2023

Registered Nurses' Perceptions Regarding Postoperative Pain Management and Opioids for Adolescents

Susan Miller
Walden University

Walden University

College of Nursing

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Susan Miller

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the review committee have been made.

Review Committee
Dr. Donna Bailey, Committee Chairperson, Nursing Faculty
Dr. Janice Long, Committee Member, Nursing Faculty
Dr. Deborah Lewis, University Reviewer, Nursing Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2023

Abstract

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by

Susan Miller

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Nursing

Walden University

February 2023

Abstract

More than 2.4 million children undergo surgery annually in the United States and many experience postoperative pain. Poor pain management causes negative outcomes to both the individual and society. Increased rates of prescription drug misuse and rising death rates for adolescents from drug overdoses underscore the need for improvements in pain management. However, there is a lack of research, limited guidelines, and significant provider variability in managing adolescents' acute postoperative pain. The purpose of this qualitative study was to explore the topic of acute postoperative pain management for adolescents through the lens of registered nurses (RNs). Nurses play an essential role in pain management and can provide valuable insight on this topic. Kolcaba's comfort theory provided the theoretical basis for this study. This mid-range nursing theory's holistic approach was well suited to address the overarching research question of how RNs describe the postoperative pain management needs of adolescents. Data were collected from 13 RNs licensed in the United States via individual semistructured e-interviews. The interviews were audio-recorded, and their transcripts were analyzed and manually coded to identify themes and draw conclusions. The 4 themes were (a) Pain is a multifaceted phenomenon, (b) Adolescents have unique healthcare needs, (c) Pain management is an evolving field, and (d) Nursing interventions can enhance comfort. Recommendations for future research, practice changes, and guideline development are provided based on these study findings. By improving postoperative pain management for adolescents' nurses and other health care providers can promote positive social change at multiple levels from the individual patient to society as a whole.

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Dedication

I would like to dedicate this dissertation to my husband, Louis Miller, and our three children, Albert Miller, David Miller, and Benjamin Miller. Thank you for your unwavering support and unconditional love throughout all my endeavors in life.

Acknowledgments

I would like to thank my mum and dad, Ingrid and David Dickinson, for supporting my educational efforts from the very beginning. I would also like to thank my brother, Dr. George Dickinson, for setting a good example of pursuing and achieving high academic goals.

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Chapter 1: Introduction to the Study

Surgery is an essential part of healthcare but unfortunately, frequently causes pain. Over 300 million surgeries are performed annually worldwide (Hyland et al., 2021). When patients are about to undergo an operative procedure, they often expect to feel pain and a primary concern is how pain will be managed. Even with minimally invasive, scheduled surgical procedures, 50-70% of patients experience anxiety related to their procedure and anticipated pain (Tomaszek et al., 2019). Patients look to their healthcare providers to offer comfort and to help them manage pain. Nurses have long held an essential role in pain management (Khalighi et al., 2019). A challenge for nurses is that pain management is complicated. Different surgical procedures, patient populations, and providers result in unique pain management needs and approaches to meet these needs can be diverse.

To ensure that patient's pain was well managed The Joint Commission (JC) introduced new pain management guidelines in 2001, labeling pain as a "fifth vital sign" (Gupta et al., 2018; Dautremont et al., 2017). This JC policy change, in conjunction with pain management being linked to hospital quality indicators, resulted in increased opioid use to treat severe pain (Cortellazzo Wiel et al., 2021). These changes in approach to pain management have been widely linked to the development of an opioid epidemic in the United States (US) (Horton et al., 2019). Since 1999, opioid associated deaths in the United States have tripled (Hudgins et al., 2019). In 2020, 68,630 people died in the United States from opioid overdoses (Centers for Disease Control and Prevention [CDC], 2022).

Adolescents have not escaped harm. Between 1999 and 2016, 7,921 U.S. adolescents died from prescription and illicit opioid poisoning (Gaither, et al., 2018). Unfortunately, this trend has continued to worsen. While the drug overdose death rate for U.S. adolescents aged 14-18 remained stable at about 2.4 per 100,000 population from 2010 through 2019 (Friedmann et al., 2022), more recently adolescent overdose deaths have surged. In 2020, the drug overdose death rate for adolescents increased to 4.57 per 100,000 and in 2021 it climbed further to 5.49 per 100,000 (Friedman et al., 2022). Increased rates of prescription drug misuse have highlighted the need for improvements in pain management and medication use (Dautremont et al., 2017).

Despite the controversy surrounding medication use for acute pain management, there continues to be limited research and recommendations regarding prescription opioid use in adolescence (Napier & Persons, 2019). Adequate pain control improves quality of life and supports increased patient satisfaction (Xavier et al., 2018) but cortical connections are not fully developed in the brain until one's early to mid-20s, which puts adolescents at increased risk for opioid use disorder due to their still developing brain neurobiology (Napier & Persons 2019). Opioids may be necessary to provided adequate pain control, but few studies have examined postoperative medication prescribing patterns in children and adolescents (Bennett et al., 2018), and few have examined the impact of acute pain management in adolescents in relation to the opioid epidemic (Napier & Persons, 2019). Nurses strive to provide comfort and to assist patients in achieving adequate pain control while minimizing harm. Postoperative nurses must be especially cautious as they provide care to their adolescent patients and prepare them to

manage their pain at home after discharge from the healthcare facility as prescription opioid misuse has become a leading cause of unintentional death in adolescents (Hudgins et al., 2019).

Nurses often administer medications, promote alternative pain management techniques, advocate for the patient, and provide patient/family teaching and guidance to manage postoperative pain. Exploring registered nurses (RNs) perceptions of the care they provide to adolescents for pain management during the postoperative period is important. RNs may not be the one performing the surgery or writing the prescription, but they are part of a multidisciplinary team, and can provide a unique perspective. Assessment of pain is an important aspect of nursing practice and nursing interventions are directed at relieving pain (Xavier et al., 2018). Care provided by RNs must be within their scope of practice and within the constraints of their institution's policies. RNs work diligently to assist patients to manage pain following a variety of painful events with differing available supplies and under the guidance of a multitude of physicians who may practice with a wide degree of variability. In addition, as adolescents are minors, when under medical care they are usually accompanied by a parent/guardian who also may give input for decision making. It is important to understand how nurses balance these competing needs to provide safe care to minimize pain and enhance comfort for the adolescent patient.

The purpose of this qualitative study was to explore the topic of acute pain management and opioid use by adolescents during the postoperative period from the perspective of RNs who provide direct patient care to this unique patient population.

Ongoing postoperative pain and opioid use place a significant burden on society (Hyland et al., 2021). RNs play a critical role in pain management and thus can provide valuable insight which has the potential to promote positive social change. Walden University (2021) defined positive social change as, an intentional process to create and apply ideas, strategies, and actions to promote the worth, dignity, and development of other individuals, communities, organizations, institutions, cultures, and/or societies. Positive social change improves human and social conditions. This study has the potential to generate positive social change by initiating a ripple effect from patients and their families to their communities, and in nursing care and practice to other healthcare providers, and health care institutions in the United States and then potentially beyond to other countries.

Chapter 1 provides the background for this study and includes a summary of the noticed gap in the literature. Then, I discuss the problem statement, purpose statement, and research questions. After that an overview of the theoretical framework and nature of the study is provided. Then, key terms are defined, and the studies assumptions, scope, delimitations, and limitations are shared. I end Chapter 1 with a discussion of the significance of the study and a transition to Chapter 2.

Background

Surgery, while painful, is often necessary in healthcare. More than 2.4 million children and adolescents undergo surgery annually in the United States (Perry et al., 2018). Pain management, when not optimal, causes negative outcomes to both the individual and society. Opioid use for acute postoperative surgical pain has been shown

to significantly contribute to future persistent narcotic use in some opioid naïve adolescents and young adults. In a large study of 70,942 patients, filling an opioid prescription following a wisdom tooth extraction was associated with 2.7 higher odds of persistent opioid use (Kelley-Quon et al., 2022). Another study of 20,039 patients after surgical cleft palate repair reported persistent opioid use increased from 0.1% in the control group to 4.4% (Bennett et al., 2019). Similarly, an insurance claim review of 88,637 charts revealed that the opioid fill rate rose from 0.1% in the nonsurgical group to 4.8% in a similar postsurgical group within 6 months (Kelley-Quon et al.,2022).

Guidelines from various organizations to prevent persistent postoperative pain and to promote opioid stewardship have been established for adults, but it is still a challenge to have them fully incorporated into standard practice at the individual institutional level (Hyland et al., 2021). Pain management guidelines for children and adolescents are even more limited. The American Pediatric Surgical Association Outcomes and Evidence-based Practice Committee recently published the first opioid prescribing guidelines for children and adolescents after surgery (Kelley-Quon et al., 2022). Providers have often relied on personal experience and anecdotal evidence to inform their decision making when prescribing medications postoperatively (Hunsberger et al., 2021). This is especially true for adolescents as pain management guidelines for children are limited. This can make it challenging for nurses to care for adolescent patients during the postoperative period and guide them as they prepare to manage pain after discharge in the home setting.

Nurses play a key role in pain management during the postoperative period. They are frequently assessing the patient and their level of pain, advocating for patient's comfort, and educating patients and their families about postoperative pain management (Cahyani et al., 2018). Nurses are often the healthcare providers that spend the most time with patients during the postoperative period, which puts them in a position to serve as a counselor and gives them the ability to promote a holistic approach to increase comfort and manage pain (Khatib & Razvi, 2018).

This study helped fill a gap in understanding by looking through the lens of the nurses providing care and teaching to explore RN's perceptions regarding postoperative acute pain management and opioid use in the adolescent population. While many studies of postoperative opioid use in the adult population have been completed, very few studies have focused on children and adolescents (Bennet at al., 2019). As part of a multidisciplinary team, RN's play an important role in their patients' pain management. The findings from this study could provide crucial insight on pain management and opioid use in adolescents postoperatively which can be used to guide nurses as they provide care for this unique group. Nurses may be able to enhance patient and family postoperative education, minimize pain and suffering, decrease risks to adolescents associated with opioid use, and positively impact the opioid epidemic problem that the United States is currently facing.

Problem Statement

The situation or issue that prompted me to search the literature is that since 2000, opioid prescription and usage has dramatically risen (see Gupta et al., 2018). From a

global perspective, Americans are using 80% of the world's opioid supply while only accounting for 4.6% of the population (Iobst et al., 2018). Opioid misuse has become a leading cause of death in the United States (Solouki et al., 2018). Between 1999 and 2018, nearly half a million opioid-related overdose deaths occurred in the United States (Webb et al., 2021). Pediatric deaths related to opioid misuse have been increasing (Freedman-Weiss et al., 2020; Hunsberger et al., 2021). Prescription opioid use for adolescents increased by 175% between 1997 and 2012 (Horton et al., 2019). The misuse of prescription opioids has become a leading cause of unintentional injury and death in adolescents in the United States with opioid exposure leading to 12% of all deaths in the 15–24-year-old age group in 2016 (Hudgins et al., 2019). In 2021, for U.S. adolescents aged 14-18 there were 1,146 deaths caused by drug overdoses of which 77.14% were related to fentanyl, 13.26% were related to benzodiazepines, 9.77 % were related to methamphetamine, 7.33% were related to cocaine, 5.6% were related to other prescription opioids, and 2.7% were related to heroin (Friedman et al., 2022)

Adolescents are a vulnerable population who require specialized care. The first opioid prescribing guidelines for children and adolescents after surgery was released in the United States in 2021 and future updates are anticipated to be needed to provide guidance for procedure specific oral morphine dosing equivalents and opioid storage and disposal recommendations (Kelley-Quon et al., 2022). There have been few guidelines to assist practitioners when using opioids for postoperative pain management in adolescents (Napier et al., 2019; Solouki et al., 2018; Smeland et al., 2018; Van Cleve & Grigg, 2017). Yet, opioids have been commonly used in the pediatric population for

postoperative pain management (Iobst et al., 2018). This is concerning as adolescents, in part due to their still developing brains, are at higher risk than other age groups for opioid misuse and for the onset of chronic substance abuse (Napier & Persons, 2019). In adults, postsurgical prescription opioid use can lead to addiction for up to 8.2% of first-time opioid users (Zhu et al., 2017). However, research on adolescents shows that high school seniors prescribed opioids for medical purposes, who are first-time opioid users, have a 33% increased risk of opioid misuse in adulthood (Arora et al., 2018).

Understanding nurse perceptions can provide important information about adolescent pain management to determine the factors that are considered when administering medications, other pain management techniques that are used, and what education is provided to adolescents and their caregivers during patient/family teaching. Nurses are in a key position to assess and manage pain postoperatively (Coll & Jones, 2020). The specific research problem addressed by this study, through the lens of nurses caring for this group of children, is the lack of information regarding postoperative pain management in adolescents.

Purpose of the Study

The purpose of this qualitative study was to describe RN's perceptions of the care they provide to adolescents regarding pain management and opioid use during the postoperative period**.** Qualitative research is exploratory and inductive in nature. It can tell a story from a research participant's point of view and is known for being able to generate detailed information (Trochim, 2006). An increased understanding of RNs' perceptions can provide important information about postoperative care and adolescent

pain management and opioid use. A qualitative approach allowed for open-ended questions and answers regarding RNs' experiences providing care to adolescents and their caregivers during the postoperative period. As I explain in Chapter 3, a quantitative approach would not allow for this kind of insight. To address the gap in the literature, I conducted individual interviews with RNs who provide care to adolescents postoperatively. Their answers were qualitatively coded so themes could be recognized to generate an account of their perceptions.

Research Question

The overarching research question for this study was *What are RNs' perceptions regarding the postoperative care they provide for acute pain management in the adolescent population?* Subquestions that this study also explored included the following: (a*) How do RNs describe the pain management needs of adolescents during the postoperative period?* (b) *How do RNs describe their knowledge and experience with opioids used postoperatively by adolescents?* and (c) *What areas for additional education or support are needed by RNs who care for adolescents postoperatively?*

Theoretical Framework

The theoretical basis for my study was Kolcaba's (1995) comfort theory, which is specific to nursing and can be applied to many situations (Kolcaba, 2001). It is a midrange theory and is suitable for application to both nursing practice and nursing research (Kolcaba & DiMarco, 2005). Managing pain in children is difficult and to maximize effectiveness, a holistic approach is needed (Cahyani et al., 2018). Assessments of pain should consider physical, psychological, emotional, and spiritual

aspects (Coll & Jones, 2020). Comfort theory uses a holistic approach and looks at a person's comfort needs from four perspectives (a) physical, (b) psychospiritual, (c) environmental, and (d) social (Kolcaba, 2001). Levels of postoperative pain experienced by patients remains unnecessarily high and management of pain, primarily a nursing responsibility, is often inadequate (Coll & Jones, 2020; Khatib & Razvi, 2018). Comfort theory is well suited to frame my research to explore nurses' perceptions of postoperative pain management and opioids for adolescents.

