants made sense of their experience with preoperative education classes and how they prepared for and recovered from total knee replacement surgery. The following section presents each of the six superordinate themes in turn, along with its subordinate themes and the data collected that illustrates experiences shared by all of the participants.

Table 2

Superordinate Themes and Subordinate Themes

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Preoperative Uncertainty

Each participant experienced uncertainty before her knee replacement. Uncertainty manifested in anxiety and fear, which most participants translated into questions about
information, the experience of others with surgery, and how the participant’s reduced abilities would impact home life. The uncertainty also influenced how participants interacted during their preoperative class. Each participant discussed her needs for information, which was described through several lines of inquiry. There was a social aspect, a personal aspect that reflected the participant and her family/care partners, and a reflection on the educators and clinicians who would be providing care. In each of the lines of inquiry, a series of similar questions is represented by the subordinate theme Information seeking. We may consider the level and line of inquiry to be emblematic of the participant’s experience with uncertainty or the specific aspects of her life where she experienced the most uncertainty. The subordinate themes that contributed to this superordinate theme were Anxiety, Information seeking, and Class engagement.

**Anxiety.** Each participant discussed her experience with fear and anxiety while preparing for and recovering from surgery. Anxiety influenced the participants’ experiences. Anxiety was indicated through the use of words and phrases that included worried, apprehensive, scared, frightened, afraid, terrified, and nervous. The participants’ experience with anxiety was not static; it progressed or regressed based on individual ability and motivation to handle the challenges of preparation, changes in role, or recovery. In most cases, when participants described their anxiety before surgery they were also able to connect that anxiety with an outcome. Between the preoperative period and the postoperative period, the anxiety of the participants evolved; it was not static.

Each of the participants experienced a relationship with anxiety that was rooted in fear of dependency. Several used the term invalid or disabled to describe the fears that they carried forward. Annmarie said she “felt like an invalid” when she arrived home, where her greatest fear was “getting up those stairs [to enter the home].” Julie mentioned her fears of dependency on her
husband in a more subtle way. She talked about her anxiety and what she had done to avoid being a burden on her husband by preparing her funeral. “I felt like I was prepared, and if anything, God forbid, had happened, my husband only had to pull out this envelope, and my pastor had it as well, so he was taken care of.” She also said:

I’m scared to death to go home, because when I’m here [in the hospital], there's always somebody around, and there’s professionals around, and I’m taken care of, and all my needs are met. It was kind of like, “Do I want to go home or want to stay here?”

Molly talked about having to assimilate into a new role with her family, saying: “I am the one that makes people feel better, that solves problems, that takes care.” Becoming a burden on other care providers or her family caused her anxiety. She exemplified this by saying that when she was home, “I was too scared to go to the bathroom by myself. My biggest fear was falling, because we talked about it in surgery that it’s easy to fall.” Despite her anxiety, she demonstrated confidence about the process by saying, “I know exactly what nurses go through.” Even so, she recalled feeling “like an invalid” when she arrived at home. Reflecting back on the support that she received and the subsequent reduction in her anxiety she said, “It actually turned out well because then as I started sleeping in my regular bed, it gave me a place during the day I could do my exercises and that sort of thing.”

Annmarie expressed her relationship with anxiety and the importance of anxiety in the decisions that she would make when she said, “I live by myself and I was nervous about like how I was I going to deal with everything.” She also talked about how she prepared and how she thought she would feel when she arrived at home:

I did not think I’d be able to do very much, and I was right. But, I tried to do as much as I could. I knew it would be easy being in our small place. Having done my test drive with
the walker made me feel better. I don’t think I had much of an expectation that I wouldn’t be able to cope.

Francine worried about having to rely on others for her care, and was concerned about the potential for pain after the surgery. She said, “I was a little anxious, hoping that I would not have a hard time getting the pain relief that I would need.” She also recalled her experience at home after surgery, and said that she felt disempowered because she would have to rely on someone else for care and it was worrisome to her, even after surgery:

I was feeling unempowered about how little I could do for myself. Not being able to sleep well. Not being able to do very much, being in some ways very, very dependent on my husband to do things that I would normally do for myself.

Shirley recounted her feelings about living at home alone, saying: “I guess the other thing was just the thought that I would be walking right away after the surgery and that I wouldn’t be like a total invalid was reassuring to know because I live by myself.”

Jennifer discussed what she had perceived about such a major surgery and how that met with the standard of care:

I would have probably thought I would be an invalid, I would be in the hospital for a week just laying on my back instead of being up and about and going to the bathroom and being able to be ready to go home in a day.

Suzanne, talking about her anxiety preparing for her surgery, said, “I’ve had outpatient surgeries before, but as far as staying in a hospital having something completely new put into my body, I was very anxious.” She continued to focus on anxiety about recovery saying, “I guess you could say, you know, having to be laid up, I guess, that was very anxious, very.” She was
thinking ahead to what might happen when she was home. She described her recovery as being challenging but felt she had received the support that she needed and was not worried.

In summary, the Anxiety subordinate theme describes and illustrates how the participants felt during the time leading up to surgery, the concerns that they had, and how experiencing anxiety was applied to the need for information and the questions that they asked of family and friends and in the preoperative class. The anxiety experienced by participants led directly to the next subtheme, Information seeking, as it framed feelings and needs for information.

**Information seeking.** Each participant experienced a need for information and discussed those needs in relation to preparing for and recovering from the surgery. The need for information was further described in relation to experiences with anxiety that surrounded the process, outcomes, or effects of surgery on family or living situations. They each described feeling anxiety about “not knowing” or experiencing information asymmetry and feeling underprepared. Seven of the eight participants described their process of gathering information about what to expect while preparing for and recovering from surgery. They described discussions with family and friends before and after participating in the preoperative class. Those discussions included both what to expect and the steps that others recommended they could take.

The information the participants sought, vetted, and used was not just drawn from the preoperative classes or discussions with operating surgeons, but from other external sources as well. All of the participants gathered some information from outside of the preoperative class. Information gathering can be placed into two general categories: interpersonal or social inquiries and the use of the internet for research on their condition. The class created an atmosphere for the participants to discuss information that they had gathered.
Colleen described her relationship with the information that she was seeking when she said:

None of it was surprising for me because I had done exhaustive discussions with an untold number of friends, all who had their own stories to tell, and I had done a lot of research online. No, I do not think anything was a surprise to me.

Julie alluded to her use of information gathered through interpersonal approaches and the relationship of that information to her expectations:

Well, I guess I didn’t have much [expectations]. I was so nervous I didn’t have a lot of expectations, but I was looking for information about what was going to happen, what it was going to be like, and what I needed to know. I had a couple of relatives who had gone through it, but they were in completely different parts of our state, so a little different. Their experience was very, very different than mine.

In addition to the interpersonal approaches, several participants gathered information through internet-based resources, including Google, and even social media platforms, such as Facebook. The information gathered before the preoperative class helped them develop questions and gain confidence to ask about the process of surgery and identify personal expectations. As the participants discussed information-seeking habits and class learning it was also apparent that they had developed knowledge before and after the experience that was internalized and could be readily shared in the context of their own experience.

Colleen had talked with family and friends about their own experiences with knee replacements and their choice for anesthesia. Colleen had mentioned that her choice of anesthesia was essential for her. She clarified her options by asking questions in the class and
with follow-up discussions. She described the relationship between the information, the decision, and her surgery:

Knowing about the nerve block, knowing that I got a spinal and general anesthesia made me pretty confident. I guess I should clarify that most of my concerns about pain were not that I’d wake up in horrible pain from anesthesia, but what comes a couple of days later.

Julie’s relationship with information seeking could have been influenced by her self-described anxiety. She described herself as being “so nervous, [that] I didn’t have a lot of expectations.” She also noted that she was “looking for information about what was going to happen.” Like other participants, Julie talked with family and friends about the surgery: “I had a couple of relatives who had gone through it, and their experience was very, very different than mine.” Julie had also talked with friends, and had relied upon members of her care team to help her with anxiety.

Molly’s relationship with information seeking was more social, and less focused on anxiety, than Julie’s. Molly said:

I don’t know of any support groups here locally, and if she [class leader] had said, “Oh by the way if you’re interested there is a support group where men and women can where you guys can bounce off things off one another.” I would have loved that. That would have been something that I would have participated in, but this is the South and as far as I know, I’ve not seen anything like that.

Molly also described her relationship with information seeking and how quickly a former co-worker had returned to work, which was a measure against which she may have judged her own recovery and was also an influence on her preference for anesthesia. She said, “I was
working for him at the time. That man came back so quickly, he blew me out of the water. I could not believe it.” She continued by recounting his story:

[He told me] “I had to work as hard as I possibly could to get from the operating room back to my office.” I don’t know what he did, but he’s Superman. He said to me, “I asked for a femoral block,” and so I said to him, “Dr. Smith, what is a femoral block?”

Annmarie described her experience with information seeking in a similar way, but had a different response to the information gathered. She said she was interested in “hearing about what people said about the pain, seeing the scars.” She continued to say that she was mostly interested in “how people reacted with the pain and unfortunately I went online and I was checking things out, which probably isn’t the best thing to do before surgery.” She was concerned about how she would react to the pain from surgery.

Shirley had experience in a medical field, which led her information seeking to be more procedural in nature, but she still sought and used information. Describing her information needs, she said, “Actually, what made the difference was talking to the anesthesiologist prior to anesthesia and maybe some introduction of those kind of people during the class.” She also described interactions with providers and asking what medications were being administered and why: “As a patient I had to inquire as to what you’re doing, ‘What’s that for?’” She described herself as not being anxious, but she did want to be in control.

Francine recounted that “they didn’t have any kind of video about the surgery itself or anything like that [in the class], and I’ll be honest, I didn’t even look it up online. I almost didn’t really want to know.” Francine dealt with her anxiety by limiting her access to information. She joined a group online and described her reaction:
I was shocked, and appalled, and that scared me more than anything so I just put it away and quit reading it until after the whole surgery procedure and starting my recuperation and just trying to learn then if there were any tricks of the trade that I might pick up from these people, or maybe I could offer some support and encouragement so people would see that it doesn’t have to be so negative.

Jennifer said, “I think anything before a surgery, any type of knowledge that you can gain before a surgery is very informative. Any type of class and any information that you can gather before any type of surgery is very good.” Suzanne sought information through her friends and family, recalling that “you [she] heard good and bad results. ‘Oh, no, you don’t want to get it done.’ [or] ‘You do want to get it done.’” She said:

And if you can research, do your research beforehand. Also, about two months ... Why I didn’t do this earlier ... There are support groups online, on Facebook. Join a support group on Facebook, if you can. I did two months ago. I wish I would have done it before my surgery, or right around my surgery.

In summary, the Information seeking subordinate theme describes and illustrates how the participants gathered information, its sources, and how that information was applied to the class and ultimately the participant’s expectations. The information gathered by participants led directly to the next subtheme, Class engagement, by enabling them to ask informed questions.

Class engagement. The information sought by participants, as mentioned under the subordinate theme Information Seeking, directly and indirectly influenced the questions asked by participants during the preoperative classes. Participants gathered information and inquired about aspects related to their anxiety, and used the information to begin to develop understanding and build expectations around what the experience of preparing for and recovering from surgery
would be like. Through the class experience, participants alleviated some of their anxiety and began to make sense of what the whole process would mean for themselves and for family.

Colleen described herself as a “person who has a lot of questions,” which she also demonstrated through her comments about the class. She recalled the nurse “having enough time for questions from the participants.” She said that it was also important to listen, as others’ questions helped her think of her own. The ability to ask questions about the process of surgery was important to her; she wanted to talk with an anesthesiologist about the process of induction and the techniques that were used in her surgery. Colleen also made a point of noting that the nurse who led the class gave out her phone number and contact information so the participants could ask additional questions after the class.

Half of the participants mentioned some method for posing follow-up questions, which in all cases was important to them. The participants addressed such questions in differing ways, but some experienced relief that they could connect with the preoperative class leader or others involved in the process of care. Colleen did use the contact information to set up a conversation with a member of the anesthesiology service to get information. The participants who received this information described it positively. Similarly, the individual participation in the class, better described as engagement, was also a positive experience that was described as shared and community-like, especially as questions were asked of class leaders. Suzanne recalled that:

It [the class] was a lot of the things, and also just listening, the other people asked questions about different things like the time between their presurgical bloodwork and stuff and another kind of, like the type of anesthesia and that kind of thing. So, some of their questions were informative, but they did not impact, really anything I did between the class and the surgery.
Julie described the atmosphere of her preoperative class as being inhospitable for questions. She did not ask direct questions in the class, but instead emphasized talking to others who had been through the surgery:

There was no opportunity either for any kind of [to ask questions]... I mean, we’re all sitting at these little classroom tables, and there was nobody, well, he asked who’s had it done before who might like to talk about it? But there was nothing, just nothing that was redeemable.

Despite Julie’s class experiences, there was still evidence that the information presented was important, even if it turned out to be inaccurate and added to her dissatisfaction with the process:

When I went to preop, I asked the nurse, and she says, “Well, no. We don’t do that for you. We hand you the wipes, and you wipe your own body down.” But all the things that he said built it up into this horrible, horrible experience in my mind.

Molly was the sole attendee in her preoperative class, so she did not benefit from indirect questions, but she still had an opportunity to pose direct questions to the class leader. She described the outcome of her questions:

I never once felt the need to call the surgeon’s PA or his nursing assistant or the surgeon. I felt like I was so well-educated that I knew just kind of what to expect with this kind of pain, how should I take care of it, getting in and out of bed, ambulating to the bathroom.

Annmarie had a rather different experience than Molly and others. She recalled listening to other attendees asking questions and asking direct questions herself. She recalled that she had “heard about the CPM [continuous passive motion] machines” that some people needed to use and she wondered whether she would need one herself, and if so, what to do about it. “So I
asked, and the class leader answered, “My doctor doesn’t believe in that.” She was able to relieve some of her uncertainty by getting specific questions answered.

Shirley similarly paid attention to the indirect questions other attendees asked while she was attending the class:

The other people at the class had some questions, things that I had not thought about, like what the right walker was. They also asked about anesthesia, which was important too, so, I guess by being there it was good.

Shirley recounted that she also posed her own questions about physical therapy and recovery. “I asked something about physical therapy, how soon I should start with physical therapy?” Shirley shared a similar sense of relief at having answers and also receiving contact information for the class leader so she could raise additional questions:

I was happy to have it. I think I needed to call her once with a question, and I don’t remember what that question was, prior to the class. Then, I can’t remember if I called her again between the class and my surgery, but I do know that about a month after my surgery, three or four weeks after my surgery, she did a follow-up call to see how I was doing.

Jennifer related a class experience similar to that of other participants, and even though she described herself as being better prepared than the other class participants she benefited from their questions as they supported her feeling of preparedness:

I would say yeah, the only, the main difference is they might have asked questions that I didn’t think about, but the information that they got was interesting to me, so it was sort of, I probably got more out of it just because there were other people in there asking other questions I hadn’t thought of… I felt better informed.
Like other participants, Francine recalled that she was comforted to know that she had an avenue to get her questions answered or get more information if it was needed:

They encouraged us to speak up for what we needed, and to ask questions that was all good, ask for what we need if you don’t understand something, and also the nurse educator at the class saying “If you think of something after today, you can call me.”

Suzanne, like Colleen and Francine, said that the ability to ask direct questions after the class was both comforting and important to her in reducing uncertainty:

You know, knowledge that they could give me, as far as the support system, they were there. I mean, there were many times, even before the surgery, even though the class was only like a week before my surgery, I did call. I was able to call the nurses and ask questions if I had anything. I mean, they were there for me.