The logical connections between the framework presented and the nature of my study include Kolcaba's theoretical work, which shows comfort and pain management are interrelated. Patients often both want and need nurses to help them be more comfortable (Kolcaba, 2001). When providing an intervention to ease surgical pain, a nurse is addressing comfort from a physical perspective (Kolcaba & DiMarco,2005). While nursing interventions can address patient needs, intervening variables can exist that may be beyond the nurse's control. Objective, subjective, and supporting data is used to assess if comfort measures are effective and reevaluation of needs follows (Kolcaba, 1995). If comfort is enhanced, then health seeking behaviors can be engaged and through comfort, patients are strengthened (Kolcaba,1995). In Chapter 2, I provide a more thorough explanation of the application of Kolcaba's comfort theory as a theoretical framework for my study.

In the pediatric setting institutional support via practice guidelines, staffing levels, and patterns of interdisciplinary care delivery must be considered to create a culture of comfort (Kolcaba & DiMarco, 2005). By using a qualitative approach to explore RN's

perceptions as they provide care for adolescents, my study has the potential to identify situations where increased institutional support, perhaps through education or practice guidelines, could eventually lead to improved postoperative pain management and increased comfort. These improvements could also support decreased opioid use and increased patient/family satisfaction.

Nature of the Study

To address the research questions in my study, a general qualitative inquiry approach with semistructured e-interviews of RNs was used to collect data. Qualitative research seeks to gather rich, in-depth narrative material to gain insight and understanding of real-world problems (Moser & Korstjens, 2017). E-interviews are interviews that use computer mediated communication (Salmons, 2012). This method was selected due to ongoing safety concerns with COVID-19 and to overcome potential geographical challenges that may be encountered to reach participants. The e-interview research framework can be used for original qualitative research (Salmons, 2014) and supports the methodology of my study.

For my research design, I recruited RNs who care for adolescents postoperatively. A brief demographic survey was used to collect baseline information about participants, to ensure participants meet inclusion criteria, and to give context to research findings. Interview protocols were developed from the literature to address the problem and purpose of my study. Then, data was collected via individual semistructured e-interviews. Semistructured interviews are frequently used when conducting health research (Busetto et al., 2020). These interviews generated the primary source of data for my study, which

was the RN's audio-recorded responses to questions about care and pain management of adolescents postoperatively. After the audio-recordings were transcribed, inductive content analysis was used to analyze the data. First, the interviews were carefully read. Second, any concepts, themes, topical markers, or events were identified. Third, identified concepts and themes were refined, developed, and elaborated upon to generate codes. Fourth, data was coded. Fifth, data was sorted. Sixth, conclusions were drawn. Qualitative research helps in discovering the reasons why things happen and is a good method of inquiry to use for complex, multicomponent issues (Busetto et al., 2020). Postoperative pain management in adolescents is a complicated topic to which RNs can provide a great deal of insight.

Definitions

Several key terms that were used throughout my study include: *acute, adolescents, holistic comfort, multimodal, nonpharmacological, opioids, opioid misuse, opioid naïve, pain, pain medication, perception, postoperative, prescription,* and *registered nurses.* To provide clarity and avoid misunderstanding these key terms are defined. The definitions are as follows.

Acute: onset, sharp rise, or short course incident, such as pain or illness (Merriam-Webster, n.d.-a).

Adolescents: People who are 12-17 years of age (Hudgins et al., 2019).

Holistic comfort: An immediate experience of being strengthened in the physical, psychospiritual, environmental, and/or sociocultural contexts (Bice et al., 2019).

Multimodal: Using or relying on multiple methods (Farlex, 2009).

Nonpharmacological: Therapy that does not involve drugs (Gale, 2008).

Opioids: Natural (e.g., codeine, morphine), synthetic (e.g., heroin, fentanyl), and semisynthetic (e.g., oxycodone, hydrocodone) compounds that act on the *mu* subtype of opioid receptors, found in neurons throughout the body, and affect the nervous system (Napier & Persons, 2019).

Opioid misuse: Taking prescription opioids in an inappropriate manner. Such as in higher doses than ordered or for uses other than pain management (Napier & Persons, 2019).

Opioid naïve: When a patient has no opioid exposure in the 90-day period immediately prior to surgery (Hyland et al.,2021).

Pain: An unpleasant sensory and emotional experience that is often associated with actual or potential injuries, but subjectively and multidimensional in its interpretation. It is a common sensation experienced by all human beings and expressed in a particular way" (Xavier et al., 2018)

Pain medication: A drug that decreases or removes pain (Merriam-Webster, n.d.-c).

Perception: The constellation of mental processes by which a person recognizes, organizes, and interprets intellectual, sensory, and emotional data in a logical or meaningful fashion (Farlex, 2012).

Postoperative: Refers to the period following a surgical operation (Merriam-Webster, n.d.-d).

Prescription: A written direction for a therapeutic or corrective agent, specifically one for the preparation and use of a medicine (Merriam-Webster, n.d.-e)

Registered Nurse (RN): A graduate trained nurse who has been licensed by a state authority after qualifying for registration (Merriam-Webster, n.d.-f).

Assumptions

Researchers make epistemological, ontological, and axiological assumptions throughout the research process which will, consciously or not, impact their study (Almasri & McDonald, 2021). For my study, data was collected through individual e-interviews. When interviews are used to gather data in qualitative research, there is a direct interaction between the participant and the researcher (Salmons, 2012). It is important that researchers reflect on their own conceptual lens and consider how their assumptions may impact their qualitative study to ensure the results are trustworthy (Korstjens & Moser, 2018).

I made several assumptions during my study. I assumed I would be able to find enough research participants. My second assumption was that I would develop rapport and trust with my research participants through an e-interview format. I also assumed that participants would provide honest answers to my interview questions. A crucial assumption was that RNs have unique insight related to postoperative pain management and opioid use in adolescents, thus making an understanding of their perceptions valuable. Finally, I assumed I would be able to interpret their responses in a nonbiased manner and that this research can support positive social change. These assumptions were

necessary as they framed my study and directed my approach to better understand the perceptions of RNs who provide care to adolescents postoperatively.

Scope and Delimitations

Few studies have explored postoperative pain management and opioid use in adolescents (Bennet at al., 2019). The specific aspect of the research problem my study focused on is postoperative care and pain management from the RNs' point of view. Information could also have potentially been gathered from patients, their parents, or other healthcare providers. Researching adolescents is more complicated as they are minors and thus a vulnerable population. Researching parents may provide a narrower view of the research problem as their only exposure to the topic may be through their own child's surgical encounters. Nurses are part of a multidisciplinary team, and they often interact directly with patients, families, and other healthcare providers. They are also likely familiar with recent practice changes and institutional policies within their facility. By focusing on RN's, information was collected from people who have a lot of insight into this subject and have been exposed to multiple points of view through their interactions with others.

The scope of this study, and the inclusion criteria, was licensed RNs in the United States with at least 1 year of experience who provide direct patient care to postoperative patients, including adolescents, in their primary area of work. RNs were selected to be the focus of this study as nurses play an integral role in pain assessment and management (Coll & Jones, 2020) and providing holistic comfort to patients is considered a nursing responsibility (Bice et al., 2019). Exclusion criteria were participants who are not actively

licensed as a RN, are not providing direct patient care to postoperative patients, and/or are not experienced in providing care to adolescent patients.

A boundary of this study is the theoretical framework that was used to explore the topic. Kolcaba's comfort theory was selected as the theoretical framework to explore postoperative nursing care of adolescents due to its nursing focus and its holistic approach to comfort. A holistic approach when caring for children is preferred as they may not communicate in the same manner as adults (Bice et al., 2019). For example, an adolescent's postoperative pain management decisions are often shared with a parent/guardian. While an adolescent may strive for autonomy, their choices might be overridden (Dagg et al., 2020-b). Another theory that has been used to research nurses' and their perceptions of postoperative pain and opioids is Ajzen's theory of planned behavior which explores how individual cognitive and social influences motivate people to perform a behavior (Youngcharoen et al., 2017). This theory was considered but rejected as while it could provide a psychological explanation of why nurses are doing things to manage patients pain a certain way, my goal with this study was to explore and gain insight as to what specifically nurses are doing and why regarding postoperative pain in adolescents. There is a lot of variability in postoperative pediatric pain management and clinical practices are not always consistent with best practice guidelines (Smeland et al., 2018).

The results of this study may be transferable to nurses providing care to other, younger, postoperative pediatric patients. In addition, the results may be transferrable to those caring for other adolescent patients who may be suffering from acute pain that is

not related to surgery. The results may also be applicable to nurses providing care in geographic regions outside of the United States.

Limitations

Limitations are weaknesses that can constrain research (Holloway & Galvin, 2016). Incorporating a theoretical framework, in this case, Kolcaba's comfort theory, as a foundation to provide support and guidance is helpful. However, one potential limitation to this study is transferability. In qualitative research, transferability refers to the ability for a study's results to be applied to other settings and/or respondents (Korstjens & Moser, 2018). For the focus of this study, RNs who meet study criteria are being interviewed and asked about their experiences with pain management when providing care to adolescents postoperatively. The conclusions may not be transferable to other RNs if they work with patients in different settings. For example, the findings from this study may not apply to RN's proving care to children experiencing pain related to a chronic disease as it could be a different age group, setting, and type of pain.

A second potential limitation of this study was the influence of personal bias. Researchers have biases, preferences, and preconceptions (Maxwell, 2013). Reflexivity is a process in which researchers perform a critical self-reflection about oneself and the research relationship and how they may influence a respondent's interview answers (Korstjens & Moser, 2018). I am both a nurse who has cared for children in pain and a mother whose adolescents have required surgery. My personal experiences impact my worldview. Taking the time to conduct a self-appraisal can increase the trustworthiness of a researcher's findings (Korstjens & Moser, 2018).

As a researcher, it is important to address limitations. One way to address transferability is to provide thick descriptions so that readers have sufficient information to consider if a study's results can be transferred or not. A method to ensure reflexivity is to diary one's thoughts, assumptions, preconceptions, and values throughout the research process (Korstjens & Moser, 2018). It is important for researchers to be mindful and set aside bias. For example, when conducting interviews, it is important to encourage participants to speak freely and to avoid trying to guide their answers to ensure that their experiences, thoughts, perceptions, and feelings are obtained (Moser & Korstjens, 2018). By writing a diary, mindfulness is enhanced.

Significance

This study is significant because, postoperatively, RNs play an essential role in helping patients to manage their pain and their medications (including opioids). Surgical procedures continue to be a key cause of pain and opioid use around the world and while guidelines to reduce the burden on society from persistent postoperative pain and opioid use have been generated many of these recommendations have not yet been implemented as standard practice at the institutional level (Hyland et al., 2021). In addition, there is a lack of research, specific to adolescents, about opioids for postoperative pain management (Dautremont et al., 2017). With limited guidelines for prescription opioid use in patients under 18 years of age, there is significant variability in clinical practice (Hunsberger et al., 2020., Van Cleve & Grigg, 2017). Understanding RN's perceptions could facilitate healthcare institutions in developing policies and educational programs

that promote alternative pain management techniques, enhance medication safety, and prevent opioid misuse and abuse.

Opioid misuse is a leading cause of injury and death for adolescents in the United States (Hudgins, et al. 2019). An essential step to prevention is education for adolescents and their caregivers regarding medication use, risks, and benefits (Napier & Persons, 2019). In addition, education on proper medication disposal also has the potential to reduce the number of opioids available for misuse (Dautremont et al., 2017). Over 50% of parents report they are unaware of secure places to store opioids properly and only 6% acknowledge that they have received education on safe opioid disposal (Abraham, 2022).

Nurses are well positioned to promote positive social change through education via their direct patient/family interactions when providing postoperative care. When adolescents have surgery, nurses may even have multiple points of contact with patients and their families if preprocedural appointments, postsurgical appointments, and follow up phone calls are considered. However, many nurses lack information about opioids themselves, which can hinder their ability to properly educate their patients (Costello & Thompson, 2015).

The results of this study can potentially lead to support for nurses through educational initiatives and/or institutional policy changes. Nurses can in turn, better educate their surgical patients and accompanying family members, initiating a ripple effect of social change in families, communities, and in nursing care and practice. Patients and families can then go on to share their positive experience with pain management postoperatively with their extended family, friends, and others in their

community. Communities can then further promote safe postoperative pain management techniques to an even wider audience and continue to highlight the importance of not misusing opioids, of safely disposing unused opioids, and of the increased risks to adolescents from opioids.

Summary

Chapter 1 has served as an introduction for this dissertation. It provided an overview of the background supporting the study and identified the gap in the existing literature. Then, the problem statement, purpose statement, and research questions were shared. After that, the theoretical framework, nature of the study, and key terms were explained. Which was followed by a discussion about the assumptions, scope and delimitations, and limitations of the study. Lastly, the significance of the study was presented. Chapter 2 explores the literature in more depth. The literature review strategies used are shared and an explanation for the chosen theoretical framework is provided. In addition, a detailed explanation of key concepts from the literature will be listed.

Chapter 2: Literature Review

The specific social problem that I addressed with my research is the lack of information regarding postoperative pain management in adolescents. My focus was on the care provided to adolescents by RNs for acute pain during the initial postoperative period. The purpose of this qualitative study was to build on knowledge previously gained regarding pain management and nursing care of adolescents in the postoperative period. This study fills a gap in understanding by looking through the lens of RNs providing care and teaching to explore their perceptions regarding postoperative acute pain management and opioid use in adolescents. As part of a multidisciplinary team, RN's play an important role in pain management.

Understanding pain management and opioid use is essential to enhancing patient comfort while maintaining patient safety. It has been estimated that $78.5 billion per year is the economic burden associated with health care, crime, and lost productivity associated with opioid misuse (Tavernier 2022). Adolescents are at increased risk for opioid misuse and for the onset of chronic substance misuse in part due to their still developing brains (Napier & Persons, 2019). With this study, I sought to understand nurse perceptions about adolescent pain management to determine the factors that are considered and education that is provided when administering opioids and when providing patient/family teaching and discharge instructions about pain medication use and alternate pain management techniques.

In this chapter, the literature search strategies used to provide evidence for the need of this study are described. Then, the theoretical framework used to ground my

study is discussed. Next, an exhaustive review of the literature is provided, including an overview of postoperative nursing care, data on pain management and opioid use, and research related to the special needs of the adolescent population are provided.

Literature Search Strategy

The purpose of this qualitative study was to describe RNs' perceptions of the care they provide to adolescents regarding pain management and opioid use during the postoperative period. I conducted a comprehensive review of the literature focusing on pain management in the postoperative period. I explored different patient populations, medical procedures, geographic regions, and care providers. Literature on this phenomenon was identified via a search of the following databases: Academic Search Complete, APA PsycArticles, APA PsycInfo, CINAHL Plus with Full Text, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Cochrane Methodology Register, Complementary Index, Computers & Applied Sciences Complete, Directory of Open Access Journals, Education Source, Embase, ERIC, Gale Academic OneFile Select, Gale in Context: Opposing Viewpoints, Library, Information Science & Technology Abstracts, MEDLINE with Full Text, Ovid Nursing Journals Full Text, ProQuest Nursing and Allied Health, SAGE Journals, SAGE Knowledge, SAGE Research Methods Online, ScienceDirect, Science Citation Index, Social Sciences Citation Index, and Supplemental Index. While searching these databases, I used a combination of keywords to identify relevant literature on nurses' perceptions of the care that they provide to adolescents regarding pain management and opioid use during the postoperative period. The key words included *adolescents, analgesia, child, children, kid,*

managing pain, nurse, nurses, nursing, nurses' knowledge, nurses' attitudes, nurses perceptions, opioids, opioid prescribing, pain, post operative, post-operative, postoperative, post-surgery, post-operative pain, pain management, pain relief, pain control, pain reduction, pediatric, paedetric, prescription, teen, teenagers, youth, and *young adults.*

To ensure literature was relevant to the chosen phenomena, initial searches were for a publication date of 2015 or newer. However, later searches were restricted to 2018 or newer to ensure the most current data was captured. The literature review was conducted between May of 2021 and July of 2022. As information for nursing care and postoperative pain management and opioid use in the adolescent population is limited, the search was expanded to explore postoperative pain management for children, as adolescents are a subgroup of this population. In addition, postoperative pain management in general was explored as many healthcare practices are only studied on adults as children are a protected vulnerable population regarding conducting research. The search was limited to studies published in English.

Theoretical Foundation

The theoretical basis for this study was Kolcaba's (1995) comfort theory. According to this theory, holistic comfort is the immediate experience of being strengthened when one's needs for relief, ease, and transcendence are addressed through four contexts of experience: physical, psychospiritual, sociocultural, and environmental (Kolcaba & DiMarco, 2005). Comfort theory's major assumptions are first that patient comfort can be enhanced over time if nurses properly assess patient needs, consider

intervening variables unique to the situation, and address them through nursing interventions. Second, as comfort is successfully enhanced, patients increase their health seeking behaviors. Third, increased health-seeking behaviors contribute to improved outcomes which lead to increased institutional integrity. Fourth, increased institutional integrity leads to the development of best practices and policies (March & McCormack, 2009)

Kolcaba's midrange theory of holistic comfort has previously been applied to research that is similar to mine. It was used as a theoretical lens to explore holistic comfort and outcomes for pediatric patients undergoing invasive procedures. In the study, 14 RNs administered the Pediatric Procedural Holistic Comfort Assessment (PPHCA) to 16 children who were about to receive nonurgent needle procedures. Data revealed that the PPHCA is a promising tool that can enhance holistic comfort in children undergoing painful procedures (Bice et al., 2019). Another study explored the application of comfort theory to pediatric patients and suggested that it can easily support pediatric nursing (Kolcaba & DiMarco 2005).

This theory was ultimately chosen for my research because pain is a common discomfort experienced postoperatively and can be of varying intensity. There are several key concepts to consider when exploring RNs and their perceptions of the care that they provide to adolescent patients for pain management during the postoperative period. These key concepts are all included in Kolcaba's comfort theory. The first concept is nursing interventions (Kolcaba, 2001). RNs may not be the one performing surgery or writing prescriptions, but they are part of a multidisciplinary team and are essential in

pain management. RNs are assessing pain, administering medications, promoting alternative pain management techniques, advocating for patients, and providing patient/family teaching and guidance to manage pain postoperatively. The second concept is intervening variables, which are variables that can impact the outcome of comfort measures that are usually outside of nursing's influence (Kolcaba 2001). RNs work to assist patients to manage pain with varying available supplies and under the guidance of physicians who may practice with a wide degree of variability. Opioids may be necessary but are controversial due to a lack of prescribing guidelines and increased risks for adolescents. The third concept is institutional integrity (Kolcaba, 2001). Care provided by RNs must be within their scope of practice and within the constraints of their institution's policies. The fourth concept is patient comfort (Kolcaba, 2001). Pain varies not only in relation to the type of operative procedure performed but is also subjective to the individual which creates a challenge when trying to ensure adequate pain control is provided while harm is minimized. The fifth concept is health seeking behaviors of the patient (Kolcaba, 2001). Adolescents are minors and when under medical care they are usually accompanied by a parent/guardian who often assists in the decision-making process regarding how pain will be managed. As such, education for postoperative care is typically provided to both the patient and their parent/guardian. Physical pain can be influenced by psychospiritual, sociocultural, and environmental factors, so a holistic approach to pain management is important (Kolcaba, 2001). Comfort theory aligns well with nursing care of adolescent patients postoperatively.

The research question for my study was *What are RN's perceptions regarding the postoperative care they provide for acute pain management in the adolescent population?* Kolcaba's (1995) comfort theory relates to this question as when RNs provide care during the postoperative period, there are numerous ways that they can offer comfort. Kolcaba (1995) categorizes comfort into three types (a) relief, (b) ease, and (c) transcendence. Relief is the state of having a specific need met, ease is the state of calm or contentedness, and transcendence is the state of rising above one's problems or pain (Vendlinski & Kolcaba, 1997). There are four contexts in which Kolcaba (2003) stated comfort can occur (a) physical, (b) psychospiritual, (c) sociocultural, and (d) environmental. Physical comfort needs pertain to bodily sensations and homeostasis (Kolcaba & DiMarco, 2005) As an example, from the physical context, RNs can give medications to help control pain and nausea. Psychospiritual comfort needs pertain to spiritual beliefs, anxiety, fear, and meaning attached to illness (Kolcaba, et al.,2006). From the psychospiritual context, RNs can explain to patients how the recovery is going and what to expect next thus reducing anxiety. Sociocultural comfort needs pertain to interpersonal, family, and societal relationships and traditions and religious practices (Kolcaba & DiMarco, 2005). From the sociocultural context, RNs can ensure family members are present and included in care whenever possible, so the patient has access to their primary support person. Environmental comfort needs relate to the external background of human experience (Vendlinski & Kolcaba, 1997). From the environmental context, curtains/doors can be closed to increase privacy and blankets can be offered to

provide warmth. Comfort has long been considered a goal for nursing to support patient recovery (March & McCormack, 2009).

An alternate theory that I could have used instead for this study was Ryan and Swain' s (2009) individual and family self-management theory (IFSMT). This theory is based on the self-management theory, which has frequently been applied to chronic illness and health risk factors. IFSMT proposes that there are three dimensions of self-management (a) context, (b) process, and (c) outcomes. In IFSMT, risk and protective factors have been expanded increasing its application beyond chronic illness to include health promotion through health behavior change. In addition, outcome measures have been differentiated into both proximal and distal (Ryan & Swain, 2009). It is a middle-range theory that incorporates the socioecological context of both the individual and the family and has been used in research with adolescents living with chronic illness (Adams & Crowley, 2021). Roles within a family are dynamic with adolescents in a state of change as they share decision making with their parents regarding their health while becoming increasingly independent (Ryan & Swain, 2009).

Literature Review Related to Key Concepts

In this literature review section, I explore the concepts that surround my study on RN's perceptions regarding postoperative pain management and opioids for adolescents and summarize major themes found in the literature. The key concepts related to my research problem are nursing care for postoperative pain, adolescents and pain, pain management and opioids, adolescents and opioids, and postoperative nursing care of adolescents. I used previous research to describe what is known and to justify how my

study, and the methodology I selected extend nursing knowledge by helping to fill at least one gap in the literature. Lastly, this section will share recommendations for future study.

Nursing Care and Postoperative Pain

While pain is a common and often expected side effect of surgery, many variations in postoperative pain management persist and changes in practice are being implemented. Gupta et al., (2018) completed a prospective study to explore pain medication use by 84 patients undergoing outpatient foot and ankle surgery in the United States to examine the impact of regional anesthesia techniques on postoperative narcotic pill usage. Gupta et al. found that regional anesthesia use, combined with presurgical patient counseling and education to manage expectations of pain postoperatively led to decreased narcotic consumption. Gupta et al. questioned if pain management for surgeries that primarily involved soft tissue may vary from what they saw with their study. Not only is there variety in the type of surgery and type of postoperative pain but there are also variations in how caregivers assess pain (Gupta et al., 2018). Variations in pain assessment can contribute to variations in pain management.

Xavier et al. (2018) conducted a qualitative, descriptive, and exploratory study of postoperative pain at a public hospital in Brazil through semistructured interviews and found nurses failed to use a standardized tool to assess and measure postoperative pain. Prescribed medications were the primary intervention used to provide pain relief, thus, undermining patient comfort and recovery. Nurses play an intricate role in postoperative pain management and, further education for nurses was recommended to ensure standardization in practice of postoperative pain assessment and management to promote

better postoperative recovery (Xavier et al., 2018). There are numerous ways to treat pain and offer comfort. Using a standardized tool to assess pain and evaluate the effectiveness of interventions can improve consistency of care from nurse to nurse.

Many factors can impact the care provided postoperatively. Khalighi et al., (2019) conducted a systematic review of the literature to explore knowledge, attitude, and pain management of nurses in Iran and concluded that additional educational interventions for nurses regarding pain management are needed to ensure effective and compassionate nursing care is provided. This desire for increased education was voiced by nurses also (Khalighi, 2019). Similarly, when the topic of nurses' roles in postoperative pain management was explored by Khatib and Razvi (2018) using a quantitative approach via a cross-sectional, multicenter questionnaire survey of 16 tertiary hospitals in Maharashtra, many nurses' felt they needed further education and training to improve patient care. Nurses play an integral role in postoperative pain management through medication administration, patient counseling, and clinician notification. But there was inconsistency in practice in the use of pain scales to assess pain and in the monitoring of postoperative vitals (Khatib & Razvi, 2018). A lack of knowledge can prevent a nurse from implementing an effective intervention to improve comfort and reduce pain.

These inconsistencies in nursing practice and a need for increased provider education are echoed by a literature review conducted by Coll and Jones (2020). The authors reported that nurses' suboptimal knowledge of pain, use of pain assessment tools, and understanding of the action of analgesics are all contributing to poorly managed postoperative pain and that patients are experiencing unacceptable pain levels in the

home environment after discharge. Another study by Fallatah (2017) showed similar results that patients are having unacceptable pain levels at home. A cross-sectional study of 229 nurses' and doctors' pain knowledge and attitudes in Saudi Arabia concluded that while pain management has progressed, healthcare professionals continue to underestimate, under medicate, and mismanage their patient's pain (Fallatah, 2017). Patients usually anticipate that pain will be well managed by their healthcare team.

Adams et al. (2020) similarly concluded, in a study on postoperative pain management in Ghana, that most nurses have inadequate training on pain management and pharmacology of pain medications. The authors noted that while well-managed postoperative pain results in reduced suffering, increased mobilization, decreased lengths of stay, reduced hospital costs, and increased patient satisfaction, nurses often underestimated their patient's level of pain. Emphasis was placed on the importance of one's cultural beliefs and their influence on pain management. As an example, a commonly held belief in Ghana is that for healing to take place, pain is necessary (Adams et al., 2020). Underestimating and undertreating pain can occur for a variety of reasons.

Challenges to pain management are not limited to the postoperative period. Shoqirat et al. (2019) completed a qualitative study within a teaching hospital in Jordan. RN's perspectives of barriers to pain management in the emergency department (ED) were explored through semistructured interviews. This study of 12 nurses revealed that pain management is a multidimensional problem in the ED and requires a multidisciplinary team approach to improve. It was highlighted that useful insight can be gained from RN's, regarding pain management, as they can identify perceived barriers

which can affect teamwork and impair pain management (Shoqirat et al., 2019). Teamwork between healthcare providers is also important when managing pain during the postoperative period.

Similarly, chronic pain management in cancer treatment also faces challenges. Almasri and McDonald, (2021) completed a scoping review of the literature. The authors reported that effective pain management faces barriers related to patients, healthcare providers, and healthcare systems despite the availability of evidence-based guidelines. Ineffective communication patterns with healthcare providers are one barrier identified as patients frequently lack sufficient quantity and quality of information to manage their cancer pain (Almasri & McDonald, 2021). Underlying chronic pain can impact pain management needs during the postoperative period.

Some institutions have successfully implemented programs to improve postoperative pain management. Multimodal analgesia strategies have been shown to decrease opioid requirements, lengths of stay, and healthcare costs in adults (Tavernier, 2022). Castellucci (2018) provided a discussion of how a San Diego hospital, as part of an opioid stewardship program, prioritized nonpharmaceutical pain management techniques such as ice, heat, physical therapy and promoted meditation and nonprescription medication use as part of a new multimodal pain management plan. This program was implemented to address changing trends in postoperative pain management in the United States for patients undergoing elective surgery in the hospital setting. Castellucci reiterated that the idea recovery will be pain free is a patient expectation that has contributed to the over prescription of opioids. In efforts to combat the opioid

epidemic, healthcare providers and patients have been forced to rethink their postsurgical pain management methods. This opioid-stewardship pilot program has been well received by patients and healthcare providers however, additional training for staff will be needed as the other five hospitals across the health system in California adopt the program (Castellucci, 2018). Postoperative pain management is changing in the wake of the opioid epidemic and, with wide variety in practice and a lack of standardization to guide care, nurses may lack knowledge needed to properly assess and care for their patients.