In summary, the subordinate theme Class engagement describes and illustrates the learning opportunities that were linked to the class and how participant experiences in the class were related to and affected uncertainty. The participants, with one exception, were among a group of other patients who had similar questions and concerns. The questions asked by others in the preoperative class helped establish familiarity and calmness through knowing that other class participants had similar perceptions. These indirect opportunities similarly helped participants learn what to expect and how to prepare for surgery, which reduced some of their uncertainty.

**Information Assimilation**

The second superordinate theme, Information assimilation, was an experience shared by participants spurred by their information seeking and class experiences and demonstrated in how they made sense of their own situation. The superordinate theme is comprised of two subthemes, Introspective reasoning and Prospective reasoning. As part of Introspective reasoning,
participants described going through a process of establishing, evaluating, and reforming personal expectations for surgery that largely developed from the information gathered. Participants sought out information that developed expectations of what they would feel like, what their limitations would be, and how dependent they would be on others. In doing so, the participants reached a point when they enhanced their confidence and began to establish a view of themselves (self-view) that was projected towards the future, which is the second subordinate theme, **Prospective reasoning**. Prospective and introspective reasoning are tightly coupled in a cycle of continual evaluation, as opposed to being static point time. Each participant in her descriptions of the preoperative class, their preparation, the surgery, and their recovery talked about how she saw herself, how she felt about that view, and what it meant as she prepared for and accepted the challenges of recovery.

**Introspective reasoning.** Armed with the information gathered and questions that were answered in the preoperative class, each of the participants began to formalize expectations for surgery, including the process of surgery and recovery. Each participant described specific expectations she had formed and how this set of expectations influenced how she felt about the information received. These expectations related not only to the surgery, but also to their physical experiences, including pain, physical therapy, and anxiety.

Participants described knowing that there would be pain and related that to feeling prepared. They also identified experiences that they were not prepared for or were not expecting. As they did so, the participants also discussed their own process of making sense of their situation, the information they had, and the expectations they were forming around their own role in preparation and recovery.
Colleen formed her expectations from information that she had gathered from her class, noting, “They really talked about that there would be a pain.” She continued to say, “You should not back off on the meds in order to avoid getting addicted, but everybody was very specific that it would be painful, uncomfortable.” She extended that realization to also note that in recovery, “The therapy would be painful, but was necessary because of us needing to attain a range of motion and strength in our leg.” She also attributed some of the expectations that she had formed to being in the class with an acquaintance who had been through a knee replacement previously and who demonstrated exercises and shared prior experiences.

Julie had a different experience overall but noted that there were still opportunities to form expectations. She described some of her expectations:

He [class leader] talked about constipation, that the pain meds would cause constipation. That is the only thing I really knew about. I didn’t know about that I was going to not sleep for months. I didn’t know I was going to be depressed for weeks. I didn’t know.

Although Julie described her experience in the class as unsatisfactory, it influenced the expectations that she formed about the surgery, including anxiety and fear. Despite variation in the experience and information delivered in the preoperative class, each participant used information from the class to formulate and revise her expectations. Shirley recounted:

I guess the class helped me prepare, “You’re going to get up and go to therapy,” so clothing-wise, you might want to have a pair of shorts, have your lace-up sneakers or whatever shoes you’re going to wear home. The class did help with that.

Each of the participants also described a relationship between the information she had gathered and the expectations that she had for surgery and recovery, which also demonstrated the importance of interactions among participants preparing themselves for surgery. Molly was a
nurse who also had experience with previous surgeries and hospital stays, but she had never been through a preoperative class, so she relied on information to inform her expectations:

I had never, never experienced pre or postsurgery education ever, ever. I have had children, I’ve had a hysterectomy, I had back surgery, orthoscopic knee surgery, never have I sat down and been prepared for what was coming until that day. I just thought, "Wow, this is the way it should be." I wasn’t afraid, I guess, because of being a nurse, working in an operative theater, working in a labor and delivery room. That wasn’t frightening, but it was the education everybody needs about what to expect, [referring to the class] these are the things that are going to take place from the moment I sign in to when my husband puts me in the car. That was very valuable, and like I said; nothing had prepared me any better for this experience than attending this class.

Annmarie recalled important information she had received that helped form some of her expectations, mostly related to pain, saying that “hearing about what people said about the pain, seeing the scars” was important. She described a point when she was still knowledgeable, but yet she was still uncertain:

I had no idea what I would learn [in the class], because like I said, this was all new to me. I did do some investigating on the internet, but that was limited on what they could tell me. I really had no idea.

Annmarie also described conflicting expectations. She said she was “confident” in the surgeon and the process, but also said, “Again, not knowing what to expect or how I was going to feel” gave her some doubt. She said that in general she “wasn’t really nervous about it per se,” but then said “Yeah, I guess I was really probably nervous.” She also did not know what to expect of herself in recovery:
I guess maybe if somebody would have told me that, or told my son that, “your mom might be a little bit nasty or be depressed or something after the surgery.” That might have helped him, but I don’t think it would have helped me.

Francine said the class helped develop her expectations of physical requirements and equipment, but it was not the only factor in her overall expectations about recovery. She recalled, “The class helped me prepare for, being gotten up for therapy quickly and having whatever equipment will be needed in the home.” However, she felt that she had a good idea of what to expect for her recovery in the long run. In describing how she felt, she said, “I think what I needed was just a more of a realistic expectation that you’re in for the long haul when you do this.”

Shirley, looking back on the class, expressed a sense of confidence and recalled that she had formed expectations of herself and of the class content based on what she had heard from others. She experienced a point when additional information would have helped her to view the whole recovery process, saying that it “would have been helpful for her.” She also said:

I expected to get more on the immediate postop period, maybe some long-range expectations; this is what you can expect. Maybe even as much as what happens beyond six weeks in that you’re still going to have pain. That’s normal. Nothing beyond probably the first four to six weeks was discussed.

Francine placed her expectations in context with recovery by saying that she was “both dreading and looking forward to surgery.” She looked forward to a future without her osteoarthritis pain, saying, “I wouldn’t be having this pain anymore.” She had experience with previous surgery, so her expectations could have shifted slightly to be more focused on the process, as she knew some of what to expect:
I guess you could say it was both reassuring and maybe there was a little bit of knowledge is a dangerous thing, because I’m probably more aware of complications and things that can go wrong in healthcare, not just in knee replacement surgery in particular. But, overall, I felt like being well informed was empowering, but it probably also made me hyper aware.

Suzanne described the relationship between her class and her expectations through the confidence she developed in “the process.” After the class, she was confident that she knew what was going to happen, when, and she was clear about what she would need to do to be ready to leave the hospital:

Well, it [the class] just made me realize that they have this down to a system and …and that unless there was some complication that I would be going home the next day. It made me realize there was only going to be a 12-hour window, or maybe a little longer after the surgery, before when I expected to be checked out, and I was trying to, you know, I could already plan what I was going to need to do to be feeling like I was able to go to the bathroom and get in and out of bed and that kind of thing, go up and down stairs and that kind of thing by myself.

All of the participants had sought information from websites, from discussions with family and friends, and from social media sites to prepare for their upcoming experience in the hospital. Shirley, who had experience as a nurse, related how she felt about preparing for pain:

That you’re going to hurt. I think that’s the big one is that while you’re in the hospital, you’re usually provided with different pain medications for control. As they wear off you’ve got to incorporate in what you’ve got, what you’ve been prescribed. To expect
that you’re going to hurt and I guess the expectation is that probably you’re going to want someone around for a couple of days at least.

In summary, the participants were all going through a continual process of reasoning through internal expectations. Participants actively negotiated the differences between expectations and reality and the process. The class served as an important step in participants’ introspective reasoning because they were able to examine thoughts and feelings related to surgery. Participants evaluated and viewed themselves and the experiences as unique, and each followed a different process through which experiences were reasoned.

**Prospective reasoning.** Each participant, when describing the class experience, identified a contextual relationship between preparations before surgery, recovery from surgery, and individual expectations that formed. The expectations were evaluated against external measures or benchmarks developed from the class and information gathered, which often were placed in the context of “what they want.” The “they” was subjective, but how participants felt the influence of the collective “they” was an important part of the process. The importance arose from participants assimilating this information with individual expectations and projecting a forward-looking view. “They want me to” is a phrase several participants used to describe future steps they would take. The participants also expressed surprise as experiences were described, and recommended actions regarding what they identified as “they didn’t tell me,” things participants were unable to prepare for.

Colleen talked about her forward-looking approach to the information that was delivered and how she made sense of it:

They wanted people to have a certain kind of information delivered in a certain way, so that sort of reinforces that they know what they’re doing, but it also, it doesn’t make
sense to me, because as you might guess I sort of over-intellectualize some things and it was just like, ”Ah, I see what they’re doing.” If you read about Atul Gawande and his checklist it’s like, “Oh yeah, I have a checklist.”

Julie described her expectations as being focused on her anxiety around pain and a self-described need for control. She noted her discontent with the class leader using the phrase “like being eaten by a bear” to describe the surgical pain of a knee replacement. However, she also said, “You know what? He was right. I had to persevere through three weeks of bear-eating pain.” Though she had taken issue with the description of pain, her expectations were situated in that very phrase.

Annmarie had similar expectations around pain, which she recognized in hindsight were tempered somewhat by the class. She described her learning experience as being “more accurate than what she had read on the internet.” She continued to say, “It was still painful, but it was not as bad as what I thought it was going to be, so that was encouraging.” She evaluated the experience against the expectations that she had formed and made sense of them by projecting a positive outlook.

Shirley described the class as having a minimal effect on her expectations or anxiety. She said, “All the information I received in the class, I already knew, so I’m kind of neutral.” She was not sure whether “it [the class] helped or hindered in any way.” By participating in the class, she may have validated her own feelings. She continued on to identify her experience with recovery, noting that:

The big thing is that I think the preop class should let people know they’re in for. From what I understand from the surgeon, you are going to feel better gradually over time, but
it takes many people as long as a year to fully recuperate. That’s something that they don’t share in that class.

Francine had based her expectations on her previous experience with surgery. She noted that she had an “excessive ability to visualize all of the pros and cons and the what-ifs of a given situation.” She noted differences in protocols before arriving at the hospital, such as being allowed to drink a small amount of coffee, while in the past she was not allowed to drink after a certain point. Like Shirley, Francine validated her expectations through engagement in the preoperative class.

Jennifer said her class experience had a positive effect on her expectations: “It made me feel like I would have all the information and tools I needed.” She also said she felt reassured:

I could do the basic tasks, like go to the bathroom, get on a chair, put pants on, you know. It’s just basic stuff that they wouldn’t let me go until I could do all that, but yet they expected that most people go home the next day so it made me feel like it would be a no-brainer that I would be able to get all that done. I would say that the class just made me feel like I would be successful.

In summary, each of the participants described points in time when they had internal struggles with establishing their roles and projecting them to the future. Some participants shared concerns about pain, some about their needs, and some about the need for control; all noted a point when their expectations met reality. The participants situated their expectations in the realities of their experiences and adjusted how they saw themselves. Looking back, each described a point of reckoning she had reached from her expectations and actual experiences.
Role Development

The third superordinate theme, *Role development*, was more pronounced as participants became comfortable with their expectations and as they began preparations for surgery. One aspect of preparation was the development and enhancement of the role the participants had adopted through the information gathered, their expectations, and how they perceived themselves relative to their expectations. The participants continued to compare and contrast their experiences with others, identifying similarities and differences, creating a context for their own surgery and recovery, and most importantly forming the roles that they would take during recovery. Information from multiple sources, including physicians, family, friends, and educational materials delivered during the class, became a point of reference against which participants evaluated their roles. Each participant in her descriptions of the preoperative class, preparation, the surgery, and recovery talked about how she saw herself. It is important to note that each participant’s experience with *Role development* was not static, but rather was a dynamic and continually shifting process. Subordinate themes that contributed to this superordinate theme were *Self-view*, *Psychosocial*, and *Self-comparison*.

**Self-view.** All of the participants discussed how they came to view themselves and the role they would assume. The way participants viewed themselves was an important aspect in how they made sense of their own experiences with education and recovery. In their sense-making process, the participants all could see themselves, not as knee replacement patients, but as a member of a community or family unit. This view was also focused on projecting a positive self-image that would help maintain focus on the outcomes of surgery. Colleen saw herself as benefitting from people she knew. She mentioned friends and acquaintances who exemplified the connections she had drawn between the hospital, her role in care, and her dedication to
therapy. “I just go back to my acquaintance, friend who showed us her range of motion and how, not like they beat us over the head, but they were really all about, ‘You have to do the therapy.’”

Julie’s self-view evolved through her experiences with the class, anxiety, and recovery. She talked about wanting to “see other people to have better experiences, and I do not want them to walk away thinking they are going to get eaten by a bear. It [surgery] is supposed to help people.”

Molly saw herself as being happy, active, and engaged, but also as the central figure in her family, which caused her some worry:

I am the one that makes people feel better, that solves problems, that takes care. I won’t say I’m a bad patient because I’m not, because I know exactly what nurses go through. But to be there in the bed and have somebody changing my bed around me, that was difficult, that was difficult. Thank goodness it was only for a little less than 24 hours.

Jennifer talked about how the class and information she had received changed how she thought about the process and recovery from surgery:

I would have probably thought that I would be an invalid. I would be in the hospital for a week just lying on my back instead of being up and about and going to the bathroom, and being able and ready to go home in a day. It just didn’t seem like, you know. When the class talked about it, they seemed very confident that for most people that’s what happens, so that made me feel I had no reason to doubt that that wouldn’t be how my path was going to be.

Shirley described a process where she applied information and considered where she would have expected more information and support. In retrospect, she suggested that the sequencing of events in recovery was important:
I think what needs to be added is, you know “this is your first week postop”… whatever. They go through that and describe medication you’d use, but also how important it is to do those exercises, go to therapy, but also that this is not a surgery you’re over in six weeks time. I think the big thing is that I think the preoperative class should let people know they are in for. You’re going to feel better gradually over time, but it takes many people as long as a year to fully recuperate. That’s something that they don’t share in that class.

Participants also reasoned through their decisions to have surgery based on their experiences in the class and with fellow participants in the class. Suzanne said:

Once I went to the class, it’s like you’re here for a reason. You wouldn’t be if you didn’t need to get it done. So once I went to the class, and they went through the therapy options and what needed to be done as far as therapy and stuff like that ... Like I said, that made my decision as far as to go ahead and get it done.

In summary, the way each of the participants viewed herself was different and was important in how she developed her role in caring for herself and the choices she made about surgery and about how she prepared for surgery. The influences on role development for participants and self-view did not develop in isolation, but were influenced by those around the participants.

**Psychosocial.** The participants, in describing their assimilation of information, noted personal and community relationships that influenced how they viewed themselves. Some of these aspects have already been presented above, primarily under the subordinate theme of Information seeking, but this is a different dynamic. Family and friends were influential sources of information for the participants, as were others within the classes. By understanding these
relationships, it may be possible to consider how participants placed themselves in relation to others and how they judged progress and their own outcomes.

Colleen had volunteered at the same hospital where her surgery would be done, so she was “familiar with the room” and described herself as being at ease with the class as a result. She recognized one of the participants in her class as someone “we” (she and her husband) were friendly with and someone she felt at ease with. Her acquaintance was a previous knee replacement patient and shared her experience with the class. She demonstrated the physical therapy she had done to the whole class, primarily the range of motion participants would need to reach following their surgery. Colleen recounted the demonstration as a poignant memory, “seeing this woman I know show me, show us her range of motion… just made me more determined to work on my therapy exercises.”

Each participant described important relationships with family members, with friends, and a sense of community with classmates and other patients undergoing knee replacement surgery. The importance of these relationships was demonstrated by their influence and presence in decisionmaking and in how participants felt about their ability to handle preparing for and recovering from surgery.