Adolescents and Pain

The challenges that are present in managing pain in adults are magnified when trying to manage pain in children and adolescents. Up to 40% of children in the hospital experience moderate to severe pain, and these levels of pain are common in children during the postoperative period at home into the second week of recovery resulting in sleep disturbances and increased healthcare use and cost (Williams, 2017)**.** To manage acute pain in children, developmental age specific knowledge is needed. One cannot simply extrapolate data from adult literature and practices. Adolescents are unique physically, emotionally, and psychosocially (Mower, 2015). Unfortunately, level I and level II evidence to guide care of children and adolescents is limited, and that causes variation in practice among healthcare providers (Williams, 2017). More research on pediatric pain management is needed.

To address the lack of clear prescribing guidance and in response to pediatric opioid associated deaths, the American Pediatric Surgical Association Outcomes and Evidence-based Practice Committee conducted a literature review of over 14,500 articles

and developed 20 statements to support opioid stewardship in children and adolescents (Kelley-Quon et al.,2021). Guideline statements addressed three major themes (a) when caring for children undergoing surgery, healthcare providers must recognize risks associated with prescription opioids and opioid misuse, (b) during the perioperative period, nonopioid analgesics should be optimized, and (c) perioperative pain management and safe opioid use education must occur with both the patient and the family before and after surgery (Kelley-Quon, 2021). Guidelines can help providers when making decisions about care.

Evidence that increased guidelines were needed is evident in the literature. Pain management after common pediatric procedures was researched by Horton et al., (2019) via a retrospective review of 470 procedures of patients aged 1-18 at a single institution. Horton et al., found significant variety in opioid prescribing practices, significant over prescription of narcotics, and an underutilization of multimodal treatments. Researching children can be challenging for ethical, legal, financial, logistical, and patient availability reasons. Thus, historically, clinical decisions in children have relied on evidence extrapolated from adults (Williams, 2017). This problem has not been unique to the United States.

Procedural pain management was researched by Hu et al., (2020) when they conducted a descriptive qualitative study at a Chinese hospital to explore barriers and facilitators to implementing evidence-based practice for pediatric patients. Data was collected via a focus group and individual interviews. Findings revealed that participants: lacked knowledge and confidence in implementing pain treatments, had misbeliefs about

pain treatments, and lacked confidence in explaining pain treatments to others. A significant barrier that was identified is the lack of policy at the national or association level regarding procedural pain reduction in children. This study, by Hu et al., supports the need for further research with clinical nurses and allied health personnel.

McCaa (2017) explored pain assessment and management for hospitalized pediatric brain injury patients. Participants for this pilot study were recruited via email. Open-ended semistructured interviews of 30 minutes or less were conducted to gather data. The primary themes that emerged from this study were that pain is difficult to assess, treatments while effective are limited, and communication in pain assessment and management is important. McCaa emphasized understanding nurse perceptions of pain provides valuable insight on this topic because nurses are the primary healthcare team members assessing and treating patient pain in hospitals (McCaa, 2017). As this study focused on pediatrics it was not specific to just adolescents.

As more evidence specific to adolescents is obtained, practices to manage pain can be improved. Adopting an opioid-sparing approach and embracing multimodal analgesia for children has been encouraged (Williams, 2017). Kim et al., (2021) provide a case report of a 16-year-old boy who had posterior spinal instrumentation and fusion with nerve blocks utilized for early postoperative pain management. The authors acknowledge that randomized clinical trials are still needed but propose that opioid-free spinal deformity surgical repairs can be accomplished using thoracolumbar dorsal ramus nerve catheters. Kim et al., anticipate this technique will lead to decreased hospital lengths of

stay and improved postoperative pain management (Kim, 2021). Alternative options for postoperative pain management are being developed and refined.

Another study by Freedman-Weiss et al., (2020) sought to understand postoperative pain management after laparoscopic appendectomies in 73 patients aged 5-20. Their retrospective study supports opioid restriction as most patients did well without any opioids. The authors propose that postoperative acetaminophen and ibuprofen be prescribed to all laparoscopic appendectomy patients. They suggest that no more than three 5mg oxycodone pills be prescribed for any patients who are at risk for increased postoperative pain. Freedman-Weiss et al., identified in their study three at-risk groups (a) male teenagers, (b) early hospital discharges, and (c) in-hospital opioid users. These three groups of patients may have increased postoperative pain, but they recommend additional research is needed (Freedman-Weiss et.,2020). Reliance on opioids for pain management is declining as other medications are being shown to be effective.

In addition to more research to better manage postoperative pain in children, more research is needed to improve safety. Basco et al., (2021) acknowledge this safety issue and the ongoing opioid epidemic. They conducted a large-scale retrospective study of 11,578 patients who had tonsillectomies in South Carolina. Basco et al., found that most patients did not receive opioids with their surgery. However, any exposure to opioids in the 30 days period postoperatively resulted in a 50% higher risk for persistent opioid dispensing. Basco et al., reported additional risk factors for opioid misuse included: multiple prescriber visits, exposure to benzodiazepines, older age, previous opioid use,

medical comorbidities, longer postsurgical stays, and multiple tonsillectomy procedures (Basco et al. 2021). Safety concerns for medications are not always immediately evident.

Questions regarding the safety of medications for children related to metabolism, genetic variation, formulation, and abuse potential need to be explored (Williams, 2017). The Food and Drug Association (FDA) first issued a warning about codeine use in the pediatric population in 2012 (Kelley-Quon, 2021). Codeine, while often used in children, is no longer recommended for tonsillectomies and/or for children with sleep-disordered breathing as fatalities have been reported (Williams, 2017). Similar safety warnings regarding tramadol use in pediatric patients were issued by the FDA in 2015 (Kelley-Quon et al., 2021). The FDA has recognized that disorders such as obesity, sleep apnea, and severe lung disease pose increased risks for children receiving certain pain medications (Kelley-Quon et al., 2021) The American Pediatric Surgical Association Outcomes and Evidence-based Practice Committee specifically endorsed limited use of codeine and tramadol in patients under the age of 18 in their pain management guidelines (Kelly-Quon, 2021). Medications that are safe for adults may not be safe for children.

Pain Management and Opioids

A controversial aspect of pain management is the use of opioid-based prescription medications. Opioids are derivates of the poppy plant and are a key ingredient of the prescription drugs: codeine, morphine, oxycodone, hydrocodone, hydromorphone, fentanyl, tramadol, and methadone (Cutler & Glaeser, 2021). These medications relieve pain while making people feel calm and happy but have known side-effects of diminished attention, lethargy, addiction, and depression of respiratory and cardiac activity (Cutler &

Glaeser, 2021). Opioids have been used for thousands of years and the World Health Organization (WHO) classifies opioids as essential for acute pain, cancer pain, palliative care, and for opioid dependence (Degenhardt, et al., 2019). While opioids have many benefits there are risks associated with their use that must be considered.

Codeine, which was discovered in 1832, is the most prescribed opiate and has been a key ingredient for cough suppressants (Cutler & Glaeser, 2021). While United States opioid prescriptions have declined in general since 2015, one in six opioid prescriptions for young children still utilized codeine or tramadol, despite FDA contraindications for use in this age group since 2013 (Chua et al., 2021). When surveyed 12th graders were asked about any narcotic use in the past 12 months, codeine remains the most widely used narcotic (Johnston et al., 2022). In the United States, as a response to the opioid epidemic, healthcare providers are increasingly becoming more judicious about prescribing opioids (Hunsberger et al., 2021). However, as regulations have increased many who misuse opioid prescriptions have turned to illegal heroin and black-market fentanyl contributing to the nearly 500,000 deaths in the United States between 1999 and 2019 from opioid overdoses (Cutler & Glaeser, 2021). Sadly, children and adolescents are included in these deaths.

Malik et al., (2020) conducted a literature review to explore opioid use at specific perioperative stages in relation to the risk of opioid use disorder (OUD) and determined that this topic has not been adequately studied. However, Malik et al., theorized that opioid use during surgery and in the immediate recovery period is less likely to contribute to opioid misuse disorder than opioid use during the postoperative period. Several

contributing factors that they identified included the patient's level of consciousness, ability to perceive medication effects, other medications also being taken, severity of pain, and patients decision-making ability regarding opioid administration (Malik et al.,2020). Further research on when to use opioids is needed.

Ideally, guidelines for opioids allow their use when needed but minimize associated risks to patients and society (Degenhardt, 2019). A study of pharmacists by Webb et al., (2021) highlighted that opioid use for acute pain is a complex issue and while pharmacists play a key role in distributing medications to patients, they have limited evidence-based clinical support tools to give them guidance. The authors identified four main themes from the 126 pharmacist participants (a) significance of patient education, (b) importance of medication alternatives, (c) impacts of pharmacist interventions, and (d) need for enhanced collaboration with physicians. A concern of one pharmacist that was highlighted was the legitimate need for adequate pain control for certain traumatic injury and postsurgical scenarios (Webb et al., 2021). The highlighted issues pharmacists face are similar to what nurses' experience as they provide care to patients. Increased collaboration is needed. There has been a lack of communication between doctors, nurses, other healthcare providers, policy makers, drug regulators, and drug manufacturers (Almasri & McDonald, 2021). Improvements for safe opioid use are needed.

Adolescents and Opioids

Children and adolescents are not immune from pain or concerns regarding opioid exposure. Surgery is a common cause of acute pain and drives much of the prescribed

opioid use in pediatrics (Hunsberger et al., 2021). In the United States, one in four adolescents have misused a prescription opioid at least once in their life (Abraham et al., 2022). Adolescents' initial exposure to opioids is often via a prescription for pain (Overman, 2020). Of the four million opioid prescriptions dispensed for patients aged 0–21 years in the United States in 2019, 46 % were considered high risk for having increased potential for adverse events (Chua et al., 2021). Adolescents have unique risks associated with opioid use for pain management.

Dash et al., (2020) recruited 70 adolescents who received opioids for acute pain from ambulatory care centers, and their parents, to explore contextual risks for opioid misuse such as pain experience, mental health symptoms, and substance use of the patient and/or parent. They found that 90% of adolescents had two or more risk factors for future opioid misuse while 35% had five or more risk factors. The authors shared that the most common risk factors for misuse were pain catastrophizing, alcohol use, maternal history of chronic pain, and parent anxiety. This study highlights that adolescents have unique concerns to be considered when giving them opioids (Dash et al., 2020). Age-related risks must be considered by healthcare providers and parents/guardians.

Similar findings of increased risk have been seen in the postoperative setting. Bennett et al., (2018) examined 2,039 opioid-naïve patients aged 8-25 after surgical cleft palate repairs. They found that persistent opioid use was 4.3% higher postoperatively than in the control group. The authors shared that gender, procedure type, and severity of postoperative pain were unlikely to contribute to opioid misuse, but mental health disorders and chronic pain were associated with increased risk. Bennet et al., noted

additional risk factors of living in the North Central, South, and West regions of the United States and of having a chronic GI condition. The regional differences were attributed not to patient diversity, but to variety in opioid prescribing practices. Bennet et al., suggested that increasing awareness of patient characteristics that increase the risk of opioid misuse is essential when caring for surgical patients. Patient and parent education on pain expectations, risks of prescribed medications, and the importance of transitioning to nonnarcotic pain medications as quickly as possible are all essential to preventing opioid misuse (Bennett et al., 2018). Some have even suggested that when opioids are used by adolescents' specialty consultation for pain management should be a standard of care (Overman, 2020). An essential step to opioid misuse prevention is education for adolescent patients and their caregivers regarding medication use, risks, and benefits (Napier & Persons, 2019). Knowledge can support the use of increased safety measures.

Postoperative Nursing Care for Adolescents

Nursing care directly contributes to adolescent pain management during the postoperative period. A literature review by Cahyani et al., (2018) supports the important role nurses play in pediatric pain management. They emphasize that for best results, a holistic approach is needed for pain management. Barriers to pain assessment that nurses may face include healthcare system, bias from providers, time, and disbelief of patient's pain reports. Cahyani et al., reviewed several age-based pain assessment scales developed for use with children. Three pain scales mentioned, that are appropriate for up to 18 years of age, include the Visual Analog Scale (VAS), Numeric Rating Scale (NRS), and Wong-Baker Faces Pain Rating Scale. Cahyani et al., recommend it is easiest to utilize the NRS

in the clinical setting for patients over 8 years of age. Cahyani et al., reiterate that while nurses may underestimate their role in pain management nurses are essential in assessment of pain and determining its effects on the individual. Bedside nurses often make autonomous decisions regarding which pain medication to administer, from a list of ordered medications, based on their assessment, the patient's level of pain, and expectations of a pain-free experience (Tavernier, 2022). Medication is the most common treatment for pain and nurses serve as advocates and teachers for patients/families as they administer medications (Cahyani, et al., 2018). Nurses should be aware of adolescents' unique pain management needs.

While medication administration is one aspect of nursing care, comfort is also provided in other ways. Nurses can alleviate patient pain experiences through positioning, massage, and thermal regulation (Bayoumi, Khonji, et Gabr, 2021). Soares et al., (2020) researched nurses' perceptions of comforting children in a Pediatric Intensive Care Unit. The authors noted that environmental stimulus such as: lighting noise temperature, colors, and furniture are all things that nurses can manipulate to offer relief ease, and transcendence from pain. Showing respect, affection, and dignity are also noted as important. The authors highlight the importance of including children in decision-making and that nursing actions need to support a relationship of trust, protection, and safety between the patient-family-and healthcare team (Soares et al., 2020). A holistic approach to comfort is often beneficial.

Adolescents present additional challenges for care during the postoperative period. They respond differently to surgery than adults often having increased heart and

respiratory rates, sweating, and vasoconstriction (Mower, 2015). Anxiety of children and their parents impacts pain responses in children (Williams, 2017). Anxiety can also affect anesthesia induction. Common causes of anxiety in adolescents, that postoperative RNs should be aware of, include surgery, lack of control related to pain management, and separation from friends during recovery timeframes. Providing a calm environment and adequate time to address the patients' concerns is important (Mower, 2015). This is an area nurses can influence to improve pain management as they provide care and comfort to their patients. Karakul and Bolisik (2018) researched the effect of listening to music, in the postoperative recovery area, on anxiety levels in children and adolescents. The researchers determined that playing relaxing, calming, classical music while children and adolescents were awakened from anesthesia resulted in less patient anxiety as evidenced by decreased blood pressure, respiratory, and pulse rates (Karakul & Bolisik, 2018). Anxiety and pain are often related but may require different techniques to manage.

Other aspects of postoperative care are unique to the developmental stage adolescents are in. Adolescents' sense of identity, self-consciousness, and desire for autonomy are often increasing so it is appropriate for RNs to include them in discussions related to the surgery, even though they may not be the one providing consent for the procedure (Mower, 2015). They may respond differently than their parents might to questions. As an example, parents often overestimate their children's pain (Kaminsky et al., 2020). Also, adolescents may not divulge information regarding sensitive topics such as sexual activity, teenage pregnancy, and substance abuse while their parent/caregiver is

present which can complicate their nursing care (Mower, 2015). Privacy is a concern of adolescents that nurses should be mindful of.

It is important for nurses to assess the dynamic between adolescents and their families as families are frequently involved in providing care in the home setting. Donaldson et al., (2020) completed a longitudinal study of secondary data to explore pain scores and medication use postoperatively in the home setting. The study included 254 pediatric patients aged 2-15 years. Results revealed that Hispanic parents rated their children's pain higher but less frequently administered opioids than non-Hispanic white parents. Pain experiences are shaped by biological, psychological, and social factors. The risks associated with opioid use are well documented, but ineffective pain control also has risks such as increased rates of postoperative complications, delayed recovery, and decreased quality of life (Donaldson et al., 2020). Nurses should assess parent background and cultural beliefs when reviewing postoperative pain management as they prepare families for discharge and provide culturally informed care.

Families play a larger role in postoperative pain management for adolescents as hospitals have moved to increasingly shorter postoperative lengths of stay. Dagg et al., (2020-a) conducted a qualitative study of seven adolescents, aged 12-18 years, to explore postoperative pain management experiences after discharge from the hospital. The authors identified several key themes. One theme was that adolescents were not prepared for the intensity or duration of severe pain that they experienced at home. While opioids did the best job of relieving pain adolescents expressed fear regarding dependence (Dagg et al., 2020-a). Another theme was that adolescents recognized their families played a

role in their recovery. Parents often distributed medications, but with input from the adolescents. However, parents were limited in their ability as caregivers and were not able to take all the pain away (Dagg et al., 2020-a). Another key theme was that adolescents missed their normal life of school, work, sports, extracurricular activities, and socializing with friends which increased stress and contributed to drops in grades (Dagg et al., 2020-a). Laughter and distraction were reported as important to pain relief so returning to normal as soon as possible was desired. Planning to return to school was not something adolescents had discussed with their healthcare team (Dagg et al., 2020-a). Adolescents also noted that discharge teaching was often focused on the parents only. Adolescents wanted to retain autonomy so the authors recommended that nurses should include adolescents in pain postoperative teaching and ensure they utilize adolescent-targeted educational interventions (Dagg et al., 2020-a). There has been little research to measure adolescents' learning preferences related to what preexisting knowledge they have about opioids and their safe use (Abraham et al., 2022) so they can be a more challenging group for nurses to educate.

The importance of directing teaching to individual adolescents was also emphasized by Bilik et al., (2018) in their study of adolescent experiences after scoliosis surgery. A qualitative descriptive study was completed by interviewing 17 adolescents and nine family members postoperatively. The authors found that early postsurgical physical complaints such as pain, hunger, constipation, nausea, vomiting, and impaired mobilization were surprising to the adolescents (Bilik et al., 2018). When these physical changes caught them by surprise, the adolescents had increased anxiety and were fearful

of complications such as bleeding and death. Once the adolescents realized the positive effects of the surgery, they felt better. Bilik et al., recommended that pain and anxiety could be lowered if relaxation training was provided before surgery and music was played postoperatively. Another suggestion Bilik et al., made to reduce anxiety was to keep families with the adolescent as much possible. Adolescents in the study also indicated this was their preference. The authors reported that having family present until anesthesia induction and then again in recovery rooms and in intensive care units can improve adolescent's surgical experiences (Bilik et al., 2018). Postoperatively, adolescents often suffer from poor body image, anxiety, and have insufficient information, which complicates their healing. When it is time for discharge Bilik et al., noted that nurses need to ensure the patients have adequate information about pain management, movements to avoid, recommended daily exercise, medical device use, activities of daily living, and when to resume usual activities. Bilik et al., recommended evaluating educational needs of both the patient and the family separately and encouraging the adolescents to express their feelings and be involved in decision making as much as possible when making care plans (Bilik et al., 2018). Ensuring adolescents recover well is especially important as they are at higher risk for persistent postoperative pain if anxiety and pain coping are not well managed (Perry et al., 2018). Adolescents may have additional needs related to coping and anxiety that should be addressed when managing postoperative pain.

Summary and Conclusions

My review of the literature provides insight into current postoperative pain management techniques. It is broadly accepted that pain management during the postoperative period utilizes an individualized, multimodal approach, that includes opioids (Coll & Jones, 2020). However, there continues to be a wide variety in clinical practice amongst healthcare providers and controversy remains about prescribing opioids due to risks of potential misuse, addiction, and overdose. The risks associated with opioid use are particularly concerning for adolescents, but there is limited research regarding prescription opioid use in adolescence (Napier & Persons, 2019). Nurses are in a unique position to describe current post operative pain management practices for adolescents as they provide care to them and prepare them to manage their pain in the home environment with their family and/or caregiver's assistance after discharge. This study helps to fill in the gap in research by exploring the topic of adolescent postoperative acute pain management through the lens of RNs providing care and teaching to this unique patient population.

Chapter 3 will go into detail about the research methods and the design utilized to explore this topic. It will also provide the rationale for the chosen tradition. My role as a researcher will be defined and a discussion of how potential biases will be managed is provided. Sufficient methodological information will be provided such that my research may be duplicated by another researcher in the future if they so desire.

Chapter 3: Research Method

The purpose of my research study was to describe RNs perceptions of the care they provide to adolescents regarding pain management and opioid use during the postoperative period. In this chapter, I share the research design and my rationale for its selection and then discuss my role as the researcher. Next, I discuss the methodology, participant selection criteria, instrumentation, and procedures for participant recruitment, participation, and data collection. Lastly, I provide a description of how the collected data was analyzed, and measures that were taken to address issues of trustworthiness.

Research Design and Rationale

The central research question for my study was *What are RNs perceptions regarding the postoperative care they provide for acute pain management in the adolescent population?* Subquestions included (a) *How do RNs describe the pain management needs of adolescents during the postoperative period?* (b) *How do RNs describe their knowledge and experience with opioids used postoperatively by adolescents?* and (c) *What areas for additional education or support are needed by RNs who care for adolescents postoperatively?*

There are several central concepts of this study. One is that pain is commonly experienced during the postoperative period and nurses routinely help patients to manage their pain and become more comfortable (Wrona & Czarnecki 2021). Another is that adolescents have unique pain management needs. However, there is limited research and a lack of guidelines to standardize postoperative pain management for adolescents (Arora et al., 2018). Another concept is that opioids can be prescribed for postoperative pain

management. But adolescents are a vulnerable population as they have increased risks associated with opioid use (Dash et al., 2020). Understanding nurse perceptions of pain management during the postoperative period for adolescents can offer valuable insight that could potentially be used to improve patient care and increase safety.

To explore these topics, a general qualitative inquiry approach was used. Qualitative research designs allow investigators to discover why patterns of behavior occur (Busetto et al., 2020). It is a research tradition that can provide in-depth insight and understanding to real-world problems (Moser & Korstjens, 2017). Qualitative research is exploratory and inductive in nature and tells a story from the perspective of the participants (Trochim, 2006). Qualitative studies are useful for assessing complex multicomponent interventions to gain an understanding of what works for whom, when, how and why, which is helpful for a researcher that is focusing on intervention improvement (Busetto et al., 2020). A general, or generic, approach to qualitative research examines how people interpret and attribute meaning to their experiences to construct their world views (Kahlke, 2014). It is a flexible approach that inexperienced students may find useful for dissertations (Kennedy, 2016).

Role of the Researcher

I was the primary researcher for my study. In this role, I had contact with all the participants as I collected data through semistructured interviews. During the interview process, an interviewer will influence the data collected through reactivity and bias (Maxwell, 2013). To minimize my influence, I recruited nurses from institutions and nursing specialty areas where I do not work. These steps decreased the likelihood that

any study participants would have personal or professional relationships with me. Participation in my study was voluntary, and participants were advised that they may stop the interview at any time as a reminder that I have no power over them.

The completion of this study was motivated by my personal experiences with opioids being prescribed to my three children postoperatively when they were adolescents. My personal experiences and values contribute to the potential for bias and, if disclosed to study participants, may influence how they respond to interview questions. To encourage open and honest responses during the interview process, I attempted to minimize my nonverbal reactions to their responses, avoided interrupting them, and tried to keep my personal opinions to myself. However, I did share with study participants that I am a nurse and that this study is my dissertation project in the hope of establishing a good rapport and encouraging in-depth responses to interview questions.

Another ethical issue to be considered is confidentiality. To provide privacy to my study participants their audio-recorded responses and transcripts were coded, and any identifying information was removed to ensure confidentiality. In addition, participants' places of employment are not disclosed in the study results.

Methodology

A current gap in the literature exists about care provided to adolescents and acute pain management during the postoperative period from the RNs perspective. Nurses are a key source of comfort and play an essential role in helping adolescents and their families manage pain during the postoperative period. With my study, I hope to help fill this gap. I

conducted a general qualitative study using semistructured e-interviews to collect data from RNs.

Qualitative research is vital in primary care and is commonly used by the nursing discipline to gain understanding of people's experiences, perceptions, behavior and processes, and their attached meanings (Moser & Korstjens, 2017). There are several approaches that can be used for qualitative research. A general approach is recommended for qualitative student dissertations due to its flexibility (Kennedy, 2016). A general or generic approach seeks to understand how individuals interpret, construct, or understand their world and experiences (Kahlke, 2014). This approach asks people to share their opinions, attitudes, beliefs, or reflections based upon their experiences (Kennedy, 2016).

In my study, I asked RNs experienced in caring for adolescents postoperatively to share their perspectives on nursing care, pain management, and opioid use. In health research, semistructured interviews are one of the most frequently used methods of data collection (Busetto et al., 2020; DeJonckheere & Vaughn, 2018). During a semistructured interview open-ended prompt questions are used to elicit detailed personal narratives and stories (Whiting, 2008). Semistructured interviews are particularly useful when a researcher is deeply exploring personal and or sensitive issues (DeJonckheere & Vaughn, 2018). In my research area of interest, pain management and opioid use in adolescents could be seen as a sensitive issue considering the wide variations in clinical practice and the ongoing opioid epidemic in the United States.

E-interviews, or interviews that use computer mediated communication (Salmons, 2014) allow expanded access to participants. This was an important consideration when

planning my study as the ongoing COVID-19 pandemic impacted travel and personal interactions. With internet access, and software such as Zoom, participants can: be reached from around the world, see and hear the researcher, and be easily recorded (Johnson & Christensen, 2020). A sense of intimacy is maintained for the participant, which supports rapport and encourages information exchange, while being convenient for the researcher.

Participant Selection Logic

In qualitative studies, deliberate sampling is used to select participants who can provide rich data on the phenomena of interest (Moser & Korstjens, 2018). I decided nurses were an ideal group to provide rich data for my study. Nurses have a deep knowledge base of the key concepts involved with my study and are an accessible group. I considered using adolescents and/or their parents/guardians in my study as participants but while they could share their personal experiences, they may not have a deep knowledge base of the key concepts central to my study. In addition, due to health privacy rules they may be harder to access.

Purposeful sampling was used to recruit RNs that care for adolescent patients during the postoperative period. Additional deliberate sampling strategies that were employed included snowball and convenience sampling. The inclusion criteria for participation in my study was that participants were 18 years old or older, English speaking, licensed RNs in the United States, with at least 1 year of experience, who provide direct patient care to postoperative patients, including adolescents, in their primary area of work. The exclusion criteria for my study were a past or present

professional relationship with me or not meeting the inclusion criteria. A brief demographic survey was used to determine if individuals met the criteria to participate in my study.

Once participants were identified, semistructured interviews, which are characterized by open-ended questions, were used to collect data. Analysis began after the first interview as, in qualitative research, analysis should be started during the data collection stage (see Maxwell, 2013). Interviews continued until data saturation was met. The point of data saturation is reached when no new analytical data arises and a sense of closure has been attained (Moser & Korstjens, 2018). Qualitative studies often have smaller numbers of participants than quantitative studies and if those participants have a high level of knowledge regarding the phenomena being studied data saturation may be reached more quickly (Mason, 2010). For my study, I anticipated the number of participants needed to reach data saturation would be approximately eight to 20 people.

I recruited participants by distributing my study invitation (Appendix A) with instructions for those who may be interested, to contact me via email. Invitations were distributed to nurses, physicians, researchers, hospitals, surgery centers, nursing professional organizations, the Walden University Participant Pool, and nursing social media groups via email, Facebook, and LinkedIn. As participants came forward, I used the snowball method to recruit additional participants.

Instrumentation

The instrumentation I used for my study was a semistructured interview. I developed a preliminary interview guide of open-ended questions to use as a tool

(Appendix B) to facilitate conversation and elicit information to answer the question *What are RNs' perceptions regarding the postoperative care they provide for acute pain management in the adolescent population?* Most interviews used in qualitative research are semistructured in format (Moser & Korstjens, 2018). Semistructured interviews are a frequently used method for health service researchers to capture a participant's individual thoughts, beliefs, and experiences about a particular topic (DeJonckheere & Vaughn, 2019). It is a data collection instrument that was well suited to answer my research question. Other studies that have explored topics that are like mine used methods I have used in my study. As an example, McCaa's (2017) exploration of nurse perceptions of pain in pediatric traumatic brain injury patients used purposeful sampling and semistructured interviews. Both focus groups and interviews were used to explore barriers and facilitators to effective procedural pain treatments for pediatric patients (Hu et al., 2020). Focus group discussions were considered as a method for data collection for my study but were ultimately rejected due to uncertainty regarding the ongoing COVID-19 pandemic and concerns about social distancing.