Colleen recalled discussions with her family as an important factor in how she approached and planned for her recovery. Her daughter had taken part in the class with her and helped her feel supported. They made decisions about her recovery together, leading to Colleen’s daughter staying with her for a few days when first at home:

I will tell you that at some point I did have a discussion with a daughter, and as a result of that, she decided to come and stay with my husband and me during my surgery and
hospitalization. I think that was more a sense that she would be more attentive than my beloved husband.

Julie relied on family members for information and for support to help her overcome her fears and anxiety about surgery and to feel comfortable with her choice:

My husband talked me through it. I have a cousin who had it done. She’s actually had both knees done several years ago, and she talked me through it. I just said, “Okay.” I was in a lot of pain and had decided it was the right time, so I went ahead.

Julie also mentioned her family members as validating her observations about the length of recovery from the surgery: “A family member said it to me beforehand, and I sort of looked at him a little funny. ‘You know, just trust me. It’s going to be about a year before you feel normal.’” By talking with the family, she was able to assimilate herself in her experience better, even if it was a negative observation.

Molly also felt comfort from talking with family members. She described her family as being important in her considerations and in determining her preferences for anesthesia, and how information exchanged among them was important in her decisionmaking:

My mother and my brother-in-law [had knee replacements] way back when, they’re in the hospital for three or four days. They’re hurting like hell, but they only had general anesthesia. I had two forms of anesthesia locally which I knew was very beneficial for me as far as postop pain went.

Annmarie lived alone but had a son who lived nearby, which was a source of comfort and also frustration at different times. Her son played an active role in her decision about choosing the hospital where she would have surgery. “My son wanted me to go to a different hospital, so I did. The hospital that was closer than he thought was a better hospital.” She also recounted
feeling a bit marginalized by her son not recognizing her needs while recovering at her home.

Similarly, Shirley recounted that family members prepared her for her recovery: “For me, a family member said to me, ‘Listen, you know, it’s going to take a year. The surgeon’s going to tell you three months, it’s going to take a year.’ That made a bit of difference.” Shirley was learning what to expect, and the experiences of others gave her confidence. Francine also described building confidence, which she drew from her husband who was a physician. She felt he was informative and a valuable support for building her expectations for recovery:

I guess you could say it was both reassuring and maybe there was a little bit of knowledge is a dangerous thing because I’m probably more aware of complications and things that can go wrong in healthcare, not just in knee replacement surgery in particular. But, overall, I felt like being well informed was empowering, but it probably also made me hyper aware. I was also very happy that my husband was going to be there to be my advocate.

Jennifer also had a family member influence her decision-making and her planning for recovery after surgery. She drew comfort knowing that her sister would be supporting her:

Because my sister was there, and she knows I live alone, after we heard together some of the things you can expect after the surgery, she was insistent that I spend a couple days at her home before I went to my house.

Suzanne described a process at the hospital that was very inclusive of the family; she was attending the class with several family members: “They asked that the patients that were having the surgery bring family members that were going to possibly be caring for them, accompany them to the class.” She felt comfort knowing that her family was involved and “looked after” while she was “under.”
The role of family was pronounced, as was the role of friends and acquaintances. The participants also sought information, discussed decisions, and relied on friends. Colleen had developed relationships within her hospital and outside of the hospital that helped her decide where to have surgery and how to approach her recovery: “One person who was there [attending the class], turns out the person that we both knew, my husband and I, had had knee replacements, so her feedback was particularly helpful.” Colleen also said:

The way I decided to stay local instead of going to a larger hospital was that a friend of mine who’s a nurse who had worked in orthopedics had this surgeon do her knee replacement, so I had heard many good things, including from two doctors, who I see. I think that that was probably part of it.

Julie mentioned that she had a “friend who lives in Georgia who ‘had it done,’ and she actually sent me a YouTube video of some very helpful exercises.” Francine also talked about a friend who was “willing to fly out” to help her. In addition to family and friends, the participants described community aspects that were important to them. The descriptions of community seemed to be generally related to the participants’ time in the class and in online support groups.

Colleen said, “I think it was good to be in a group because then you could have other people asking questions.” She recalled others in the group talking to her about their previous experiences. “The people were telling me, ‘Don’t assume that it’s going to be a gradual, straight-line improvement.’ Some days you are just going to feel not good, and then other days you’re going to feel better.”

Julie talked about support that she received from online groups, and that she has also given back to the same community: “I have warned people... I belong to a couple of Facebook groups, and I have warned many people going into surgery, ‘As soon as your toes start to tingle,
ask for pain meds.’’ She reiterated a common theme from other participants: ‘‘PT is going to be really, really hard. I knew that because people had told me that. The only thing I really did know was PT was going to be hard, and PT is very important.”

Molly talked about how she wished there were more community experiences around knee replacements and surgery in general. She expressed interest in online communities and the support groups available via Facebook, saying: ‘‘I would have loved that’’ and ‘‘that would have been something that I would have participated in,’’ but she had ‘‘never thought to go online and look up support groups.’’

Annmarie talked about the other class participants and she described why she felt attending in a group was important for her ability to draw support:

I was glad I attended. It was neat because some of the people in the class were the same people that I would see at the doctor’s office, and I ran into this one lady at the hospital early in the morning while we were both there. That was nice. It was like knowing that there were other people in the same boat that I was in, that was having it done.

In summary, each of the participants demonstrated a clear relationship between their family, friends, and the communities of which they were members and how they saw their role in care and recovery. The psychosocial theme was most evident in the participants’ decision-making process and how they formed and evaluated their expectations, but also demonstrated a relationship with the participants’ confidence and level of comfort. However, the concept of self-comparison was equally important as the participants were developing and projecting the roles that they had reasoned for themselves.

**Self-comparison.** The subordinate theme *Prospective reasoning* refers to the participants continuously comparing expectations and information with their expectations. In developing and
assuming that role, there was a similar process involving their self-view. The *Self-comparison* subordinate theme identifies participants who were assimilating their roles and identifying with the role of a caregiver during the recovery process through constant comparisons of themselves, information gathered, and others. While assimilating information, participants formed a set of expectations that would mediate their experiences related to the surgery, as well as their expectations of themselves in recovery. Their expectations of themselves were evident in planning for surgery and recovery. However, the process of self-comparison was not uniform for all participants. The common threads were their actual consumption of information, developing expectations about the outcomes of surgery, and how all of the information, expectations, and knowledge combined to become the wisdom they had sought from others as they prepared.

As participants recounted their experiences, the influence of family and friends, and their process of dealing with all of the emotions, they often referred to “others” who were a measuring stick by which the participants were judging themselves and their progress. The description is similar to the description of “they” when participants were looking back on the class and describing what “they wanted.” The others were an amalgam of class participants and discussions that the participants had as they began building an understanding of the process.

Colleen referenced the group in two ways, first as finding comfort and justification for having the knee replacement surgery:

> Umm, I think it was just important to help me be prepared for it…because so many people say, ‘Oh, I’m so glad I did it, I wish I had done it sooner,’ right? They sort of skip over the recovery.

Colleen also referenced opioid dependency, which has become a serious issue in her community, and that she was also reassuring herself, based on information that was discussed in the class:
I think another question was about addiction because we have a huge problem in our state. With the opioid addiction, and they’re very reassuring that probably most of us would come off them fairly quickly, and they were not concerned about us becoming addicted.

Julie used the group of patients who had already had a knee replacement surgery to exemplify and justify the fear and anxiety that she felt. She also noted that the class leader’s legitimacy and authority to deliver information to the participants was questionable and used that as a way to reduce her dissatisfaction:

He said he never had it done [knee replacement surgery], but told the class he’s seen so many people who have had it done that he knows what it’s like. I’m sorry. Until you’ve lived this, you don’t know. Just like anything, unless you’ve gone through it, you can’t [know the experience]. Because you’re a nurse and you watch people in all kinds of situations, no, you don’t know what it feels like.

Julie’s self-comparisons were different from those of most other participants, but were crucial to understanding how participants compare themselves. Julie continuously evaluated her outcome and balanced her feelings about it against figures who were prominent in the pre and postsurgical process. She was unhappy with her outcome and perhaps recast that in her comparisons. Other participants talked about “other people” and their expectations.

Molly talked about surgery and anxiety, making the distinction that she had experience in the medical field, which provided her with some comfort:

Surgeries are scary for anybody. I wasn’t afraid, I guess because of being a nurse, working in an operative theater in a labor and delivery room. That wasn’t frightening, but
it was the education everybody needs about what to expect, these are the things that are
going to take place from the moment I sign in to when my husband puts me in the car.

Annmarie talked about the other participants in her class and how she used them as a way
to understand what she had done to prepare:

Some people had done some research on their own. Others had not. Some had talked
frequently with their physician about the process before getting there. Others had not. It
was really a mixed group that was kind of all over the place.

Shirley considered how much information others may have taken from the class in
comparison to herself and her experience as a nurse, but she felt it presented an opportunity to
evaluate her expectations:

I guess I didn’t have strong feelings about it one way or the other. I felt as if I was well
enough informed and having had the previous experience that I didn’t need as much from
the class as some other people might, but it was interesting to me to see what information
was presented.

Francine compared herself to others in managing pain, which was related to Colleen’s
comments about opioid abuse in her state; awareness of pain, pain control, and pharmaceutical
treatments has increased:

Some dread of the pain, because of the way things are now with so much emphasis in the
medical profession about people abusing the pain relievers, I was a little anxious about
hoping that I would not have a hard time getting the pain relief that I would need,
although I’d had that conversation with my surgeon at his office and had gotten some
reassurance there.
Jennifer felt that patients have a particular responsibility in the process of care and recovery, and demonstrated her confidence as a result:

I just think that if they didn’t go to the class, or they didn’t read their book ahead of time, or they just maybe had negative experiences in the hospital, or maybe they have different levels of pain tolerance, or their expectations were that they were going to have to work hard and things would magically just be better after the surgery, but I felt like I knew I was going to have to work hard to get past that, you know, get off the narcotics and get my legs straight and everything.

Jennifer continued to say that “everyone is different” and that she felt perhaps “some other people I’ve talked to, maybe they didn’t realize it was going to be difficult or require work.” She also recalled telling other people: “You know, if you do everything they tell you, it could be a positive experience.”

Suzanne talked about her struggles with physical therapy, which demonstrated how she felt about herself and possibly how she felt others involved in her care may have perceived her:

People don’t think of that [challenges of physical therapy], they’re swollen. And when I would try to do my exercises, when my therapist weren’t here, or even when my therapist were here, that would frustrate me so bad because it’s like, ‘Why can’t I lift my foot?’ I know a lot of people don’t do physical therapy, as far as outpatient. Some people just do, you know, because their insurance won’t cover it, or for some reason, they don’t have insurance.

While describing the class, Annmarie mentioned her observations of the other class attendees:
There were varying education levels in the class, you could tell. Some people had done some research on their own; others had not. Some had talked frequently with their physician about the process before getting there; others had not. It was really a mixed group, all over the place.

In summary, the participants all balanced their experience and their perceptions of self through comparisons drawn with “others.” Each participant described points when their role, informed by expectations, information, and their self-view, became apparent and how that made them feel. Participants built their role from expectations, in relation to those whom they were connected to within their family and also a broader social context.

**Behavioral Triggers**

The fourth superordinate theme, *Behavioral triggers*, describes how participants experienced and reacted to challenges, and how participants’ roles were actively influencing behavior. Subordinate themes include *Accepting help*, *Challenges to ability*, and *Activation*. The challenges experienced by the participants included dealing with pain, changes in family dynamics, anxiety about preparing for or recovering from surgery, and doubt about the decision to undergo surgery. The challenges came in multiple forms, including personal and familial emotions, physically with ambulation, and within provider relationships like physical therapy. The participants all discussed recognizing specific feelings during the decisionmaking process; information was used to advocate and what was learned influenced individual preparations.

**Accepting help.** Each participant experienced a need for help, but also a need to accept or ask for help. While needing help and accepting help are semantically similar, the participants described each with different emotions. Most participants noted and talked about help that was made available by family members and other care partners, but that was not always related to
accepting help. Accepting help was described with emotional impacts that were associated with disrupted roles in the family and household dynamics.

Colleen struggled with her appetite following surgery and in recovery at home. She said, “I really lost my appetite probably because of the pain meds”, and described her appetite loss as a challenge that spanned almost two weeks. She recounted family and friends “trying different food on me and coaxing me to eat” and she also recognized that “it was really important to me that they were really working with me and trying different strategies.” Even with the offers of food and encouragement, she did not feel well enough or the motivation to eat:

The physical therapist asked me what I was eating, and it was clear that I was not eating enough because I was just so weak. I think maybe some discussion of that in the joint class would’ve been helpful, you know, that you may or may not feel like eating, and you have to be careful because you need the food to give you the energy to do. Anyway, would think they completely missed the whole nauseous [appetite] thing.

Julie described learning to accept help and support, but in doing so expressed some personal fears associated with how she would be viewed:

I learned to accept people coming to visit and say hello, which was like, you know, “Don’t even look at me, because I look and feel so gross.” I had to learn some humility. You know, I’m not going to climb mountains, and I’m just a average human being who’s 63 years old, and aches and pains. I had to accept that I was probably going to continue to cry for a long time, and it was okay. I had to accept that I felt how I felt, which was very difficult. I wanted to just, like, “Pull it together and stop it.”

Annmarie explained how she felt about the complicated relationship with help and family members, saying:
It was tough; my son was like, like thinking that I didn’t need help. He just did not think, and the physical therapist had to come over and said [to her son], “This is major surgery. Your mom needs you for at least three days, so make sure you get her ice and do this and do that.

Even with an intervention from the physical therapist, it was difficult for Annmarie because she had been the single parent in that household. “I realized I didn’t have a choice. I had to take care of myself, because there’s just so much you can ask your son to do for you.” She experienced a schism between what she felt she was projecting and how others saw her, saying: “I was a little nervous, and like I said I think my son thought I was doing much better than probably what I was. I don’t think he realized that I needed help.”

Shirley talked about her confidence in her ability to care for herself and her knowledge in other aspects of surgery and recovery, but acknowledged, “the help I needed had to do with the animals I had in the house.” She lived alone and required help caring for her animals. She said that she was not able to maintain her usual activities and required help from family to maintain the care of her animals; she did not describe needing other help.

Jennifer described the process of seeking help from a more personal perspective and talked about what it meant to her:

I had to learn how to ask for help, which I don’t like to do. “I could do it myself.” You know, the first week I was up washing the dishes, and it’s like, “What are you doing?” “Well, I’m washing dishes.” I had to learn to say, “I can’t do this.” People from my church brought me meals, which made me feel really uncomfortable, but I learned to say, “You know what? That would be really helpful. Thank you.”
Francine described recognizing that she had to be patient with herself, which was necessary for accepting help. She recounted that she had learned from the experience, noting that the challenge of accepting help was part of accepting her own situation:

Being able to ask for help more readily, being accepting of a situation when you can’t change it, that you just do the best you can, maybe a little bit of patience. Certainly maneuvering skills and learning what’s the best way to move around and sit and stand, if you have a leg that’s been operated on. There’s some nuts and bolts things.

Jennifer also noted that her “biggest challenge is that since I’m a very independent person, that I was going to have to rely on family and friends to drive me to my physical therapy.” She also elaborated about the needs she felt:

You need someone behind you. You need support when you’re going through something like this. And even if it’s a stranger on a group that you have never met before, get on there. Vent. If you’re upset, let them know. Cry. Don’t hold it in.

In summary, each of the participants described experiencing a need for help and the process and feelings that were tied to accepting help. Each was navigating elaborate visions of herself and her family which were related to expectations and the roles that had formed. In accepting help, each had a point at which she recognized and expressed her needs, but also a range of emotional challenges.