Potential ongoing safety concerns related to COVID-19 led to the decision to plan on primarily using e-interviews instead of face-to-face interviews for data collection. E-interviews can be conducted via phone call, Facetime, Skype, or similar virtual platforms. The e-interview research framework supports using computer-mediated communication for original qualitative research (Salmons, 2014). This method can also minimize geographical challenges that may be encountered in reaching participants (Johnson & Christensen, 2020).

Interviews were conducted by telephone or FaceTime. I ensured I was in a private location within my home so conversations could not be overheard. The conversations were audio-recorded, and I manually created verbatim transcripts for analysis. To ensure content validity, transcripts should be carefully checked for accuracy and reflect the totality of the interview (Moser & Korstjens, 2018). To assist in capturing participants meaning, I journaled about interview experiences immediately following their completion to help ensure critical details were not forgotten and, to document any perceptions, thoughts, or insights I had prior to producing the typed verbatim transcripts.

Researcher-Developed Instruments

The data in my study was collected through semistructured interviews. I created a preliminary interview guide of questions to ask participants. An initial interview guide is typically developed from a literature review, previous research, or preliminary data collection and is then adapted and improved as the interviewer learns more about the topic of interest (Busetto et al., 2020). The preliminary interview guide has open-ended questions to attempt to fill a gap in the literature about nurses' perceptions of postoperative pain management and opioid use for adolescents. See Appendix B for the interview guide.

To establish content validity, preliminary questions were modeled after similar published study's qualitative interview guides when possible. The preliminary interview guide was reviewed with nursing faculty from my dissertation committee to ensure clarity of wording and validity before its use in my study. During the study interview, participants were asked additional probing questions to encourage rich, in-depth

responses. As interviews are completed, the interview guide was revised, as needed, for future participants.

Procedure for Recruitment, Participation, and Data Collection

For my study, I collected data via semistructured e-interviews with RNs. To recruit participants, I distributed an invitation through email, the Walden University Participant Pool, and nursing social media groups via Facebook and LinkedIn. The invitation included a description of my study, inclusion criteria, and my contact information.

As interested RNs responded, I emailed them the study consent form and the demographic data form (Appendix C). Participants were asked to reply to my email indicating their consent and providing the demographic data. Some participants received reminder emails to encourage them to complete this step.

Once completed consent forms were obtained individual e-interviews were scheduled. During the scheduling process, demographic information was reviewed, as participants indicated how they would like to use technology to complete their e-interview. Their options were speaking with me via phone or speaking with me while seeing me via FaceTime. Participants also indicated what time zone they lived in. Scheduling was completed by email. Some participants needed to reschedule their interviews and their requests were accommodated.

At the scheduled appointment time I contacted participants, introduced myself, and provided a brief review of my research question. Then, I provided an opportunity for any clarifying questions before the interview commenced. Then, I reminded participants

that the interview was being recorded. I anticipated each interview would be less than one hour in length and all participants were advised that they may stop at any time for any reason. The interviews ended up ranging from 26-83 minutes with the average length of time per interview being 41 minutes. Predetermined interview questions were utilized to guide the conversation with follow-up probes as needed to encourage rich responses.

As the interview concluded, I asked if there were any further questions or comments. After all questions were answered, I thanked participants for their time and encouraged them to please forward my interview invitation to any of their friends or coworkers whom they thought would be suitable to participate in my study. Within 1-2 days of the completion of the interview, an email was sent to each participant thanking them for volunteering their time and reminding them that they will be notified by email of the availability of the final copy of my completed research study once it is published. That email will include a copy of the abstract and a link to the full published dissertation in ProQuest.

Data Analysis Plan

Verbatim interview transcriptions were the data source in my qualitative study to investigate RN's perceptions regarding postoperative pain management and opioids for adolescents. An inductive content analysis approach was utilized to make meaning of the transcripts. During inductive content analysis, data is broken down into smaller coded and named units which can then be grouped based on shared ideas to summarize findings (Moser & Korstjens, 2018). I completed the coding process manually to fully immerse myself in the data. I followed a six-step reflexive process outlined by Braun and Clarke

(2021) for thematic analysis. The steps are (1) familiarization, (2) coding, (3) generating initial themes, (4) reviewing and developing themes, (5) refining, defining, and naming themes, and (6) writing up. Outlying discrepant responses were carefully considered as they may reveal areas where further research is still needed.

Issues of Trustworthiness

In any kind of research, if readers do not trust and accept the findings, then the results are of little value. In qualitative research, dependability, credibility, transferability, and confirmability are the criteria often identified as helpful for establishing trustworthiness (Korstjens & Moser, 2018). In addition, trust was an important element in my study during the interview process. If trust and rapport are not established with interview participants, data obtained is likely to be biased (Johnson & Christensen, 2020). Ethical issues are present in all types of interview research (Salmons, 2012). Addressing ethical issues, such as confidentiality, can help to establish trust with research participants (Johnson & Christensen, 2020).

Dependability

Dependability refers to the stability of a research study's findings over time. One strategy to ensure trustworthiness through dependability is the use of an audit trail (Korstjens & Moser, 2018). I used this strategy in my study. In an audit trail a researcher keeps notes to describe each step taken from the start of a study until its completion (Korstjens & Moser, 2018). An additional method I utilized to support dependability was to reflectively journal immediately after each interview session.

Credibility

Credibility refers to the amount of confidence one can place that the research findings are truthful. Two strategies that support trustworthiness through credibility are prolonged engagement and triangulation (Korstjens & Moser, 2018). I used these two strategies in my study. Prolonged engagement relates to allowing sufficient time for each interview to build trust and collect rich data (Korstjens & Moser, 2018). I anticipated my interviews would likely last approximately an hour each. Triangulation can relate to data sources, investigators, and methods (Korstjens & Moser, 2018). In my study, multiple people were interviewed on different dates and at different times of day until data saturation was achieved. Using multiple perspectives supported triangulation.

Transferability

Transferability refers to the ability for one's findings to be applied to other contexts or settings (Korstjens & Moser, 2018). A strategy I used to support trustworthiness and transferability was to use rich descriptions of my participants and research process. Providing rich descriptions of this information should allow readers to determine if findings are applicable to their own setting (Korstjens & Moser, 2018). I also collected data from a variety of participants. While I am focused on RNs who provide a specific type of nursing care, I had diversity in the age/experience level of the RNs who participated, the facilities that they worked in, and the geographic location that they resided in.

Confirmability

Confirmability refers to the ability of another researcher to look at one's data and come up with the same findings (Korstjens & Moser, 2018). A strategy I used to support trustworthiness through confirmability is an audit trial. I kept a journal to keep notes regarding the decisions I made while conducting my research and the data analysis and interpretation process. A diary is a useful tool for researchers to incorporate the strategy of reflexivity as it creates a place for a critical self-reflection regarding any biases, preferences, preconceptions, relationships, values, and conceptual lens and to consider their impact on the research being completed (Korstjens & Moser, 2018).

Ethical Procedures

In research, it is important to address ethical issues. Researcher actions have the potential to be harmful to participants (Hammersley & Traianou, 2012). Thus, care must be taken by researchers to minimize harm. Some of the ethical issues that I addressed for my study to minimize harm included gaining access to participants, treatment of participants, and treatment of data.

Regarding gaining access to participants, I worked closely with Walden's Institutional Review Board (IRB) and did not begin participant recruitment or data collection until I had full institutional approval to proceed with my study (approval no. 09-12-22-0029046). To avoid a conflict of interest and ensure impartial responses I did not recruit personal colleagues.

Another ethical consideration is the treatment of participants. As a novice researcher, I wanted to ensure that I was well prepared to conduct this study. Thus, in

2021, I completed the CITI Program course: Student's Doctoral Student Researchers 1-Basic Course under requirements set by Walden University. My CITI program record ID is 41001152. While my study did not pose risks to participants beyond those encountered in ordinary life. Qualitative research interviews can be emotionally intense, stressful, or even painful for certain participants (Wolgemuth et al., 2015). To minimize any potential distress, I ensured that I obtain informed consent from all participants prior to data collection. The consent form outlined the purpose, risks, benefits, time commitment, and confidentiality policies of my study. While many interview participants enjoy the process and some find it therapeutic (Hammersley & Traianou, 2012) all participants were informed and later reminded that they had the option of not answering a question or stopping the interview at any point in time and for any reason.

Specific ethical concerns related to e-interviews involve privacy and confidentiality as participants may accidentally reveal more than they intended during the interview process (Salmons, 2012). To ensure privacy, I was the only person with access to participants' contact information to set up interviews. I did not video-record any participants during their interviews. I only, with their permission, audio-recorded interviews. Participants were encouraged to position themselves in a quiet and comfortable location of their choosing. I ensured that as I conducted the interview, I was in a private location within my home out of the hearing range of others.

Further measures to protect participants from harm included careful handling of data. To ensure participant confidentiality, a simple code was utilized to link their demographic survey, audio-recording, and transcript. Participant names were not

connected to collected data. Participant contact information is securely stored in my home in a separate location from my research data. In addition, if participants provided any names of work sites, patients or other individuals when answering interview questions, those names were redacted when I completed the transcription process. Data collected is safely stored on my personal home computer and is only being used for my research study. Data was only shared with my committee as needed. Published study results will serve to disseminate my research findings. Upon publication of my study, original data will be transferred to a flash drive for long term storage in a secure location within my home for the 5-year period required by the IRB.

Another ethical concern that was considered for my study was the use of incentives to encourage interview participation. It is important that any incentives, if used, are of significantly small monetary value so that they do not unduly influence the participants. I did not offer incentives.

Summary

In Chapter 3, an in-depth description of the methodology I used for my research study was provided. It included my selected research design, my role as a researcher, how participants were selected, instruments needed, participant recruitment strategies, participation and data collection, and the data analysis plan. It also explores anticipated potential issues of trustworthiness and ethical considerations. Next to come is Chapter 4, where recruitment specifics, participant demographics, data collection, and the results of my study will be discussed.

Chapter 4: Results

My purpose with this qualitative study was to explore acute pain management and opioid use by adolescents during the postoperative period from the point of view of RNs who have provided care to this population. Nurses routinely complete pain assessments and offer interventions to enhance their patient's comfort. Data were collected from nurses via semistructured e-interviews. Results of this study may benefit society by providing crucial insight on adolescent pain management and opioid use during the postoperative period to guide nurses as they provide care. Nurses play a key role in adolescent health promotion (Kiza et al., 2021).

In this chapter, the study setting, and participant demographics will be shared. Then the data collection and analysis techniques will be described. In addition, evidence of trustworthiness will be reported. Then results will be shared that are relevant to the research question. The overarching research question I sought to answer was *What are RNs' perceptions regarding the postoperative care they provide for acute pain management in the adolescent population?*

Setting

Participant recruitment for this study was initially expected to occur during August and September of 2022. IRB approval for this study was received on September 12, 2022. Participant recruitment began on September 13, 2022. During the late summer of 2022, the United States experienced an early surge of pediatric respiratory syncytial virus (RSV) cases which transitioned into a fall season with substantially higher mixed respiratory illnesses forcing many pediatric hospitals to operate at or near maximum

capacity (Edwards, 2022). RNs experienced in pediatric care were my study's data source, and this viral surge had the potential to limit their availability due to time constraints. To facilitate participant recruitment, IRB approval was obtained in October to extend the participant recruitment timeframe into December 2022. Study invitations were distributed via email, Facebook, and LinkedIn. My email address was included on the study invitation and potential participants were instructed to email me. Potential participants were then asked to review the study consent, give consent, provide demographic information, and consider potential scheduling options for their e-interview. Preferred contact numbers and e-interview dates and times were finalized via email. At the appointed interview time, I contacted participants via my personal cell phone from a private location within my home. All interviews were recorded with an Olympus VN-541PC handheld audio recorder. I manually created verbatim written transcripts of the interviews from these audio recordings.

Demographics

I completed e-interviews with 13 participants for this study. Inclusion criteria required that participants be 18 years of age or older, a licensed RN in the United States, could speak English, have at least one year of experience as a nurse, provide direct nursing care to adolescents (people aged 12-17) after surgery in their primary work environment, and did not have a past or present professional relationship with me. The participants came from different areas of the United States. All of participants identified as female. The participants' ages ranged from 28-70 years, with an average age of 47 years. The participants' nursing experience ranged from 6-39 years, with an average of

23 years. All the participants had experience caring for adolescents in the hospital during the postoperative period. Participants were asked to choose either phone or Facetime formats for their e-interview session. Nine participants selected phone interviews, one participant selected Facetime, and three participants indicated they had no preference. Table 1 provides demographic information for my study's participants.

Table 1

Participant Demographic Information

Demographic information	Number of participants (*n*=13)
Gender	
Female	13
Male	0
Age Range	
20-29	1
30-39	4
40-49	1
50-59	5
60-69	1
70-79	1
Years worked as RN	
5-9	3
10-14	3
15-19	0
20-24	0
25-29	1
30-34	2
35-39	4
Time Zone	
EST	2
CST	5
PST	6
MST	0
Work Setting	
Hospital	12
Outpatient Center	1
Interview Method	
FaceTime	1
Phone	12

Data Collection

Data collection was accomplished over a three-month period as participants were recruited and interviews were scheduled. Next in this chapter, the location, frequency, and duration of data collection are provided. Also, a description of variations in data collection, from my initial plans, that are included.

Participants

The participant recruitment process started in September 2022 and 17 people volunteered to be in this study. Of those 17 potential participants, 13 RNs provided consent, shared demographic information, and scheduled an e-interview session via email. The e-interviews for those 13 participants were conducted from October 2022 until December 2022. Facetime was used for one participant's e-interview session. The other 12 e-interview sessions were conducted by phone.

Location, Frequency and Duration of Data Collection

E-interview sessions were initiated from my cellphone at a private location within my home in the Central Standard time zone of the United States. Participants were contacted using their preferred phone number. Interviews were conducted remotely. The participant's exact location during their interview session was unknown to me. The participants provided their time zone as part of their demographic data for scheduling purposes. Six participants were in the Pacific Standard time zone, five in the Central Standard time zone, and two in the Eastern Standard time zone. Based on background noises heard, during the interviews participants appeared to have chosen their home, car,

and/or workplace as their comfortable interview location. To ensure that participants were comfortable in their chosen location, I confirmed it was a good time to talk as I introduced myself. As participants indicated a readiness to proceed, audio recording was initiated. Then, as part of my formal interview opening statement, participants were reminded that they could stop the interview at any time. Due to family needs, two participants rescheduled their interviews and one participant needed to stop unexpectedly.

Each of the 13 participants completed a singular semistructured interview. I used an interview guide adding additional follow-up and clarifying questions as needed. The interview sessions varied in length from 28 minutes to 83 minutes. One of the interviews exceeded the planned up to 60-minute time frame. In that instance, as we were approaching the 60-minute mark I asked my final question from the interview guide of: "Is anything else that you think I should know, that I should ask, or that I didn't ask that you wanted to share". The participant's response was to question why the focus of my research involved adolescents as compared to younger children or adults. My explanation prompted the participant to share additional stories related to pain management in other age groups, to recommend research articles that might be of interest, and to suggest a potential study participant from a specific geographic area. Thus, the length of that interview extended beyond the anticipated timeframe to 83 minutes. However, the average interview length of time was 41 minutes.

Interview participants were placed on speaker phone and conversations were recorded utilizing an Olympus VN-541PC handheld audio recorder. At the end of each

interview, I updated my interview journal. Audio recordings were then played and replayed as I typed verbatim transcripts using Microsoft Word.

Variations in Data Collection

A variation from the anticipated data collection process did occur during this study. Originally, I envisioned that all RN participants, who met the study inclusion criteria, would currently be providing direct patient care to adolescents. However, as RNs were volunteering to participate in the study, the question of whether an RN should be excluded if they were not currently providing direct patient care to adolescents but were still active in pediatric nursing perhaps in a nurse educator or other advanced practice role arose. From the perspective that these RNs could add richness and depth to collected data by sharing an informed alternative viewpoint on this topic, IRB approval was obtained to include participants who met the study inclusion criteria who may not be currently providing direct patient care.

An unusual circumstance encountered during the study's data collection period was that the United States experienced an early surge in respiratory viral illnesses resulting in approximately 75% of pediatric hospital beds being full nationwide in October 2022 (Edwards, 2022). This viral surge was spontaneously mentioned by four study participants during their interview sessions. While not an area specifically explored by my study, the casual comments these RNs shared described temporary facility measures being used to accommodate the patient surge and high census such as altered RN to patient staffing ratios, decreased patient lengths of stay, reconfigured patient treatment areas, and limited support staff resources. These measures potentially impacted

care given to postoperative patients within facilities that were at high capacity. After data was collected it was analyzed.

Data Analysis

As each interview was completed the data analysis process began. Coding was the start of this process. Codes were then grouped into categories and themes were generated.

Coding Process

The verbatim transcriptions of the audio recordings from the 13 e-interview sessions were the data source for this study. An inductive content approach was used to analyze and make meaning of the data. When this approach is followed, data is broken down into smaller coded and named units that can be grouped, based on shared ideas, to summarize findings (Moser & Korstjens, 2018).

The first step I took towards breaking down the data was to copy the participants responses from the verbatim transcriptions into the first column of a simple three-column chart that I created in a word document. I then edited this column to remove fillers and unnecessary fragments that were irrelevant to the conversation to prepare for manual coding. Next, I went through each line and developed codes. The codes were placed into the second column of my chart. Once all the interviews were completed, and had been coded, the participant responses were reviewed, and preliminary codes were revised as needed. Categories of shared ideas became apparent, and codes were then grouped based on shared ideas into the third column of my chart.

Data analysis is a recursive process, and after the second round of coding, the focus shifted to thematic analysis. Braun and Clarke (2021) recommended a six-step

reflexive process for thematic analysis, step one is becoming familiar with the data. This step was accomplished while I conducted the interviews, listened to the audio recordings, typed the transcriptions, and checked the transcriptions for accuracy. Step 2 is coding (Braun & Clarke, 2021). I used a line-by-line manual process to generate my codes. Step 3 is generating initial themes (Braun & Clarke, 2021). Some themes had started to emerge earlier in the coding process, and these potential themes were written as titles onto individual note cards as they emerged. Step 4 is developing and reviewing themes (Braun & Clarke, 2021). For this step, the third column of my chart with the grouped codes for each interview was compared between participants and more potential themes were developed and additional note cards were labeled. Step 5 is refining, defining, and naming themes (Braun & Clarke, 2021). For this step, all the potential themes, codes, and transcripts were reviewed, with the conceptual framework for my study, Kolcaba's (2021) comfort theory, in mind and four final major themes were named. The four major themes were (a) pain is a multifaceted phenomenon, (b) adolescents have unique healthcare needs, (c) pain management is an evolving field, and (d) nursing interventions can enhance comfort. The sixth and final step of Braun and Clarke's thematic analysis process is the writing up stage (Braun & Clarke, 2021). For this step, the themes that emerged from my data analysis are presented with support from participant quotes and are shared in the results section of this chapter.

Codes, Categories, and Themes

For this study, data saturation was achieved with 13 interviews. After coding and categorizing, four major themes emerged from the data. The four themes are as follows.

Pain is a Multifaceted Phenomenon

This theme described the complex nature of pain. For example, Participant 13 stated, “There is so much that goes into pain management.” While Participant 6 stated, “Talk to the child individually see how they’re feeling, some of it is like psychosocial pain you know there’s all different factors that go into play.” This theme includes the subthemes of types of pain, causes of pain, pain tolerance, pain assessment, impacts of pain, and pain treatment.

Adolescents Have Unique Healthcare Needs

This theme describes that 12–17-year-olds are still physically and emotionally maturing. For example, Participant 3 stated, “One of the biggest challenges with our teenagers because we think they look like adults but they’re not so just remembering that and being mindful of that is really important.” While Participant 4 stated, “I think we have more satisfaction when adolescents are put on the pediatrics floor than on the adult floor because there, they just don’t get the developmentally appropriate care that they need because they deal with pain differently.” This theme includes the subthemes of developmentally appropriate care, parent/guardian relationships, emotional/physical maturity, decision-making capability, gender differences, and age-specific concerns.

Pain Management is an Evolving Field

This theme describes that evidence-based treatment guidelines for adolescents are being developed. For example, Participant 9 stated, “I don’t know if we have defined best practices.” While participant 10 stated:

> We all do the same surgery it just might be at a different place but there has to be very similar practices where we all can kind of learn from each other and kind of have more standardized practices and I think it would be great to even have some of that across the country.

This theme includes the subthemes of changes in practice, variations in practice, treatment options, barriers to treatment, guidelines, regulations and policies, and a team approach to care.

Nursing Interventions can Enhance Comfort

This theme describes nurses' role in pain management. For example, Participant 3 stated, "Experiencing that positive touch may really benefit, from somebody very appropriately of course, but just it's it's like that emotional need is being met through positive touch to help healing." While Participant 4 stated:

> Small things like talk in a calm voice and have a nonjudgmental attitude and if appropriate you know use touch like if you hold back someone's hair or you put a cold washcloth on their neck those little touches with adolescents means a lot.

This theme includes subthemes of pharmacological measures, nonpharmacological measures, provide care, advocate, and educate.

Discrepant Cases

A subject that was discussed during many of the e-interviews was if any gender and/or cultural differences impacted postoperative care and pain management for adolescents. Most of the study participants acknowledged gender and/or cultural differences while one participant denied any differences. However, the participant that

denied any differences, later made comments in response to a nonrelated interview question that contradicted their earlier response and implied that they had encountered differences in care related to gender. Participant 7 responded that there were no gender and/or cultural differences, but when later discussing aromatherapy stated, “So there’s lemon, lavender, and peppermint. So, depending on, not all, the girls actually ask for that more than the boys do.”

This discrepant case was attributed to implicit bias. Implicit biases are attitudes and assumptions about individual characteristics that could include gender and cultural background that operate outside of a person’s conscious awareness (Sabin, 2022). It is not believed that the participant was intentionally providing contradictory responses to interview questions. Throughout the data analysis processes trustworthiness must be maintained.

Evidence of Trustworthiness

For research results to be valuable, trustworthiness must be established. Criteria identified as helpful in establishing trustworthiness in qualitative research include credibility, transferability, dependability, and confirmability (Korstjens & Moser, 2018). Multiple strategies were utilized in the completion of this research study to support trustworthiness.

Credibility

Credibility is defined as the quality or power of inspiring belief (Merriam-webster.com, n.d.-b). Prolonged engagement and triangulation are two strategies that

support credibility (Korstjens & Moser, 2018). These strategies were both utilized to ensure credibility in my study.

To ensure prolonged engagement, the 13 participants in my study were advised in advance that the e-interview session would take approximately an hour so they could allot sufficient time in their schedule. Interviews were then scheduled, and rescheduled as requested, and as each interview began it was confirmed that it was a convenient time to proceed. These steps were utilized to ensure that participants did not feel rushed during their interview.

The e-interviews followed a semistructured format. As I asked questions, I was mindful to allow quiet pauses and gaps in conversation to give participants time to formulate their answers. I asked additional probing questions, as needed, to encourage richness and clarity in responses. As the sessions ended, participants were asked if they had anything to add that I may not have asked about. This allowed participants the opportunity to extend the conversation as they desired to share additional information.

Interview times ranged from 26 minutes to 83 minutes, with an average time of 41 minutes. One participant did have to end their interview abruptly, due to a family emergency, but as we had covered most of the interview guide, and the length of time spent talking was similar to some of the other less verbose participants, the data provided was kept in the study.

Triangulation supports credibility and can relate to data sources, investigators, and methods (Korstjens & Moser, 2018). RNs served as this study's data source. Data was collected via e-interviews that occurred between October and December 2022. Study

participants provided multiple perspectives thus supporting triangulation. Participants responded from different geographic regions of the United States, had varying years of nursing experience and levels of expertise, provided care in different types of institutions, and had differing roles within their facilities. Interviews continued until data saturation was met. Data saturation is considered to be met when no new data arises and a sense of closure has been attained (Moser & Korstjens, 2018)

Transferability

Transferability is the ability to apply one's research findings to other contexts or settings (Korstjens & Moser, 2018). A strategy I used to support trustworthiness related to the transferability of my study results was to provide rich descriptions of my research process and study participants. While my study focused on RNs who provide a specialized type of care, the location of care was more generalized which increases potential result transferability. The 13 participants worked in a variety of settings across the United States. Institutional affiliations were redacted to protect participants' privacy and encourage truthfulness in responses. However, participants' comments about their work experiences reflected a variety of inpatient and outpatient units of both general hospitals and pediatric specific institutions. Participants provided insights from the perspectives of full-time, part-time, and weekender employees and represented both day and night-shift workers. Study readers can use rich descriptions of participants and research processes to determine if results may be applicable to their own setting (Korstjens & Moser, 2018).

Dependability

Demonstrating dependability is another way to support trustworthiness in qualitative research. Dependability relates to a study's findings remaining stable over time and one strategy to support dependability is the use of an audit trail (Korstjens & Moser, 2021). For my study, IRB approval to begin recruitment and data collection was received on September 12, 2022. Data collection and analysis for my study ended in December of 2022. An audit trail was kept during this time frame to describe each step taken. An additional step that was utilized to support dependability was that I reflectively journaled after each interview session including my thoughts and feelings. The data collection period spanned three months and involved 13 participants. However, as the sole researcher, I conducted and recorded the e-interviews, typed the transcriptions from the audio recordings, and manually coded and analyzed the data so consistency was maintained throughout the process.

Confirmability

Confirmability also supports trustworthiness in qualitative research. Confirmability is when another researcher can look at one's data and have the same findings (Korstjens & Moser, 2018). Two strategies I utilized to support confirmability in my study were reflexive journaling and maintaining an audit trail. By journaling, I took time for self-reflection regarding biases, preferences, preconceptions, relationships, values, and conceptual lens as research was being completed (Korstjens & Moser, 2021). In addition to regularly writing entries in my audit trial and journal, I also reread them periodically to guide decisions throughout my research process. Another strategy I

employed, that also supports confirmability, is that I created a three-column chart in a word document to record how I moved from my primary data through the line-by-line coding process to theme development.

Results

The overarching research question was *What are RN's perceptions regarding the postoperative care they provide for acute pain management in the adolescent population?* After completing the interviews, transcribing the recordings, and manually coding the transcripts, four themes emerged from the data to answer the research question. The four themes are (a) pain is a multifaceted phenomenon, (b) adolescents have unique healthcare needs, (c) pain management is an evolving field, and (d) nursing interventions can enhance comfort.

Theme 1: Pain is a Multifaceted Phenomenon

As participants talked about pain in this study, they described a multifaceted phenomenon. Several RNs noted that pain varies by type. For example, Participant 2 stated, "Being able to address all those different kinds of pain really affects physical pain." While Participant 5 stated, "this pain is a lot different." Participant 9 stated, "They would often describe that pain so differently than other surgical pains."

It was also noted that perceptions of pain vary. For example, Participant 8 stated, "Some kids are going to have a lot more pain than others …and your tolerance for that really depends on you." While Participant 5 stated:

> Some kids would actually just let their parents, their parents respond to what their pain is, and then you have to go back and explain like this is your pain not your

> parent's that you're experiencing and there is no right or wrong answer it's how you're feeling.

The multifaceted nature of pain impacts pain assessment and pain management. For example, Participant 11 stated:

> It kinda gets tough right, it's like your assessment is this kid can't be in pain. Heart rates in the 70's right we're, you know, playing on our phone…it doesn't match up. Your ten out of ten doesn't match up to the way you're acting.

Participant 13 stated, "There is so much that goes into pain management, and it does not start in the hospital it starts at home" and she also stated:

> The adolescent population, that is dealing more with anxiety or the lack of exposure to friends and socialization like they're used to, do tend to have more heightened pain and there's a lot of care that goes into their pain management around that and if it's ignored definitely kids need more medications if you ignore that psychosocial component of their care.

Participant 3 stated, "So we have clinical therapy who can help us identify some of the extenuating factors within the child's life that might be causing distress during their stay including pain." Participant 2 stated "that is such a big part of pain management is managing you know all of those peripheral symptoms, the anxiety, the nausea, um tension." Participant 4 stated:

> There's something about you know connecting that perception of that medication helping them which actually helps it to work better, and I don't know how

> adolescents do it, but they do, and they do a great job they convince themselves that oh ok this is what works for me.

Participant 7 stated:

> Just being able to assess the pain adequately using the right pain assessment tool um and trying to offer not just the pharmacological options that we have but expanding it and using non-pharm or not your typical you know it doesn't always have to be IV.