**Challenges to ability.** Each of the participants, while recognizing her needs and accepting help, identified points when physical and mental challenges to abilities affected them. These challenges became defining moments related to the participant’s roles, perceptions, and expectations. These challenges referred to experiences during preparation for surgery, and even more so during recovery from surgery. Colleen talked about the challenges of mobility,
particularly related to showering and how that impacted and related to trust in her abilities: “My PT worked very carefully with me on trust, and I doubted that I could get into the tub, you know, sit on the tub stool, but he absolutely showed me how to do that.”

Julie was challenged by several aspects of the recovery process, as well as by coming to terms with a prosthetic. In talking about her experience in recovery, Julie experienced some challenges that were important to her and wished she knew that:

You’re not going to sleep. You’re not going to be comfortable. Your emotions are going to be raging. You might be depressed. You’re going to feel isolated because you can’t drive for six weeks. Pain medication’s going to make you feel really goofy. You’re going to have no ability to focus on anything.

Julie struggled to conceptualize the prosthetic and make sense of having something foreign implanted in her body:

I named it [her prosthetic], and after about a month I un-named it because I hated it so much. I have had a hard time. I had to go through a grieving process for my God-given knee, and now I’m walking around with a foreign piece of metal in my body. It’s very difficult for me to accept it, particularly since I don’t see any value to having it at this point, you know?

Molly was challenged by a lack of appetite, an experience she shared with Colleen, saying, “There was a lot of times where I just couldn’t eat, and I think it was from the narcotics. I have never had that long stretch of narcotics in my life.” Colleen said, “I did have an extreme loss of appetite for two weeks, but slowly it’s just coming back now after four weeks.” Both Colleen and Molly had to explain the lack of appetite to family and friends.
Jennifer described accepting and working through the challenges of her recovery. She recalled, “Getting around was probably the only real challenge, but everything else, I was able to take care of.” She talked about what was required of her and how she negotiated the challenges:

They had told me I had to walk, at the hospital, I had to walk 10 minutes every hour, so I got my walker and would be rolling around the house and kind of doing things for myself. I told my sister, “Look; they told me that you couldn’t baby me. If I want water, I need to get up and get it.”

Annmare described her process of getting back to a usual routine and the challenges related to living alone and requiring support from nearby family:

I guess like after I did it [used the stairs] the first time I felt better about it with the cane and everything. It was very fine. As far as … I could run the vacuum down here, downstairs but there was no way I could bring it upstairs. I wasn’t strong; I couldn’t do that. Laundry was a challenge because that was down in the basement, so I had to be just careful about that.

In summary, the Challenges to ability subordinate theme demonstrated the challenges that participants experienced related to their perception of ability, which related in turn to their behaviors. Although the challenges varied significantly, and how participants made sense of their experiences with the challenges varied, they were important to understanding participant behaviors following surgery.

Activation. Each of the participants experienced an event that triggered a response that was related to their ability to engage in their own care. This activation point, or trigger, was typically an experience that was directly related to an engaged behavior, such as preparing the home or taking part in physical therapy. Participants discussed several points in their combined
experiences that indicated their changing ability to engage in their care. In all cases, there was an element of fear or identification of need that drove the participant’s ability to engage. The participants were not, however, static in their ability to engage in health and healthcare behaviors.

Colleen described her use of pain medications as balancing how she felt against pain and also her nausea and lack of appetite. She made a conscious decision to stop the pain meds to begin moving towards her goals of recovery and to feel better, demonstrating her ability to engage in her own care:

I backed off the meds pretty quickly, you know, just barely a week, a week and a day after the hospitalization. A week and a day after the surgery I was done with the pain meds, so that was primarily because of my eating issues.

Julie talked about her experience in the class, which she described as being “horrible,” which was both a negative reaction and a demonstration of her ability to engage. The experience had driven her to “seriously” consider canceling her surgery. She recounted that “I was threatening to cancel on the way to the hospital. I kept telling myself as I was sitting in wherever they put you before you’re going in… I could say no anytime now.”

These threats to cancel were aligned with her anxiety, “because I was so nervous and I had never had surgery before, was I prepared my final arrangements.” She said, “I felt like I had no control. That was one of the largest issues. Because, you know, I’m a human being, and I have control issues, and when in the class he talked about having absolutely no control.” After the surgery was over Julie also experienced triggering events, primarily feeling pain:
I was in agony before the nurse said, “Okay, let me get you something.” Then she gave me, I don’t know, something oral to take, which didn’t cut the pain. It was like being ... I know now when he says it’s like being eaten by a bear. Molly, who was familiar with medical settings, talked about the choice of anesthesia as a triggering event for her. She wanted to be certain that she had chosen the best balance for her, so she had researched the options and asked specific questions prior to her surgery, demonstrating her ability to engage:

I talked about her [the nurse]. I had a spinal block. Well at first in the room in the holding area, I had a femoral block and they told me that ahead of time. That was probably the only thing that maybe I was a little wary of because I’d never had a femoral block, I’d never had a spinal block. But I knew that those two combined together were an awesome way to do this surgery, to do it without a general anesthesia I just thought was incredible. Annmarie described a fear of running out of pain medications as a point when she made a specific decision related to her care, challenging the fear of pain that she had described:

I came home the day after my surgery. I got out real early and I was taking the medicine as prescribed and I realized real soon that if I took it as prescribed, I was going to run out in a couple of days so I didn’t take as much, because I didn’t want to run out but I did fine. Annmarie also talked about her surgery itself as being a triggering point, allowing her to focus on what she needed to do for recovery, saying she recognized that “you’re really going to have to work hard after surgery.”

Shirley shared similar thoughts, saying that there were “particular physical issues that I have that I worried a little bit about, but I managed to have provisions made so that they could be
handled as well as possible.” She prepared her house and changed the location of her bed because of her experience with the class, demonstrating her ability to engage in care by modifying her home. Shirley had mentioned she was afraid of feeling “like an invalid” but said that the changes she made “actually turned out well because then [as she moved to ambulation with a cane] I started sleeping in my regular bed, it gave me a place during the day I could do my exercises and that sort of thing.”

Francine talked about the discharge process as triggering her recognition of the need to commit to exercises and recovery:

Because they make it clear that the more you do for yourself, then these, the four exercises they give you to start doing right away, and the breathing thing, all the things to prevent clots and everything, that basically you have to take charge of yourself and do these things so that you can get better. I really feel like that made me realize that it was going to be some work involved to the physical therapy part of it and everything, and I think some people maybe think that they just go have the surgery and then when the incisions heal they’re all better right away.

Suzanne recounted a slightly different trigger point, one that came before surgery, when she recognized her own need for the surgery and focused on gathering information about it. She described when she made the choice to undergo surgery: “You’re tired of being in pain. You’re tired of not being able to do anything. You just get sick and tired, I guess is the way to say it.”

In summary, the subordinate theme Activation includes experiences that reflect the participants’ changing and evolving ability to engage in their own care or recovery process. These experiences also identify a specific ability that is combined with the participant’s motivation and an identifiable need that resulted in behaviors related to care and recovery. The
participants all described a point in reaching this decision when they recognized a need, evaluated their ability, and took action. These needs and abilities varied widely, as did the actions taken, although the focus of the participants remained on recovery.

**Engagement**

The superordinate theme *Engagement* includes the subordinate themes *Transformative learning*, *Self-advocacy*, and *Informed preparations*. The participants experienced a transformative learning process in that the information they sought out, the subsequent role development, the triggers and challenges, and the resulting confidence all enhanced their view of self and their ability to handle the feelings, emotions, needs, and dependencies that came with a total knee replacement. This transformative learning process was necessary because the information from the class and the interactions with clinicians and support from communities supported self-advocacy. Participants described advocating for themselves in the context of explaining their needs, which allowed the participants to have more significant autonomy. With more significant autonomy, they were able to engage themselves in preparing for their surgery and recovery by taking actions such as purchasing equipment, making meals, or working with family to prepare their homes.

**Transformative learning**. All of the participants described times when they recognized learning from their experiences, both in the preoperative classes and while in the hospital. They evaluated the information they gathered against the experience and expectations of surgery that had formed. Participants focused on identifying, assimilating, and using information in their preparations for and recovery from surgery. Much of this information was gathered from family and friends and vetted through the learning experience in the preoperative class. The information gleaned from friends and families tended to be important before the preoperative education. It
also played a role in formulating questions about anesthesia, special assistive devices, and procedures used for closing incisions. The participants demonstrated a learning process by formulating and posing questions in the preoperative class based on the information they had gathered ahead of time. The direct and indirect questions created opportunities for participants to form expectations about the process and to identify decision points in care.

Colleen described learning how to use a strap to move her leg right after surgery and as she transitioned to her home and the importance that she placed on this experience. She explained that this learning experience supported her through the beginning of her recovery:

I was in the hospital two nights, and I think it was the second night a nurse showed me how to use a strap to keep my surgical legs straight so that it wouldn’t just suddenly hang over the side of the bed. The first day and a half that was probably the worst pain I had was when they would encourage me to sit up and then my leg would just drop.

Julie mentioned that she had used reference materials in the home to prepare for her physical therapy, “I looked up with my in-home PT a couple of exercises. In fact, I went looking for it [reference materials] just to see if I still had it just today, and I threw it out.” Julie did not find the class useful, repeating several times that she found the class “completely useless.” Her noting that she used the materials shows she was able to engage with the content and learning:

He didn’t discuss it. I mean, there was nothing about what PT was like. Then, “Here’s a book and here are some exercises that you could do.” I had no clue really what to expect until the in-home PT showed up, and if I had known what I know about in-home PT, I would have done outpatient PT right away as well. I think doing in-home PT set me back and... delayed my recovery.
Julie also talked about the challenges of recovery and balancing activities with her recovery. Her description conveyed the importance she placed on activities and recovery and what she learned:

I was doing really well in January, and I was, our high school has a high school hallway walking program, which is nice because it’s cold and snowy in Rochester, and so I was doing my exercise bike in the morning, and I was up to eight miles, then I would do my regular PT exercises, and then I went to walk in the high school. I got myself up to three miles; then I got tendonitis from overdoing it.

Molly had similar experiences with learning that directly engaged her in activities related to her recovery, and more specifically her physical therapy:

They taught me ankle circles, and I call them Kegels. Just to keep your blood circulating while you’re at home and I do that faithfully in bed. I thought that was an awesome thing that they taught us these. They talked about this in the class, to prevent blood clots. I’ve seen people come in with a blood clot; I know what that looks like. I wouldn’t want it to be me.

Annmarie was also aware of the importance of remaining active in her care and recovery but also recognized there is a balancing act between physical needs and the needs of recovery. She said, “I mostly did my physical therapy exercises, and I was really maybe talking one of the opioids every four hours. I cut back quite a bit on them; I didn’t take a lot.” She also recounted being focused on certain aspects of her recovery, while also being active: “I just couldn’t wait to get the staples out. That part was annoying, and I thought maybe I would do better [more physical therapy] after the staples were out, but it did not help that much.”
She shared her experience with physical therapy, which echoed other participants’ descriptions of the challenges they experienced in recovery. “I was really lucky. My range of motion was really great, but my extension I had to really work hard on that, but in straightening that as a challenge. Some of the physical therapy was challenging.”

Annmarie talked about what she had done to recover at home and the activities that she participated in while recovering. She recounted that “maneuvering with the walker was not a problem, in fact, the walker went away after three days.” This was important because she had reservations about the walker and being in the home. “I went to a cane. Yeah, I felt good and comfortable taking care of myself.”

Shirley also participated in physical therapy and took steps to ensure that she was able to continue as she improved. She recounted that in the home, “everything went well, and then the physical therapy went. I do not know if you’re going to ask any questions about that, but that went really well.” She continued to say that at “my next, first visit to the doctor [after surgery] he gave me permission to drive. They took the staples out, and he said, I already had pretty good range of motion already, and so he wasn’t concerned about anything.”

Shirley also observed a relationship between the class and her expectations for her role in recovery.

I really feel like that made me realize that it was going to be some work involved to the physical therapy part of it and everything, and I think some people maybe think that they just go have the surgery and then when the incisions heal they’re all better right away.

Jennifer recounted understanding activity and its importance to her and her recovery following her surgery, learning that she had translated from the class:
It was important that I just get up and move around. Not sit there, let my hands ... Let my leg and foot get swollen. Move around to prevent blood clots, that’s very important. Like I said, sitting in the recliner the first couple weeks, you definitely want to remind people to do those ankle pumps. You definitely have to get up and move around as a new knee patient. You do not want to sit still; you want to get up, you want to move around. Because you definitely don’t want to get a blood clot. That will definitely hinder your recovery.

Suzanne also described her commitment to recovery and physical therapy, demonstrating her engagement in the process:

I mean, there were days when... “I really don’t want to do this,” or, “Okay, I’m only going to do 10 today instead of 20.” But you’ve got to keep going. The more you do ... If you do 10 today, do 15 or 20 tomorrow. Do as many as you can do to strengthen your muscles and to get that knee better.

In summary, each of the participants described points in their preparations and recovery when the information they had received during the preoperative class or other through channels, such as family or friends, was used to modify or justify behaviors. Learning in this context was how to use information related to specific health behaviors, primarily related to recovery. Participants demonstrated a cycle of learning, recalling information, using the information to modify behavior, and discussing the information and actions.

**Self-advocacy.** The participants all described points in their experiences when they advocated for themselves, whether requesting a particular approach to anesthesia or asking for help from their families. Participants described a complicated relationship between the information they had learned and their view of themselves and the roles that had developed. As
the participants advocated for themselves, they experienced anxiety about what would happen and what to expect, and also about how others may perceive their advocacy.

Colleen was one of the more vocal participants; while she had described not being worried about the surgery itself, she did have questions and concerns about the process. Nevertheless, she described her experience as “having total control.” She also said:

She [class leader] said I would see the anesthetist, but that was not true. So she said,

“You will talk to the anesthesiologist that morning about the process,” and I said, “I need to talk to them ahead of time. I need to be prepared. I don’t want to just wait until that morning.” I did talk to the anesthesiologist, had phone numbers for a bunch of people if I had questions, so I felt very confident that I knew what I had to know, and my husband’s very supportive and friends went to those things and encouraged us and offered to come and help, and so I think that we are very fortunate, very well prepared.

Julie, who described her experience with the preoperative class as “terrible,” translated that experience into self-advocacy, reaching out to the hospital to explain her class experience and identify the issues that she had experienced. She also discussed information she received with her orthopedic physician, as she was dealing with her own fears and a strong sense of anxiety:

I did follow up at the hospital afterward, and he did apologize, and he did say it was just his way of making light of the situation, but it was totally inappropriate. He [class leader] also said, “Well, you’re going to come home and have to give yourself injections for a blood thinner.” Well, my doctor had already told me she was going to put me on aspirin, but then I had to call the doctor the next morning and make sure that she was right, and he was wrong.
Molly recounted her experience with medications and advocating for herself. As a trained medical professional, she brought a level of understanding to the question of advocacy that may not be reflected by other participants, but she was focused on managing her pain:

I guess I didn’t want to ask for more until I absolutely needed it. She knew that I shouldn’t wait that late and tried to chase the pain. She knew that I should nip it in the bud, so she comes in and she was always spot-on. “How are you feeling?” “Well, I’m starting to hurt.” “Okay, so what should we do?” She told me what my options were and I might have mentioned this before, Dilaudid versus IV Toradol versus IM morphine and she sort of mixed it up a bit to make sure that I got the best relief at the appropriate times. I liked that; I really liked that.

Annmarie had a similar experience when she was focused on managing her pain. She was advocating for herself by requesting medications. Annmarie described her interactions with staff, requesting information about the care that she was receiving, asking them what medications were being administered and when. She said, “I think people need to be informed, whether they are interested or not.” She reflected on the process of asking questions as being related to her ability to be involved in her care.

She also demonstrated her recall and use of information from the preoperative class during her stay at the hospital:

Right after surgery, I asked for pain medicine, and they gave me some. It was interesting because the nurse that came in, the one that gave the lesson, and she said, “Oh good, good, you’re doing good.” She said, “I’m glad that you did ask, you told them you need help; you need more medicine.”
Shirley described dealing with her son and advocating for herself by discussing her situation with the home health providers. She had the physical therapist who was working with her in the home explain the importance of her recovery to her son, who may not have understood her situation. She said, “Because my son was like, didn’t think I needed help. He just didn’t think.” She felt that she needed another way to get that message across. “The physical therapist had to come over and say, ‘This is major surgery. Your mom needs you for at least three days, so make sure you get her ice and do this and do that.’”

Francine recalled talking to her nurses about medications, and recalled at one point that “I actually questioned, and I forget what it was, something.” She recalled that the nurse “went back, and I said, ‘Well, I’d like you to discuss with the physician before you do that,’” and they did. She used her own knowledge of the process to ask questions, and when she was not comfortable, the physician became the point of reference.

Suzanne advocated for herself with a focus on anesthesia. She said, “I know some people just have the spinal, or whatever, but I told them, ‘No, knock me out.’” She also recounted a time in the hospital when she advocated for herself and the medications that she was receiving with one of her nurses:

I said, “Stop!” I said, “I told the nurse upstairs that it makes me sick.” She said, “Well, she didn’t put it in the system.” I said, “Because I told her I might be allergic to it.” Well, now, what do you know, I’m allergic to it.

In summary, the participants involved themselves in their care and advocated for themselves as a way to allay some of their anxiety. However, it is important to note that the process of advocacy itself created tension for the participants. The ability to use information, to
ask questions, and to make requests was described by participants, but the actual process of advocacy was not as prevalent.

**Informed preparations.** The participants all described steps they felt were required to prepare themselves, families, or homes for the aftermath of surgery. Each participant also recounted a focus on recovery and the impact of absence on normal household activities, regardless of the size. Some of the participants had drawn upon the information discussed in the class to identify and carry out preparations. Some participants based preparations on direct and indirect questions that had been addressed during the classes. Their descriptions of these preparations highlighted physical as well as emotional aspects that were involved in preparing for surgery and recovery. The participants viewed preparing themselves and their homes as a step towards successful surgeries and as a way for them to alleviate some possible anxiety.

Colleen, while confident that she had the information and the support that she needed, also relied on information from the class to begin her preparations and her recovery. She noted that the experience of seeing physical exercises demonstrated for her made it easier to know that it could be done, and since it was someone who had already had a knee replacement, she was assured that it was all possible. “I think because I studied the exercises and then of course I’d had in-house physical therapy, I think the preparation helped me understand what I needed to do to get the strength back in the affected leg.”

Julie described anxiety that she carried from the class experience and how it influenced her preparations for surgery. She had even threatened to cancel her surgery before getting to her process of recovery:

He just said things that made me so nervous and so scared that I sat there, and my husband said to me, he said [the class leader], “What did I do? Because you look like
you’re absolutely incensed.” I walked out and I said, “I’m going to go now and cancel the surgery.”

As Julie prepared for her surgery, her experience prompted her to seek information from family and friends and to take steps that made her feel better about the possible outcomes of surgery. Her preparations included preparing for her funeral and declaring her final wishes. She described this as a calming experience knowing that it was something her family would not have to worry about.

Molly relied on her family for meals and for support in preparing her home. She recalled that the class gave her an opportunity to consider what needed to change in their house to help eliminate the potential to fall, which was one of her fears. She described it as: “No area rugs and make sure that you have a clear path, and make sure that your walker can get through these areas without hitting anything, and you don’t want to fall.”

Molly also said the class was instrumental in how she was going to get home comfortably following her surgery:

My husband has a truck, so I have to step up. She even went so far as to tell me how to accomplish that with ease of movement. I thought, “Wow, this is amazing.” I explained that to my husband.

Annmarie also talked about preparing her home with the support of her son, and how important it was for her to be ready:

I bought a whole bunch of frozen food because I knew I’d probably wouldn’t be cooking. I prepared that way, just to make sure I had everything as far as milk and half-and-half, and coffee, made sure that I had things.
Shirley felt that the class had encouraged her to get the right equipment and make sure that she had discussed it with her family. Thinking back over the experience, she recounted that the “encouragement” was important. She said, “I don’t know if it helped me prepare. It made me go ahead and buy an ice machine. Encouragement that you’re going to really want to have this if at all possible.”

Francine said information from the class helped her prepare a plan for her home. She said, “We didn’t have too much in the way of loose, slippery scatter rugs or anything like that, but if there had been, I had an opportunity to fix things so it would be as safe as possible for me.”

Jennifer described information from the class affecting the decisions that she made in concert with her family for her recovery:

There was one more thing I could tell you that the class changed, was because my sister was there, and she knows I live alone. After we heard together some of the things you can expect after the surgery, she was insistent that I spend a couple days at her home before I went to my house where I could have people around me and make sure I could take care of myself before I actually went to my own house. My plan before the surgery had been to go home and she would stay over one night at my house, but after we listened to everything, we thought it would just be easier for me to go to her house for a couple of days, which is what we ended up doing. That did affect how I did my postoperative care.

Suzanne, like the other participants, took information from the class to heart and began to make changes around her house. She relocated furniture and set up a room on one floor of her house. She felt that she had the information that she needed to get home:

As far as information when I got home, I was pretty much told everything that I needed to do when I got home. I had already prepared for all the furniture and everything I needed,
so other than that ... Once I got home, everything was pretty much here, and I think I was pretty well prepared for when I got home.

In summary, all of the participants took actions to prepare their homes, themselves and their family. These actions were all influenced in some way by what was learned in the class. The preparations were informed by reasoning and role development using information that was gathered and assimilated through the class and other interactions. For some, having family or friends present during the class was related to their preparations, and this was also reflected in how they felt about their ability to prepare.

**Empowerment**

All of the participants described experiences that were related to taking part in health or healthcare related activities, such as advocating for themselves, conducting research on the process or outcomes of care, or involving themselves in the process of care. In many aspects of engagement, the participants described a reciprocal relationship between the information that they received and their advocacy. The superordinate theme of *Empowerment* is comprised of the subordinate themes of *Confidence* and *Capacity*.

**Confidence.** The participants all described a point when confidence was recognized or became evident through recollection. The experience of confidence was described along with aspects of engagement, including transformative learning. For each participant, confidence was important in decisionmaking about preparing for and recovering from surgery.

Colleen talked about working with her physical therapist to improve her confidence through a focus on exercises and recovery, saying:

I think because I studied the exercises and then of course I’d had in-house physical therapy, I think the preparation helped me understand what I needed to do to get the
strength back in the affected leg. My PT worked very carefully with me on trust, and I doubted that I could get into the tub, you know, sit on the tub stool, but he absolutely showed me how to do that.

Even before surgery, Colleen was feeling confident about her plan, describing her perspective as being in “total control”:

I did talk to the anesthesiologist, had phone numbers for a bunch of people if I had questions, so I felt very confident that I knew what I had to know, I need to be prepared. I don’t want to just wait until that morning.

Julie, in comparison, struggled with feeling confident. She said, “I was terrified to begin with, so I walked in very very nervous.” Her experiences leading to surgery and after were dominated by anxiety. She did recall building confidence through discussions with the preoperative screening nurses and her physicians. Her confidence was still limited:

They told me just enough so that they, you know, knew they were kind of calm my fears, but they weren’t very honest with me. I would prefer people were honest and just said, “You know, this is really, really hard. This is going to be the hardest thing you’ve ever done in your life, physically.”

Julie further described her experience with control and being in the hospital after the surgery was complete, saying:

Oh, I felt like I had no control. That was one of the largest issues. Because, you know, I am a human being, and I have control issues, and when in the class he talked about having absolutely no control ... You know, “We’re going to get you up. We’re going to feed you. We’re going to tell you when to do this.” You know, “We’re going to tell you
to put stuff up your nose. We’re going to tell you to wash your body. We’re going to tell you when you can’t shower anymore.”

Molly built confidence through the class and her professional experiences, which influenced her research. She had identified a particular anesthesia choice that she pursued and discussed with the anesthesia service before surgery:

Everyone has a different tolerance and threshold is so different, and I don’t know if you can really, really prepare yourself for what this is going to feel like. Had I not had the spinal and the femoral block I would have been in far more pain. I really thought I’d be more scared coming into a room and just seeing the equipment and the rows of all these instruments and the girl even touched on this about the coldness of the room.

Annmarie talked about her confidence in handling and managing her pain levels and described her approach by saying, “Yeah. It helped me, like I’d mentioned, a lot with pain management, that don’t be a martyr and try to do without some medicine because you’re really going to be hurting if you don’t get the proper treatment.” She continued to say:

I guess I was pretty confident but again not knowing what to expect or how I was going to feel. I guess I’d say that probably like one out of 10 I was probably a five. I really didn’t know what to expect. I guess like after I did it I felt better about it with the cane and everything. It was very fine.

Shirley developed confidence in her abilities and in her self-concept through her physical therapy in the hospital and from her experience as a provider.

Yes. When I actually questioned, and I forget what it was, something, they went back, and I said, “Well, I’d like you to discuss with the physician before you do that,” and they
did. Gosh, I was taught a lot different when I was a floor nurse. That’s critical, but I just think people need to be informed. Whether they’re interested or not, at least tell them. She said that her confidence peaked once she was home saying it “was pretty high, and I had everything I needed on one floor. Maneuvering with the walker was not a problem. In fact, the walker went away after three days.”

Francine said her experience with the class contributed to her confidence because she knew what to expect and what she could prepare for:

I felt better prepared in that I had done the class and had all the information that they provided, and I had done that and as well, had information from my surgeon’s office. It just contributed to my feeling as if I was as well prepared as I could be.

Even with the confidence that she had built in the hospital setting, she said that she felt “unempowered about how little I could do for myself.” She described feeling a “pretty good level of control” as she arrived home. Talking about the whole experience, she said, “You know, [I] have total confidence that things will be good versus other people who have gone through a lot of bad things over and over and so maybe they just don’t care.

Jennifer had confidence in her ability to participate in her recovery due to knowing what exercises would be required and the process she would need to follow:

I knew the four exercises they give you to start doing right away, and the breathing thing, all the things to prevent clots and everything, that basically you have to take charge of yourself and do these things so that you can get better. It made me feel very empowered to take care of myself.
Jennifer finished her thoughts by saying “the class itself might’ve just benefitted in my feelings of being prepared and if I thought that it helped me better prepare myself or if I was better ready to take care of myself, right?”

Suzanne talked about the preoperative class as being one of the factors that helped her gain confidence about deciding to undergo surgery:

That [the class] kind of made my final decisions to go ahead and get it done because it had gotten to a point where I couldn’t even go up or down stairs. It was almost childlike; I was having to go up and down stairs one at a time. It really needed to be done, so that did make my final decision as far as that. Going to that class and knowing that there was such a good support system there.

Suzanne also noted a relationship between her confidence and her commitment to recovery, saying:

There were days when... “I really don’t want to do this,” or “Okay, I’m only going to do 10 today instead of 20.” But you’ve got to keep going. The more you do... If you do 10 today, do 15 or 20 tomorrow. Do as many as you can do to strengthen your muscles and to get that knee better.

In summary, each of the participants had experienced confidence, and changes in confidence, as a result of the class and the process of preparing for and recovering from surgery. For each participant, the feeling of confidence was not static; it was described at different levels at different times. In describing confidence, the participants also referred to feeling control, indicating that they recognized a relationship between their confidence and ability to feel in control.
Capacity. The subordinate theme Capacity refers to the experiences from which each participant built understanding and the ability to take actions related to care. The participants described how they felt about their capacity to act. Capacity was described by the participants as a dimension of ability that was supported by confidence.

Colleen described what could be seen as an exceptional experience with her surgery and recovery. She built capacity through interactions with her surgeon and with her physical therapists. “I was already working on exercising to get myself as physically able as possible. This [the class] was all the same surgeon, but when I had seen him ahead of time, he just said, ‘Keep doing what you’re doing.’” She described her progress at home as being a result of the capacity that her family and therapists helped her to build:

Yeah, pretty quickly was able to mostly dress myself. My husband still puts on my compression stockings because I can’t get them on the surgical leg. Yeah. I was very well supported in doing whatever I could for myself, and then the physical therapist, whom I saw for eight sessions, he was all about functionality and, “How are you going to sit, and how are you going to stand, and how are you going to walk?”

Colleen also shared her belief in the “process,” which added to her capacity by generating trust in the providers and the hospital:

One thing is clear throughout this process is they do a lot of these. They know what they’re doing, so I was pretty trusting, and then when I was able to stand up and then by the, okay, so it was surgery, Day 0 they called it. Day 1 I was walking to the bathroom with assistance, and then Day 2 I was walking down the corridor by myself with the walker, so you know the proof was there, right?
Julie’s negative experience with the class and her anxiety reduced her confidence and her capacity to act. She described feeling discouraged and identified elements that other patients, friends, and family would note as important in building capacity. She wondered:

Can they bring in an anesthesiologist? Moreover, they bring in PT people, and they bring in nutrition people, and they bring in patients. This was just this one arrogant man talking to us for two hours. It would have been nice to hear from, I don’t know, other people, and meet other people on teams. There was no opportunity.

Annmarie, in talking about some of the points made in the class she attended, identified some of the ways that she built capacity to engage in her care:

They told us to bring out a couple bottles of hand sanitizer and to make sure that whoever looked in on us or whoever touched us had used it. They said don’t be ashamed to ask, “Did you wash your hands?” Because that infection is nothing to mess with.

Jennifer, like Julie, had an experience that exemplified what may be necessary to support engagement:

It wasn’t clear to me in the handbook, but they described that once you went to your first physical therapy class in the hospital, they would make sure that you were able to leave with everything that you needed, and their case manager would help assist you liaise with the insurance company to cover the expense of everything. In other words, they encouraged you not to go out and buy a bunch of stuff that you might not need and that they would help determine what you would need, so that was one question that was answered ahead of time, or by the class.

Molly built capacity through her actions and her follow-through with recommendations that were made during the class:
Not being able just to take care of myself that way was, and having to rely on somebody 24/7. I mean in the beginning, I was too scared to go to the bathroom by myself. My biggest fear was falling because we talked about it in surgery that it’s easy to fall. We talked about removing rugs; Rick took the scatter rugs out of the bathroom. Made sure that my path was clear and they talked about that in the classes. He did all that for me, but I was afraid maybe of falling because she talked about the incidents of breaking a tibia or fibula after this kind of surgery with a fall.

Shirley built capacity through knowledge of what would be happening; she was focused on knowing what to expect:

No, I guess the class helped me prepare for, “You’re going to get up and go to therapy, so clothing-wise you might want to have a pair of shorts, have your lace-up sneakers or whatever shoes you’re going to wear home.” The class did help with that.

Francine described feeling comfort in knowing that she would have the proper equipment that she needed for recovery in her home:

It was somewhat reassuring, in that they were able to zero in on specific things and even give us information about local places to get the equipment, like walkers, and basically, also reassure us that if we had any questions leading up to the surgery, we should feel free to contact them.

Francine also described how it felt when she was able to try out the proper walker and ensure that she was able to ambulate freely; this reduced anxiety:

I had a chance to get the type of walker that they said to get, which I might’ve picked the wrong thing if I had been left on my own, so them telling me specifically what to get was an advantage. Further, I actually was able to borrow one from a neighbor, and I was able
to take it around our condo and see if I could make the turn from the hallway into the bathroom and go around the living and dining room area and so on to see how that would be. I felt better prepared in that I had done the class and had all the information that they provided, and I had done that and as well, had information from my surgeon’s office.

Suzanne recalled capacity as stemming from two aspects of her experience. First, she was excited that her family was welcomed into the process and that they were able to help her through her recovery, in part because they also attended the class. She said:

I wouldn’t have been able to do that. So my sister and her husband, they actually had a recliner in one of their sheds. And I rearranged furniture to implement for that, and I did sleep in that recliner for a couple of weeks.

Second, Suzanne was happy that all of the supplies and materials that she would need were available to her in the hospital:

They also had ice machines if you were able to purchase an ice machine or rent one, they had that there; showed you how to use it. They did give you a book, which, I cannot find mine. I have found everything else, as far as all my paperwork from the hospital, what they gave me afterwards, but I cannot find the book they gave me for the classroom.

In summary, the participants described the subordinate theme Capacity in relation to confidence, but differentiated between the two experiences, expressing capacity as building from their actions, and confidence as building from their learning and inquiry.

**Conclusion**

The purpose of this interpretative phenomenological study was to understand the relationship between the eight participants’ experience in preoperative patient education classes and their lived experience with total knee replacement as they prepared for and recovered from
surgery. This chapter presented the research findings through six superordinate themes. The first was *Preoperative uncertainty*, which reflected the participants’ fears and concerns about the surgery and recovery through three subordinate themes: *Anxiety, Information seeking* and *Class engagement*. The second superordinate theme, *Information assimilation*, reflected the process of sense-making and was comprised of two subordinate themes: *Introspective reasoning* and *Prospective reasoning*. The third superordinate theme, *Role development*, related how participants made sense of all of their experiences and how their *Self-view* developed with *Psychosocial* and *Self-comparison*. The fourth superordinate theme, *Behavioral triggers*, dealt with how participants related ability and motivation with triggers for action through *Accepting help, Challenges to ability*, and *Activation*. The fifth superordinate theme was *Engagement*, which was supported by *Transformative learning, Self-advocacy*, and *Informed preparations*. The final superordinate theme was *Empowerment* of the participant, which was comprised of *Confidence* and *Capacity*.

In summary, a significant number of factors influenced the experience of preoperative patient education classes. The participants’ descriptions demonstrated the importance of the relationship between education and the ability of the participants to engage in their health and healthcare, and to recover physically.
Chapter 5: Discussion

The study investigated the lived experience of patients preparing for and recovering from total knee replacement surgery. The research question was: How do eight women who experienced total knee replacement make sense of their pre-operative education and recovery? The study addressed the question using semistructured interviews. The utility of preoperative education classes and the degree of empowerment felt by women during and after the surgery will be evaluated in this chapter. This chapter is presented as much as possible in alignment with the results identified in the previous chapter. Relationships between findings and existing literature are discussed, followed by an overview of the patient health engagement (PHE) model and subsequent discussion of it. An overarching summary of implications for practice will be presented following the themes, along with a chapter summary.

The significance of the study was derived from a need to improve patient outcomes from total knee replacement surgery (Thomas & Sethares, 2008). Hospitals have been pressured by advances in technology that support faster, less invasive operations and reduce the inpatient length of stay (Johansson, Salanterä, & Katajisto, 2007). The result was a reduction in the opportunity to deliver adequate patient education, which Pellino et al. (1998) identified as a pathway to patient engagement and empowerment.

The discussion will address the information seeking and sense-making of participants, the situational scanning and evaluation of expectations, the application of knowledge before and after surgery, and enhanced engagement.
Findings

Uncertainty and Sense-making

Uncertainty experienced before surgery motivated each of the eight women participants to seek information about surgery and recovery. Each participant experienced uncertainty or doubt before her knee replacement surgery, which was characterized by the use of the phrase “to know.” Each wanted to know what to expect, to know what would happen, to know about decisions that needed to be made, and to understand what the results would be. The prospect of surgery introduced uncertainty and anxiety related to the surgery itself and its implications for daily life. Kagan and Bar-Tal (2006) noted the significance of uncertainty before joint replacement and a correlation between preoperative classes and reduced patient anxiety, with improved outcomes reported by patients. Anxiety before surgery has been correlated with dissatisfaction with surgical outcomes in comprehensive reviews of the literature (Alattas, Smith, Bhatti, Wilson-Nunn, & Donell, 2017).

The feeling of uncertainty yielded questions designed to build knowledge about surgery, the process, and recovery. Participants sought information that would enhance understanding, allay fears, and help them know the process of surgery and recovery. The process of seeking information included social and other networks, which generated and guided questions that were presented in the preoperative classes. MacDonald & Kuiper (1983) identified reductions in anxiety as a way to improve outcomes, saying, “it is necessary, therefore, to demonstrate the effects of preparation both for preoperative anxiety and for postoperative recovery” (p. 32). McDonald et al. (2004) also noted that preoperative education might be a useful preparatory step for patients who are experiencing emotional instability, depression, or unusual expectations.
Situational Scanning and Evaluation of Expectations

This study found that preoperative education reduced some anxieties while creating new ones, but it also empowered patients to seek information both inside and outside the class. The participants were continually scanning for information and evaluating that information against formed expectations. The result was a developing self-concept; participants were able to absorb and handle new uncertainties and anxieties that arose as they moved through the healthcare continuum. Hampson et al. (1994) suggested that the personal model of illness was the representation of “beliefs, emotions, knowledge, and experiences” (p. 144), which can be broken into components including identity, timeline, consequences, cause, and cure. Participants actively reasoned about their experience using information gathered and vetted in the preoperative classes.

Patient expectations can be viewed from two dimensions: “they can be probabilistic reflecting the perceived likelihood… alternatively, related to a particular outcome or event” (Zywiel et al., 2013). The assimilation of information by study participants resulted in a probabilistic view of expectations. It was a continuous evaluative process that was both introspective and prospective in nature. The knowledge compiled through a participant's engagement in class was balanced against developing personal expectations and hopes for surgery and recovery. A concept of self-view was formed and projected towards the future, which influenced the decisionmaking process especially with regard to preparing the home and recovering from surgery.

Role development was marked by generating and accepting expectations that were generalized to what “they want.” These clearly followed from the “to know” stage, when participants began forming individual expectations. Participants described what they believed
educators and providers wanted of them using phrases like “they wanted me to, they said that I had to, etc.” Participants recognized influences related to involvement in care and recovery. This development was more pronounced as participants became increasingly comfortable with their expectations and as they began preparations for surgery, including focusing on anesthesia as a point of engagement.

Multiple sources, including physicians, family, friends, and educational materials delivered during the class, became points of reference against which participants evaluated their roles. As with their assimilation of information, role development was not static, but rather was a dynamic and continually shifting process. The participants continued to compare and contrast their experiences with others, identifying similarities and differences, creating a context for surgery and recovery, and creating the roles that they would take in recovery. Participants used phrases like “the others,” “there were people who could not…,” “I was doing better than…,” to illustrate how they perceived themselves in relation to others, which demonstrated how they saw themselves and their roles developing.

**Application of Knowledge Before and After Surgery**

The study showed that participants linked preoperative education to surgery-related planning and preparations. All participants experienced challenges requiring specific actions or a particular pattern of behaviors; these behaviors were influenced by perceptions of ability and ultimately the level of motivation. Participants developed personal meanings through their previous experience with OA that they likely carried into the knee replacement education and experience. These personal meanings were not always explicit, but they were present in decisionmaking and in how participants viewed themselves in relation to the process (Toye, Barlow, Wright, & Lamb, 2006).
The challenges after surgery came in multiple forms, including personal and familial emotions, physically with ambulation, and within provider relationships like physical therapy. The participants all recognized specific feelings during the decision-making process; the information gained and how it was learned influenced individual preparations for surgery and steps taken in recovery. Bandura (1977) identified a relationship between self-efficacy and motivation, saying self-efficacy is directly related to health behaviors. The sense of control facilitates changes in health behaviors. In this sense, it is both reciprocal and evaluated continuously until there is an interceding factor (Schwarzer, 2001).

**Enhanced Engagement**

The study found that class participants’ engagement was enhanced at several points. It was influenced by information related to the preoperative class, including activation, self-advocacy, preparing for surgery, and adherence to rehabilitation. Patient activation, according to Hibbard and Mahoney (2010), is “the degree to which the individual understands they must play an active role in managing their health and healthcare.” Hibbard (2010) further described the behaviors of patients with higher activation scores as being “in control.”

The participants all elaborated on when their motivation and their ability to act aligned with a specific trigger, which resulted in actions related to surgery. Participants demonstrated engagement through advocacy for anesthesia choices and involvement in the decision-making process. Forbat et al. (2009) identified focuses related to engagement that applied to preoperative patients and knee replacement, including participation in the process, decisionmaking, and a co-production of knowledge. They defined engagement as a working partnership rather than a cause-effect relationship. Such a relationship demands that providers be aware that the
connections between information assimilation and role development are more than just the transfer of information.

**Becoming Empowered Patients**

The study found that participants were likely to have a link between their perceptions, their self-view, and their ability make decisions about their care. Hibbard and Mahoney (2010) suggested the meanings that patients assigned powerfully influence behaviors. Advocating for oneself is emblematic of empowerment. Bandura (1998) argued that empowerment also requires changes in the actions of social systems before we can begin to improve individual health. We must empower individuals to assume a collective approach to health efficacy that recognizes the role of health policy initiatives. Barello and Graffigna (2015) stated, “Only by understanding the experiences and interpretations of patients about their diseases, and their treatment is it possible to orient interventions that can answer their needs and expectations” (p. 41). Empowerment for joint replacement patients was built upon equitable relationships, some that differ from the traditional views of patient-provider. In this juxtaposed role, we see power shifting from the physician back to the patient. The driving forces of the shift are information and technology, as well as the application of science (Loft, McWilliam, & Ward-Griffin, 2003).

Knowing the process and developing relationships with course leaders was empowering to the participants, and also enhanced their perception of learning. Johansson et al. (2005) summarized the relationship between preoperative education and empowerment:

> In the future preoperative orthopedic patient education needs to show a more innovative approach and pay more attention to the patient’s own participation needs. Empowerment by education should be recognized as the red thread in patient counseling and education, both in practice, teaching and research, because recent trends in development in modern
society (shorter hospital stays, scarcity of nursing resources) mean patients have to assume more and more responsibility for their care, and in this situation it is crucially important to take into account the patient’s resources (p. 221).

As empowerment increased, so did self-efficacy, which participants experienced through their beliefs about their skills and abilities to engage in their care. Furthermore, the participants described emotional connections between their perception of ability and engagement in recovery. At the most basic level, belief in our capacity activates our ability to cope with stressors that come along with illness. There is also a need for supportive relationships in themselves (Bandura, 1998).

**Implications for Theory**

**The Patient Health Engagement Model**

The study was guided by the patient health engagement (PHE) model, which views the engagement of patients as an evolutionary process. The framework defines patient engagement as “a function of the synergic evolution of the patients’ cognitive, emotional, and behavioral attitudes towards their health and care management” (Graffigna & Barello, 2015, p. 40). The findings of this study aligned with the model. The PHE model recognizes patients as informed decisionmakers, as mediators of individual priorities, and as evaluators of rational interests; the model shifts patients from “merely disease carriers to people who make realistic decisions” (Graffigna & Barello, 2015, p. 29). Hampson et al. (1994) suggested that the personal model of illness is the “representations of their disease, including their disease beliefs, emotions, knowledge, and experiences” (p. 144), which can be broken into components that include identity, timeline, consequences, cause, and cure. However, patients develop distinct differences in roles, expectations, and intentions. “Personal models of OA are shaped by personal experience
with the disease, which includes encounters with health-care providers.” (Hampson, et al., 1994, p. 155).

The PHE model suggests that experiences with chronic illness, such as OA, trigger and develop an identity that is intertwined with the individual patient’s perspective and mediated by sense-making processes. The PHE model presents engagement as a continuum along which patients progress, beginning with an event that creates a period of uncertainty, or blackout. Patients progress into arousal and begin to assimilate with the concept of disease. As self-concept forms and information is gathered, patients recognize emotions and begin to develop their role in care. It is this point on the continuum, adhesion, at which participants assign responsibility to themselves and begin to demonstrate engagement. Finally, patients transition from adhesion to a position of complete and total acceptance, the eudaimonic. Patients at this stage are fully engaged and assigning meaning to their role, using knowledge and experience as a vantage point for their decisions. This is when empowerment emerges. It is perhaps the most salient point from which preoperative education programs may be viewed to understand the experience of the patient and subsequent empowerment better because it represents the confluence of education and behavioral skills (Barello et al., 2014).

Discussion of the PHE Model

The PHE model did not specifically address the term uncertainty. However, the model does suggest that there is a period when stress, or in this case anxiety, can lead to cognitive blindness or freezing, which was reflected in the experiences of the participants. When participants talked about learning of the prospect of surgery, they recognized the uncertainty, describing it as decreasing over time. The model suggests that this destabilization of the norm
leads participants to seek information and generate knowledge as a way to move towards acceptance and action, which reflect movement along the continuum of engagement.

Preoperative classes are part of an educational process that the PHE views as a critical step in enabling patients to move towards the arousal stage. The PHE model suggests that patients move through a dynamic and evolutionary process of creating an identity based on their perceptions of health and information gathered (Graffigna, Barello, Bonanomi, & Lozza, 2015). The participants explicitly talked about how they had formed and projected an identity that was tied to experience. Furthermore, the information they sought and the relationships they developed within the process were meaningful, which agrees with the model.

The PHE suggests that patients mediate their identity by continual reframing and evaluation of their position through emotional and behavioral processes (Graffigna et al., 2016). This was demonstrated through the participants’ information assimilation and subsequent role development. Graffigna, Barello, Bonanomi, and Riva (2017) explained the relationship between assimilation of information, role, and engagement, saying the “PHE model, in particular, adds a specific focus on the emotional dynamics occurring when individuals elaborate their patient identity role along the medical journey” (p. 7). The important information gathered through classes, social relationships, and formal roles is drawn into the process of reasoning and influences how participants see themselves.

**Participants and the PHE model.** As the information provided to patients was operationalized in care, it was clear that there were points in time when patients began to experience the roles they had formed in concert with the feelings expressed and assigned. The PHE model provided a lens through which we could view feelings, emotions, and behaviors associated with health and link them to the participant experience. Seven of the eight participants
appeared to reach the eudaimonic stage, but five could identify points when they wobbled back towards adhesion. Each of the participants’ interactions with the PHE model will be briefly summarized below.

Colleen began with her need for information and details about the surgery, specifically the anesthesia process. Knowledge for her was valuable in making decisions about taking care of herself and being prepared. She demonstrated positive affirmation of her choices through the information that she gathered, including her decision to move from seeking information to adjusting to her situation and taking control. She discussed the importance of exercises and physical therapy. Colleen captured the bidirectional nature of the PHE framework by saying: “It is not a straight line improvement. Some days you’ll feel pretty good and be very optimistic and other days, you know, be careful because you are going to feel discouraged.”

Julie struggled with engagement and moving along the continuum more than other participants; she often moved backward, discussing her “utter lack of control.” Julie described an experience fraught with anxiety and control issues, but she took actions related to the stage of adhesion. She sought opinions and information, she was not afraid to make her issues known and to advocate, and despite uncertainty that lingered, she felt that she should go ahead with the surgery. She demonstrated the influence of her learning experience in her recovery, seeking to beat the curve and accelerate her recovery, but she did not show full understanding, which seemed to be hindered by anxiety.

Molly elaborated on how impressed she was by the experience and how her learning related to empowerment. She noted feeling empowered, using the information to prepare her home and to change her practices in the home, and discussed the exercises. There was also a relationship between the class and her overall approach to recovery; she was able to step back
from her role as mother and caregiver and consider how her husband could help. Molly noted that the learning experience had oriented her to the type of pain, its duration, and some of the critical aspects of managing the pain. “She taught me these things, and I just took one day at a time, and was confident that I was proceeding the way I should be.”

Annmarie was an excellent example of a participant who understood the importance of the information presented in the class and had evidently ascended to the eudaimonic stage, but also wobbled back to adhesion. She used information to interact with her caregivers and demonstrated her level of process control. She also demonstrated a relationship between what she had learned and how she felt about anxiety. However, she also recalled that she was “amazed at the emotional toll it [surgery and recovery] takes on you. Not only is it physical but emotionally.” She was referring to points of inflection that she ultimately balanced against her role and self-perception.

Shirley had the most linear progression to the eudaimonic state. Like other participants, she was interested in understanding the process of care as it related to her recovery. She felt that talking with the anesthesiology department was important so she could voice her preferences for anesthesia. However, she also described being very confident, in part because of medical experience and in part because she felt empowered with the tools she needed to be successful.

Francine also felt empowered, but was more focused on the relationships among the class leaders and her needs than on the information that was delivered in the class. She considered herself to be better versed than some of the other participants. Although she was still anxious about the surgery, she described being able to overcome that anxiety. She noted that having the ability to talk with the class leaders and others before surgery alleviated some of her anxieties, and she took an active role in contacting them.
Jennifer was able to use information from the class in preparing her house and also in taking the proper steps to get herself ready for surgery, such as stopping certain medications before surgery. This helped her feel as though she was ready. She noted that she felt comfort from the level of standardization she observed in how care was going to be delivered. She noted that the exercises were critical to feeling better, and completing them allowed her to feel as though she was empowered. She established a relationship between her learning experience and feeling less anxious about her recovery through exercises.

Suzanne echoed these sentiments, noting the relationship between classes and her ability to look towards the future, to prepare her home, and to prepare herself for the recovery. This brought her comfort. She was unsure about surgery before attending the preoperative class; the class helped reassure her and her family. She was unique in that she had a number of family members attend the class.

In summary, all of the participants demonstrated engagement in their care (decision-making, assimilation of information) and their health (physical therapy, medication management). The PHE model was instrumental in understanding this process and the relationships between the participants, their disease, and information.

**Considerations for the PHE model.** The PHE model addresses relationships with providers but does not elaborate on the potential of relationships with educators. Although a slight distinction, this is essential and aligns with the intent of the model, given its focus on levers for progressing along the continuum. Educators are clearly involved with one of these levers. The model, understandably, places a high value on physicians. The delivery of information to patients is a multifaceted process that relies on health literacy and health promotion, yet physicians cannot be the sole locus for it. The authors of the model recognized
that engaging patients in health and care decisions should be part of a more holistic model, which would include preoperative education (Graffigna et al., 2017).

The PHE model incorporates several behavioral assumptions and elaborates on how they change as participants move along the continuum of engagement. The changes include a maturing identity and increased ability for actions related to health and care, which agrees with self-efficacy as described by Schwarzer (2001) and Bandura (1977). This point in the patient engagement process is represented by cognitive understanding that is moving towards sense-making; acceptance of state, which is shown through elaboration; and self-management practices that are becoming situated in the lives of the patient. In empowerment, the focus shifts to the psychosocial aspects of health as well as to self-efficacy (Pellino et al., 1998). However, the PHE model does not recognize the possibility of a cure. Instead, it remains focused on management of chronic illness.

It is clear that the participants moved along the continuum from diagnosis of OA, to the management of the symptoms, to a decision about knee replacement. Each aspect of the experience was clearly reflected in the PHE model. However, the PHE model does not elaborate on what happens when knee replacement patients reach the point of a cure for their chronic OA. In this study, participants remained highly engaged and moved towards building a sense of community, which they described as including those whom they turned to for informal advice and information before surgery.

Hibbard (2009) suggested that the ability to engage in care includes other factors, such as how the clinician interacts with the care team, influences on the patient from churches and family, and other ways in which patients receive support. It is understandable that the model does not consider this because chronic illnesses rarely have a cure. Each of the participants
recounted receiving information from external sources, and those who reached out to family or friends who had experience with knee replacement valued that experience highly. It would seem that a fifth category for the PHE could be community membership, which would also reflect participants with chronic illnesses.

**Implications for Practice**

The implications of this study for practice are far-reaching. Understanding the relationship between preoperative education classes and the empowerment of women following surgery has value to patients, to providers, and to educators. Existing preoperative courses could incorporate slightly different approaches to improve the delivery of education that, in accordance with the PHE model, would meet the participants at their level of understanding to foster greater engagement in care. These approaches include improving the use of technology in preoperative classes, aligning the educational message across the organization, and creating lasting relationships and community.

**Improve the Use of Technology in Preoperative Classes**

Given that all of the participants sought information from sources other than the preoperative class, there remains an opportunity to improve and innovate the way preoperative patient education is delivered. This is already happening due to greater reliance on and acceptance of technology as a modality for delivery, but more is required. Participants mentioned searching the internet, watching videos, and using online communities and Facebook pages. This research also used social media as a platform for recruitment. A recommendation for practice is to improve the timing, consistency, and tone of the message to meet the readiness of the audience. Another recommendation is to provide education when it is most useful, and to create
an environment in the classes that is supportive, delivers the information, and creates an avenue or relationship for follow-up and questions.

The evolution of education as a tool for engagement has improved the experience of patients and also alleviated some of the pressures placed on providers to manage multiple chronic illnesses. The responsibilities of patients and providers have evolved along with technology, and also along with the more significant specialization of healthcare (Forbat et al., 2009). Forbat et al. (2009) noted that “regardless of the reason for the change in the patient's role, these developments assume and require knowledgeable, sustained participation by patients, regardless of their age, sex, ethnicity, income or health status” (p. 351).

**Align the Educational Message Across the Organization**

With all of the different points and avenues through which information is provided to patients, delivery organizations should be delivering messaging that is as clear, concise, and timely as possible. Barrello, Gaffigna, and Vegni (2012) identified a surprising alignment in the literature about the importance of patient engagement, especially as it relates to the entire organizational perspective, including nurses and other staff. The participants placed a high value on the learning experience and were able to identify which information was useful and what they felt was missing. All participants identified information that they wished they had known. From an institutional and educational standpoint, this valuable insight speaks to the issues encountered by participants and how the delivery of education can either improve or become continuous.

Recognizing that education requirements have expanded past the walls of the hospital, it may also be time to research and adopt systems that reach past the traditional stand-and-deliver educational approach to include emails, video check-ins, and other means of continuing the educational experience. The primary trajectory of the comments fell outside the acute recovery
phase and illustrated the participants’ desire for continued integration of information with recovery. The preoperative class might be best conceptualized as a hybrid, delivering information in a face-to-face format and using other modalities to facilitate continued engagement with the learning process.

Hoving et al. (2010) noted that since the 1960s there has been a dramatic shift in technology and in how we view and approach medicine. Today, we are accustomed to seeing information, pamphlets and websites. In fact, there may be too much information. Therefore, it becomes important also to recognize that the use of technology and enhanced messaging must be balanced. Providing ways for participants to follow up when they need to may alleviate some concerns around messaging. Several participants noted that they were impressed by getting contact information or follow-up phone calls from the class leader. This led participants to consider the caring relationship as being more profound. With one exception, the continued involvement of the class leader was welcomed by the participants.

**Create Lasting Relationships and Community**

The relationship formed between the participants and the class leaders was critically important to how the participants viewed the efficacy of the preoperative education. Furthermore, the classes that included physical therapists were viewed more favorably, and there was more utility to the information because it had a personal connection.

It was clear that participants also placed a great deal of faith in the experience and implied expertise of those who shared the preoperative class experience. This included attendees with previous joint replacements, family friends, and providers. Participants noted seeing the same nurses and therapists from the class. Organizations involved in planning and developing the
delivery of this type of education may want to consider increasing experience and transferring that experience among the class attendees, thereby creating a community of learning.

In order to tailor education, the class leaders and delivery organizations may be better served by evaluating the level of experience that participants bring to the class before delivering the instruction. The Patient Activation Measure (PAM), as defined by Hibbard and Mahoney (2010), would be valuable in establishing the relationship between participants and subsequent actions. Assessing PAM scores prior to the course would improve the efficacy of the education and materials delivered. Regardless of the level of understanding present, it is likely best that the classes be more inclusive and deliver more information, as opposed to just more targeted information (Soever et al., 2010).

There are significant aspects of consumer psychology that suggest relationships with patients would be much stronger if their autonomy was unimpeded and their opinions about experiences were solicited (Mittler et al., 2013). To the extent possible, the design and delivery of education for patients should consider including patients in the process as reviewers, although research on their experience is required. The voice of the patient is essential. Patients are experts too. The level of knowledge held by the classroom participants was impressive. They all had some experience or interaction with pain or dealing with physical therapy, considerations for surgery, previous knee surgeries, and so on. It was clear from the participants that they were looking for community among themselves and thus were turning to other sources of support, including online communities.

**Limitations and Recommendations for Future Research**

This study has limitations, as any research study does. While every possible effort was made to recruit both male and female subjects, the panel was comprised of eight women. The
response to the request for research participants skewed heavily towards females. Despite three of 16 volunteers being male, they were all either disqualified or lost during the follow-up. Although the design was intended to include both men and women, the participant panel was comprised of all females. Additional attempts to recruit male participants did not yield qualified participants. Although national data shows that more women are experiencing OA and more women are having knee replacement surgery, the lack of male participants remains a limitation of the study.

The sample size of the study was intended to be 10 participants, but the eight who qualified were in line with IPA expectations. Eight participants offered ample opportunity for meaningful evaluation of participant experiences. Also, the data collected was not so overwhelming that themes were lost. The variation in class locations and content provided a unique opportunity to identify the overarching experiences of the participants, yet it also prohibited generalization of different experiences in the same atmosphere and with the same educational material.

Having a male researcher interpreting the experience of female participants is also a potential limitation of the research. Although the questions and the framework for the research did not call attention to gender in any specific way, participants may have been less forthcoming to a male interviewer. Additionally, as a man, the researcher may not have been able to identify and interpret themes that were important to women participants.

Finally, the research is limited in its generalizability to the exact impact of the educational experience derived from a single institution or approach. The participants took part in preoperative patient education that was delivered with different methods, content, and by various leaders.
Future Research

Future research on preoperative patient education for total knee replacement patients should focus on several important questions. How can the preoperative class best deliver information to participants? What is the best theoretical perspective from which we can evaluate preoperative education courses and their impact? How can delivery organizations enhance patients’ abilities to identify information, consume that information, and create actionable opportunities for care?

**How can the preoperative class best deliver information to participants?** The future of preoperative education will be based on how well the materials are developed and delivered to each individual patient, as opposed to each group of patients. The current approach in aggregate has added some additional information to what traditionally happened at the bedside. To some degree, this is to be expected given regulations and requirements for discharge.

**What is the best theoretical perspective from which we can evaluate preoperative education courses and their impact?** Research is needed on the specific aspects of learning in the context of chronic illness and cures. In many ways, the participants had already grappled with many of the challenges of engagement through their experience with OA. This relates specifically to the PHE model. While the model served the purposes of this inquiry, research on how the model can be adapted to focus more specifically on patient education, health literacy, and engagement would support enhanced understanding of the process for participants.

**How can delivery organizations enhance patients’ abilities to identify valuable information, and create actionable opportunities for care?** This study identified a relationship formed between the class participants, the class leaders, and the information exchanged. Research is needed to better understand the process of patient information seeking, information...
assimilation and knowledge creation before surgery. Understanding this process may support the identification of opportunities to better equip patients with the ability to critically assess information that is valuable in maintaining or enhancing their engagement in care.

**Conclusion**

The purpose of this qualitative interpretative phenomenological study was to explore how eight women who attended preoperative patient education courses for total knee replacement described their experience. The research question was: How do eight women who experienced total knee replacement make sense of their pre-operative education and recovery? The study generated data to support the focus on understanding the utility of preoperative education classes and the degree of empowerment felt by women during and after the surgery. The results of the study will expand awareness of the patient experience and bring the patient voice into discussions of future research.
References


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https://doi.org/10.1097/JAC.0b013e3181ba6f63.


doi:10.1111/jjns.12015


Appendix A

Prospective Participant Recruitment Letter

Northeastern University College of Professional Studies, Department of Education
Michael Spooner, Graduate student
Dr. Tova Sanders, Principal Investigator
Class Date (MM/DD/YYYY)
Class Instructor(s):

To participants in preoperative education prior to total knee replacements:

A research study of the patient experience in preoperative education courses is being conducted by a Doctor of Education student at Northeastern University. The results of this research may be used to help New England Baptist Hospital and other healthcare organizations better engage and educate patients who are having a knee replacement surgery.

The study involves a 60-minute interview 3-4 weeks following your knee replacement. The interview would be conducted and recorded at any location you choose, including via video link.

Participation in the study requires that you:

1. are not an employee of New England Baptist Hospital, MyRecovery or Northeastern University;
2. are not directly related to anyone employed by New England Baptist Hospital, MyRecovery, Northeastern University, or the researchers;
3. have not participated in a previous joint replacement class(es);
4. are having a single (unilateral) knee replacement;
5. are able to take part in an interview of approximately 60 minutes in length within two months of knee replacement surgery;
6. are able to read, write, and speak fluently in English; and
7. have no self-reported troubles with memory or neurological impairments.

Please note: the researcher and the principal investigator would not at any time have access to your medical records or any information related to your health care. Your participation is completely voluntary and would in no way impact your care, related to you as a patient in any way, or linked to your medical records.

If you, or someone you know, would like to participate in the study and meet the criteria above, please complete the attached card and return it to the class leader following the class.
If you are interested in this research study but did not return the card, you may contact me at:

Preoperative Knee Replacement Education Research  
Michael Spooner  
c/o New England Baptist Hospital  
125 Parker Hill Avenue  
Boston, MA 02120  
spooner.m@my.husky.neu.edu

Thank you,

Michael Spooner  
Northeastern University Doctor of Education Candidate

If you are interested in participating in the research described above, please complete this form, and you will be contacted by the doctoral student to discuss the research further and explain the process, requirements, and answer any questions you have. You will be contacted by phone, but if unsuccessful via phone you will receive and email to arrange a time to talk.

<table>
<thead>
<tr>
<th>Date of preoperative class:</th>
<th>Name of instructor</th>
</tr>
</thead>
</table>
| Location of preoperative class: | How was the class delivered?  
Video or face-to-face? |
| Participant Name: (first / last) | |
| Participant Mailing address: | |
| Telephone or Cell phone: | Best time to call:  
(day(s) am / noon / evening / pm) |
| Participant Email address (optional): | |

This information may also be submitted by email to spooner.m@my.husky.neu.edu
Appendix B

Telephone Screening Script

Northeastern University College of Professional Studies, Department of Education
Michael Spooner, Graduate student
Dr. Tova Sanders, Principal Investigator

“Hello, my name is Michael Spooner. I am calling you in regards to your interest in participating in the research study on preoperative joint replacement education. I received your information (via mail, social media, or card) indicating you may be willing to participate.”

If the participant declines, or at any point suggests that they are not interested in participating, the call will be terminated with the following statement: “I would like to thank you for your time,” and end the phone call.

Prompt – “May I have a few moments of your time to discuss the research?” Affirmative response, continue to next prompt.

Prompt – Before I ask you about your willingness to participate, I would like to describe the process. May I go ahead and do that? Affirmative response, continue.

“Thank you. The study involves a face to face interview at any location you choose. The interview is expected to last approximately 60 minutes. The interview would be recorded with a digital recording device for the purpose of transcription. Your participation is completely voluntary, and you may stop at any point.”

“Please note that your decision about involvement in this research is in no way linked to your health record, nor would any information that is exchanged ever be considered in the care you receive. Should you decide to participate, all of your identifying information would be kept completely confidential and protected.”

“The results of this research will be used to inform the process of preoperative education at New England Baptist Hospital, to better engage and educate patients as they go through knee replacements.”

Prompt – “Given everything that you have just heard, are you still interested in participating in this research study?” Affirmative response (continue below) – If the participant declines, or at any point suggests they are not interested in participating, the call will be terminated with the following statement: “I would like to thank you for your time. Any reference to your information will be destroyed appropriately.”

“Thank you. If it is okay, I would like to ask you just a few more questions.” Review the screening criteria with the participant (Appendix D).
Continue to identify a date and time that would be convenient for the patient. In the event of a change in plans obtain the patient's name and contact information.

Before ending the phone call ask: “Are there any additional questions you have about the research study described?” The participant will be thanked for their willingness to participate and the time taken while on the telephone call.

Contact information to be shared with the participant:

Michael Spooner  
Northeastern University Doctorate of Education Candidate  
c/o New England Baptist Hospital  
125 Parker Hill Avenue  
Boston, MA 02120  
spooner.m@my.husky.neu.edu
Appendix C

Prospective Participant Confirmation Letter

Northeastern University College of Professional Studies, Department of Education
Michael Spooner, Graduate student
Dr. Tova Sanders, Principal Investigator

Dear (participant name):

Thank you for your willingness to participate in this research on preoperative knee replacement education. As we discussed on the phone, we will conduct the interview at (Location) on (Insert agreed upon date and time). The interview will take approximately 60 minutes.

On the day of the interview, I will ask you to read and sign an informed consent form. I have enclosed a copy for your review before participation.

The results of this research may be used to help improve the process of preoperative education at New England Baptist Hospital and to increase the engagement and education of patients as they go through knee replacements.

If any questions or concerns arise, I can be reached at the address below.

Thank you,

Michael Spooner
Northeastern University Doctor of Education Candidate

Preoperative Knee Replacement Education Research
Michael Spooner
c/o New England Baptist Hospital
125 Parker Hill Avenue
Boston, MA 02120
spooner.m@my.husky.neu.edu
Appendix D

Telephone Screening Script

Northeastern University College of Professional Studies, Department of Education
Michael Spooner, Graduate student
Dr. Tova Sanders, Principal Investigator

Understanding experience in preoperative education and sense of empowerment following total knee replacement

1. Are you now, or have you ever been an employee of New England Baptist Hospital, MyRecovery or Northeastern University? Are you directly related to anyone employed by either institution or the researchers (Principal investigator Dr. Tova Sanders, Graduate Student Michael Spooner)
   o YES
   o NO (continue)

2. Have you had a joint replacement surgery before this one?
   o YES
   o NO (continue)

3. Have you participated in a previous joint replacement class or preoperative education?
   o YES
   o NO (continue)

4. You had a single knee replacement or both? (unilateral - bilateral is excluded)
   o Single (continue)
   o Bilateral

5. Can you confirm when you participated in the pre-operative joint replacement class? (Response should be within six weeks of the scheduled operation)
   o Within 6 weeks (YES) (continue)
   o More than 6 weeks

6. Do you consider yourself as being able to read, write, and speak fluently in English?
   o YES (continue)
   o NO

7. Have you ever considered yourself to have troubles with memory or neurological impairment?
   o YES
   o NO (continue)

Before ending the phone call ask: “are there any additional questions you have?” The participant will be thanked for their willingness to participate and the time taken while on the telephone call.
Contact information to be shared with the participant:

Preoperative Knee Replacement Education Research
Michael Spooner
c/o New England Baptist Hospital
125 Parker Hill Avenue
Boston, MA 02120
spooner.m@my.husky.neu.edu
Appendix E

Interview Protocol

Northeastern University College of Professional Studies, Department of Education
Michael Spooner, Graduate student, Dr. Tova Sanders, Principal Investigator

Understanding experience in preoperative education and sense of empowerment following total knee replacement

Participant Consent Form # ____________________________
Participant Pseudonym: ____________________________
Participant Gender: Male _____ Female _____
Preoperative Education Date: ___/ ____ / 2017
Preoperative Education Location: ____________________________________________
Date of Surgery: ___/ ____ / 2017
Date of Discharge ___/ __/ 2017
Date of interview: ___/ ____ / 2017
Location of interview: _________________________________________________
Interview Start Time: ________       Interview End Time: _______

Before beginning the interview, the participant will complete, sign, and date the informed consent form. The researcher will confirm that the form has been finalized, signed, and dated appropriately. Once verified, the researcher will verbally confirm that it is acceptable to record the interview (demonstrating the recording equipment). After confirming that the participant is ready to begin, the researcher will start the recording, announcing “okay we are ready to begin, the audio is now being recorded.”

Interview Protocol Script
Hello (pseudonym) – I am Michael Spooner, a doctoral candidate at Northeastern University. As we discussed, I will refer to you only as (pseudonym) during this interview to maintain your anonymity.

I am going to repeat a few items so that they are here on the audio recording: First, do you agree that we can record this interview? *Await affirmative verbal response* – or end recording and interview.

Part 1: Overview (6-8 minutes)

In order to meet the human subjects requirements for Northeastern University, I need to confirm that you have read and understand the consent form that I sent you, and that you have signed here today. To ensure that I have the information recorded properly, I would like to review the form and the information that has been disclosed to you now.

- The title of this research project is “Understanding experience in preoperative education and sense of empowerment following total knee replacement.”
• You are at least 18 years of age, and you are being asked to participate in one interview of approximately 60 minutes.
• Participation in this study has a limited risk from a breach of confidentiality, and a limited possibility of physical or emotional harm. All possible steps will be taken to prevent either occurrence.
• There are no incentives or rewards for you the participant.
• You have not, nor should you feel coerced in any way to participate, or to answer questions that you are uncomfortable answering.
• Your information is and always will be confidential; only the researcher and primary investigator will know your name. Any publications or reports generated from this research will refer to a pseudonym.
• The choice to participate in this research was your own and is completely voluntary.
• If at any point during our interview, you wish to stop recording or take a short break, you just need to indicate to me (the researcher) that you want to end the interview, and I will halt the recording.
• **Please note that when a recording is in progress (demonstrating to the participant) this button will be red, and when not recording it is green. You should be able to view this at all times during our conversation.

Finally, I want to make sure that you understand the following points. I will ask that you please confirm verbally:

• You know that you may terminate the interview at any point in time for any reason – do you understand this? **Await affirmative response.**
• I want to make sure that you have received the consent form and that all of your questions about the research process have been answered – do you understand this? **Await affirmative response.**
• Have you signed and dated the consent form? **Await affirmative response.**
• I (the researcher Michael Spooner) have also signed and dated the form. Can you read this and confirm it for me please? **Await verbal confirmation from participant.**
• You understand that if you have any questions at any time, you can address them to me during the interview. Alternatively, if you have questions or concerns after the interview contact the principal investigator or the Director of Human Subject Research Protection at Northeastern University. Their contact information is on your copy of the consent form. **Await affirmative response.**
• Have all of your questions been answered or addressed? **Await affirmative response.**
• Now we are ready to begin the interview, I will start with a short statement.

The primary focus of our discussion will be your experience in the preoperative joint replacement class and some background information. Our discussion will start with your experience in the preoperative class, move to your experience in the hospital, and finally focus on your experience at home following your knee replacement. As I ask questions, you may see from time to time that I am taking notes; these notes are just to help me remember the context of our conversation.
- To begin with, do you recall when you attended the knee replacement class?
- Did you attend alone, or with anyone else? If with someone, with whom did you attend?

**Part 2: Experience in the joint replacement class (15 – 20 minutes)** I would like you to think back to the time when you attended the preoperative class.
- Please describe what it was like for you to be in the joint replacement class. What was the overall experience like? In your own words can you tell me what information you can recall that was important to you?

**Part 3: Post education experience (15 -20 minutes)** Think back to the time after the preoperative class and before your surgery.
- Can you describe for me how you prepared for surgery? What information do you recall that was important in your preparations?

**Part 4: Postoperative period (15-20 minutes)** Now I would like you to think about the time immediately following surgery.
- Can you describe how the class prepared you for your experience? Was there any information that you recalled from the class while caring for yourself?
- Now, thinking back to when you were discharged from the hospital, describe your experience of discharge and transitioning back to home? How did you take care of yourself at home? Did you feel you were ready or prepared?

**Part 6: Conclusion (5-7 minutes)** Thinking back over your whole experience from the preoperative class to now, describe how the class impacted your ability to care for yourself.
- Given the information you have shared about the preoperative class and your experiences with your surgery and care after surgery, is there anything else that you would like to add about your experience?

**Part 7: Wrap-up (3 minutes)**
A. Thank you, this concludes the questions for the interview. If any questions come up while transcribing our discussion here today would it be okay for me to contact you? If yes, what is the best way to reach you?
B. Sometime in the next few weeks, I will have the interview completely transcribed, and I will provide you with an exact copy along with my initial interpretations of the interview. You will have the opportunity to review both the transcript as well as interpretation and if you choose, provide me with alterations or corrections. Please note that you still can rescind your consent, and your interview and interpretations will be destroyed accordingly.
   a. Please provide me with the best email address to send this information to. The email will come from spooner.m@my.husky.neu.edu; you may need to unblock that address from email spam filters.
C. What questions do you have for me?
D. I want to thank you once more for taking the time to talk with me today. I am very appreciative for your help with this process.
E. This concludes the interview and recording.
Appendix F

Thank You and Member Checking

Northeastern University College of Professional Studies, Department of Education
Michael Spooner, Graduate student, and researcher
Dr. Tova Sanders, Principal Investigator

Understanding experience in preoperative education and sense of empowerment following total knee replacement

Dear ( ), Date ( )

Thank you for taking the time to participate in this research study on total knee replacement education courses. You had indicated that you were interested in reviewing the results of the interview when we spoke. I have enclosed a copy of the fully transcribed interview along with the interpretations of your experiences. Please begin by reviewing the transcript of the interview marked “transcription.” Please note any inconsistencies or misattributions directly on the enclosed copy.

After reviewing the transcript, please then turn to the set of documents marked “analysis.” Please carefully review the analysis. Make note of any areas where you feel the interpretation may be inaccurate and return both sets of documents in the enclosed prepaid envelope. If there are no changes or notations, please return the documents with your signature and the date.

Thank you for taking the time to review the information from this study. The results may be used to inform the process of preoperative education at New England Baptist Hospital and better engage and educate patients, so the interpretations of this information is critical.

Please note: the researcher and principal investigator will not at any time have access to your medical record or any information related to your health care. Your participation is still voluntary and will in no way impact your care, relate to you as a patient in any way, or be linked to your medical records.

If we do not receive a reply from you within 14 days, we will assume the transcript and the analysis are consistent.

Any questions or concerns, please contact me at:

Preoperative Knee Replacement Education Research
Michael Spooner C/O
New England Baptist Hospital
125 Parker Hill Avenue
Boston, MA 02120
spooner.m@my.husky.neu.edu
Thank you,

Michael Spooner
Northeastern University Doctor of Education Candidate
Appendix G

Informed Consent

Northeastern University College of Professional Studies, Department of Education
Michael Spooner, Graduate student, and researcher
Dr. Tova Sanders, Principal Investigator

Understanding Experience in Preoperative Education and Sense of Empowerment Following Total Knee Replacement

Informed consent to participate in a research study

We are inviting you to take part in a research study on preoperative education for knee replacement patients. This form will tell you about the study, but the researcher will also explain the form and the study.

You may ask as many questions of the researcher as you would like at any point. When you are ready to make decisions, you may tell the researcher whether you want to participate or not. You do not have to participate if you do not want to, and you should not feel coerced into participating.

Please note: Your decision to participate will not be linked to your surgery, surgeon, or medical records in any way.

Why am I being asked to take part in this research study?

You are being invited to participate in this research study because you have completed preoperative knee replacement education prior to knee replacement surgery. This study is investigating the experience of knee replacement patients in preoperative education.

Why is this research study being done?

This study is being done to determine whether the preoperative education materials are helpful for patients immediately before surgery and in the days following surgery when patients return home.

What will be requested of me?

If you decide to take part in this research study, you will be invited to participate in one interview of approximately 60 minutes. Also, you will be given the opportunity to review the transcripts of the interview and the interpretations.

There are no physical requirements for the interview, nor is any medical information discussed.

There are no direct costs to you for your participation.
Where and when will the interview take place?

The interview will be scheduled at a convenient time, at any location you choose, including via video link or telephone. The interview should take approximately 60 minutes.

Is there any risk of discomfort to me?

Although unlikely, it is possible that discussing your experience in preoperative education and your postsurgical experience could bring up mixed feelings about the recovery or physical outcomes. For your protection, the interview can be stopped at any point in time. Also your consent can be withdrawn, and the interview and any information obtained destroyed. The researcher will make every effort to avoid any potential harm to participants.

Will I benefit from the research?

Although you are not likely to directly benefit from this research in a personal way, your experience might help to improve the preoperative education delivered to future patients.

Who will see information about me?

Your identity will NOT be matched to your responses. Your identity and your participation in this research will only be known to you and the researcher conducting the interview and the primary investigator. Any references in this research will be to a pseudonym identified and selected at the time of the interview. All forms and documents with your name will be stored in a locked fireproof cabinet, and destroyed at the appropriate interval.

How secure is my data?

Data obtained in the interview will be transcribed under the pseudonym provided; participant names are not linked with the data collected. Names of participants will not be included in any published materials and will be maintained separately from interview information.

Data collection includes consent forms, audio recordings before transcription, and the transcript of the audio recording, interview notes, and notations of non-verbal cues, as well as any information that may be presented.

All electronic data will be stored in an encrypted format on a password-protected hard drive that only the researcher can access. The information will be stored in a locked office in a locked cabinet separate from the participant key. In the event of loss or theft, the hard drive is fully encrypted and requires authentication via active directory. If there are three incorrect password attempts, the operating system completely locks the hard drive. The hard drive also has functionality that allows for the exact physical location to be determined, and if a threat has been identified, the hard drive can be remotely erased and cleared of all data.
Physical files and copies of the consent forms will be maintained in a locked and fireproof cabinet for the appropriate interval. Additional steps will be taken to ensure that any and all data that refers to a patient’s diagnoses, condition, or treatments will be maintained with the utmost confidentiality.

**What if I decide I do not want to participate?**

Your participation is completely voluntary. You can choose not to answer any question, or not to participate at all. Alternatively, you may decide that you no longer want to take part in the interview at any point in time. The interview will be halted and any recordings destroyed immediately.

**Whom do I contact with questions or problems?**

Graduate student researcher Michael Spooner:
Email: spooner.m@my.husky.neu.edu
Phone: 617-216-2582
Mailing:
  Michael Spooner  
  c/o New England Baptist Hospital  
  125 Parker Hill Avenue  
  Boston, MA 02120  
  spooner.m@my.husky.neu.edu

Principal investigator Dr. Tova Sanders:
Email: t.sanders@neu.edu
Phone: 205-549-3240
Mailing: Dr. Tova sanders  
Northeastern University  
500 Huntington Ave  
Boston, MA 02115

If you have questions about your rights as a participant

You can contact Nan C. Regina, Director of Human Subject Research at Northeastern University
Email: n.regina@neu.edu
Phone: 617-373-4588
Mailing: Nan C. Regina  
Human Subject Research Protection  
490 Renaissance Park  
Northeastern University  
Boston, MA 02115
By signing below, I agree to take part in this research.

Participant Signature: ________________________________

Date (MM/DD/YYYY): ________________________________

Printed Name: ________________________________

Signature of researcher explaining this form and obtaining consent / Date (MM/DD/YYYY)

______________________________

Printed name of researcher