Participant 10 stated, "Make sure we are not treating a number, but we are really treating what is really needed for that patient and it's great if prescribers are writing the orders appropriately for that kid and it works it's a challenge." And stated:

> Helping people focus more on function and quality of life and even if you're a postoperative patient able to get up and walk around the room or the hall without a lot of distress regardless of what their pain score is because every pain score is individualized you know. You know a ten is a ten to that person and but how we look at that functioning piece we still can do better with that."

Participant 1 stated "Pain management is just one piece of the puzzle."

Theme 2: Adolescents Have Unique Healthcare Needs

As participants talked about adolescents in this study, they described that this age group has unique healthcare needs. Participant 3 stated, "They are not little adults, they need dosages and medications that are specifically formulated for their weight and so that way we can ensure we are being safe in what we are giving them." And also stated:

> With adolescents in particular, even though they are getting to be adults they're not. They're not adults and so we still have to be really mindful of our practice and of our education with those kids. I think when you see like a, especially like you know the big football player kind of guy you look at them and its easy oh he's an adult but he's not he's still a child he still needs guidance and assistance and education and I think it's easy to be like you should be tough why are upset about this or why are you acting like such a baby but they're not they are hurting and so I think that's like one of the biggest challenge with our teenagers because we think they look like adults but they're not so just remembering that and being mindful of that is really important.

Participant 4 stated, "You can have a very young adolescent, or you can have a very mature adolescent and based on their developmental age you're going to have to change some of your strategies." And also stated:

> You treat a child like an adult and they're going to have a lot of mistrust and fear of you so it's, pediatric nursing is a… subspecialty where you really have to know like your Eric Erickson and Piaget and Kohlberg and your theorists and also know about how to treat pediatric pain and how to communicate based on developmental age to be effective caring for the age group of adolescents.

Participant 2 stated:

> You have 11-year old's who these days who are you know fully sexually mature…, have breasts and are menstruating and then some who at 17 are still

> looking like pre-teens. So, I think that the perception of appearance and behaviors make a difference in how the nurses perceive the patients.

Participant 2 also stated:

> a lot of the adolescent patients I worked with were patients with chronic illnesses so patients with cancer etcetera that were undergoing surgeries and you know I think that they, that adolescents need to be given more… of a voice in in making their treatment plan.

Participant 8 stated, “you have varying range of maturity in like the 12,13 right like some of them are young where they’re really not making any type of decision”. Participant 6 stated, “There are a lot of factors that go into a child’s maturity level, and you know what they are able to handle how they are coping what their coping skills are what they have been taught previously”. Participant 11 stated, “With adolescents it’s in regards to the pain management I would find it a little bit easier just because they are able to verbalize you know usually how much pain they are in.” Participant 13 stated, “Their development phases revolve solely around socialization so the psychology portion of care for adolescents is huge, and the mind and psychology plays a large part also into pain”. Participant 12 stated, “If they can get on the phone and chat with their friends, I find that is able to distract them quite a bit and give them moral support with being able to contact friends and family.” And also stated:

> Adolescent patients get a psychosocial referral with social work and psych automatically which is great because before they didn’t automatically get a psych

> eval, but they needed it, and parents would refuse and now it's just part of the whole treatment plan.

Participant 1 stated:

> If you have an adolescent who is going through, they're you know, umpteenth surgery and the outcome is going to be the same, which isn't a great outcome, I've got to tell you a discussion with, about pain is quite a bit different than if you are having a discussion about a pain plan with a kiddo or an adolescent… whose trajectory is more positive.

Participant 6 stated:

> We do take care of like oncology patients sometimes or complex kiddos that maybe have been hospitalized for more surgeries or you know this isn't their first go round so really making sure we tailor their plan of care, and we make sure we are providing adequate pain control for them.

Participant 3 stated:

> As the child gets older it's less likely that the parent is going to be responsible for the medication dosing or for the complications after surgery. The kid has to be aware of what to watch for so that they can ask their parent for help if they need it.

Participant 9 stated:

> The majority of adolescents that I treat postoperatively are opioid naïve and so they experience the side effects from opioids, the sedation, itchiness, the nausea you know sometimes before they get the pain relief from it.

Participant 7 stated:

> The other ages don't, you don't see as much of the regression as you do a little bit in the teenager world and then as the teenagers start to feel better then they go back to not wanting the parents in the room all the time telling them to go ahead and go or they just want their phone.

Similarly, Participant 4 stated:

> With an adolescent um they're going to revert they're going to regress their behavior is automatically going to regress right. You can have an 18 yr. old adolescent that is all of a sudden acting like a 13 yr. old adolescent and what they want is reassurance.

Participant 4 also stated:

> Depending on how that adolescent acts if you sit down and engage the adolescents and they engage with you then you continue forming that relationship and empowering them if you engage the adolescent and they just look at their mom or disengage or withdraw you know you're going to have to work with the parent.

Participant 6 stated, "Family involvement and family decisions all of that goes into play whenever you're managing a child's pain." And also stated:

> It can get very complicated and so that is when you pull in the pain team and say hey Dr. so and so this kid's used to smoking marijuana three times a day. I think that's where a lot of our issues with pain control are stemming from and sometimes, they don't want to admit that to you either.

Theme 3: Pain Management is an Evolving Field

As participants talked about pain management, they described both previous changes they have encountered during their nursing career and current initiatives for continued improvement. Participant 9 stated, “How much pain are we expecting them to tolerate when we have analgesics, even though there are risks with those analgesics, we have analgesics that can treat and reduce their pain.” Participant 1 stated:

> I felt like pain management in particular was always at the forefront of how can we provide holistic pain management for our patients in the postoperative period without potentially and dangerously exposing them to opioids or misuse of opioids and that was something that we took very seriously and I think that will continue to evolve and I just think I just think you know you have to see yourself as a change agent and you have to stay up to date on best practices and one way to do that is to work in a hospital that appreciates the responsibility that we have to practice in a way that is evidence-based and that goes for responsible application of opioids.

Participant 6 stated, “I definitely see trends improving I think with the research that comes out more multimodal, like staying ahead of pain vs being reactive to pain.” Participant 5 stated, “I love evidence-based practice. I’m glad that we use a lot of evidence-based practice in the hospital.” Participant 5 also stated

> IV Tylenol seems to work really well and the Toradol alternating every 3 hours that really does seem to do the trick so I’m kind of glad that we have that now available. When I started nursing, obviously we didn’t have any of that.

Participant 2 stated:

> I think that there's aways to go in in being able to use the benefits of ancient wisdoms mixed with the ah almost miraculous efficacy of modern drugs without overusing the modern drugs or underusing.

Participant 10 stated:

> Our anesthesia team is very robust, and we provide a lot of regionals, so epidurals, peripheral nerve catheters, nerve blocks. So, we have a very robust regional team so we can offer those types of postoperative pain management, and a lot of those kids won't even need opioids our epidurals don't even have an opioid in it. It will be a local anesthetic.

Participant 8 stated:

> They can do those like transverse abdominal blocks, so those things have come very far, and I feel like they work great when they do work so they do a lot of those which really decreases the narcotic usage as well in our populations.

Participant 8 then gave an example:

> Getting your gallbladder out. So, 14 years ago when I was new these patients would one, always stay multiple days. They did where they would come up with a PCA with narcotics in it, to they are going home same day they're not going home with narcotics they're going home with Tylenol/ibuprofen and they're doing like a block and they're doing fine you know.

Participant 7 stated, “They are trying a variety of different medications in order to keep the patient not pain free but controlled enough for their kids can get out of bed and be mobilized and eat and you know progress.” Participant 7 also stated:

> Pediatrics doesn’t have the opioid naïve scale… that they use in the adult world however, they do try to take in some of that some of that into consideration if the kids have ever received any narcotic, then they start at lower doses.

Participant 10 stated:

> From 26 doses for home going prescriptions back in 2015 and we are down to about 11 doses for homegoing prescription we’ve cut our prescriptions in half… we’re using a lot more multi multimodal analgesia, Tylenol ibuprofen scheduled.

And Participant 10 also stated:

> It’s part of the national surgery um initiatives too in far as you know minimizing opioids when you can and using multimodal. So, each of our surgical areas has kind of looked at various different surgeries that they’ve had and how much home going prescriptions and stuff they were using for the patients and following up with how much they really use and so it’s they have a lot more standardized practices.

Participant 13 stated:

> The facility I work at right now is probably the most impressive that I’ve been at, they just open my eyes and set the bar high like they were trialing different things like how does IV Tylenol do intraoperatively vs preoperatively so they do a lot of studies …. how do these kids do when we gave IV Toradol and Tylenol

> intraoperatively for T&As and ok the pain scores went down a little bit and ok what if we take away the IV Tylenol because that's really expensive but we give it preoperatively because that's oral does that change anything and they realized nope it doesn't change anything so ok let's stop IV Tylenol because that's too expensive we can do it oral and get the same effects and then they said let's take away morphine intraoperatively and replace it with actually ketamine so now they do ketamine instead and they noticed the pain scores went down significantly and the research I feel like at this facility was missing from other places I worked. To actually see the trial and effect of what you are doing, so valuable instead of just trying things, and seeing how it does, and then having all providers on the same page too so every anesthesiologist and every nurse anesthetist running it pretty standardized way vs. per provider per their judgement.

Theme 4: Nursing Interventions Can Enhance Comfort

As participants talked about postoperative pain, they described many ways that RNs can enhance comfort for adolescents. Participant 7 stated, "So encouraging other disciplines, if there is an ability to do an epidural or nerve block for the type of surgery, to try that." Participant 6 stated, "If I have a kid post-op and they're not on a scheduled pain medication I'm advocating for that, at least for the first 24 hours post-op." Participant 8 stated, "One of the biggest things for pain management is we do so much teaching." Participant 7 stated, "If they are giving the pain medicine, they will reinforce why it's being given and what to look for." Participant 1 stated:

> We wanted to give them tools in their toolbox to be able to manage their pain that didn't always have to come from opioids so I think that it has a place I think that opioids have a place, but I think that they should be really informed and used in conjunction.

Participant 10 stated, "We're finding when we follow up with our families, they are using way less opioids because we've done a better job of telling them how to manage their child's pain at home." Participant 10 also stated:

> We work with the anesthesia team so, our nurse practitioners are available to go see the patients immediately after surgery and you know make changes and see how soon to switch the kids over to orals for the primary services and then they will manage most of those kids until they go home.

Participant 1 stated:

> Distractors work particularly well with children, and I think using alternative methods with children really informed my practice of pain management that I took into hospice so aromatherapy, music, distraction with games, ah you know massage, just touch, you know soothing all of those things work really really well in and work at helping to reduce the amount of pharmaceuticals that are needed to control symptoms.

Participant 3 stated, "We use aromatherapy, we can use that for pain and relaxation, but we can also use it for nausea, so because its surgery often times those two symptoms go hand in hand". Participant 6 stated, "Teach other ways of managing pain as well. We offer yoga therapy at the hospital, massage therapy. We have a lot of different

aromatherapy, ways that we can treat pain in addition to the medications that we use."

Participant 13 stated:

> Even just distraction, like talking about things which is kind of what guided imagery is like. Tell me about your famous Christmas and putting them back in that place and time, there's a lot of different tactile things like weighted blankets sometimes help for kids that are more anxious and just need that extra grounding and pressure ice of course. Yeah, ice, elevation all those other things yeah sometimes sensory things a lot of kids have sensory or processing disorders or even autism so some sensory things can help decrease the pain receptors so if they have all the monitors on their body and are agitated about that so just decreasing all the normal everyday triggers getting the those things off the body to help relieve the pain and sometimes you don't even have to do the medication it's all the external environmental things. Decrease noise dim the environment maybe decrease the amount of people in the room.

Participant 3 stated:

> We have a comfort menu and so even things that are like very minor in comparison to maybe our surgeries, things like IV starts or blood draws, things that come with surgery, but maybe we don't talk about it in that pre-op period we have a menu and you can give it to the parents and the child or the adolescents and these are the options that we have to help you cope with painful procedures so it can be things like cold spray, buzzy, distraction.

Participant 12 stated, "We use warm packs, cold, ice, repositioning." Participant 7 stated:

> If they can have their phone and communicate with their friends, then they get distracted or if they are able to um play video games then they are distracted enough where it helps with pain control with the narcotic or other medications that we give.

Participant 13 stated “It’s important definitely to advocate for them to remain as much as a teenager as they can while they are in the hospital and that helps them out a lot too.” Participant 11 stated:

> Adolescents will sit there and like fidget with things after surgery and I feel like we, you know also, we ask them too if they want to like reposition, do we want to sit in a chair and try that, there are a lot of other comfort measures. We have this massage like, it's almost like a small massage pillow that kind of vibrates, that some surgeons will let us use depending on the type of surgery and it kind of just distracts them they put it on their arm or leg or somewhere else it kind of like vibrates and gives them a light massage and then they kind of get distracted.

Participant 12 stated, “Distraction works well for them and heat and cold works a lot postoperatively and their support network.” Participant 6 stated:

> They need their space to heal and sometimes like a lot of family and friends in the room is not a healing environment so in that like I said goes back to building that relationship and that rapport with a child or an adolescent and giving them the space to say its ok if you need mom to leave for a minute you know I think we forget they are still adolescents they’re still teenagers they still want their space and their privacy.

Participant 3 stated:

> You have to educate those kids and really help balance like giving them what they need in order to not be in pain, to have a good experience, and have their healthcare well managed but also not creating or furthering an issue because those kids are a little bit at a higher risk for a dependency issues.

Participant 3 also stated:

> We want to have a healthy concept of pain management because likely this experience in the hospital is not their only encounter within healthcare for the rest of their life and so we really try to work on figuring out where they are at and providing education at an age appropriate level to help them understand how to be responsible within their pain management options and what their options are while they are in the hospital and then at home.

Discrepant Cases

While not a viewpoint necessarily voiced by the majority, discrepant cases can highlight important considerations for a topic. An example from my study that must be carefully considered when exploring postoperative pain management for adolescents was expressed by Participant 12 who stated:

> We as nurses used to advocate for adequate pain management for our patients and we were making a lot of strides in getting really great pain management for them and now, with this fear of addiction and overdose, we've just gone back, backwards and actually some of my patients are not adequately covered for pain. That's my opinion. You know, I've had numerous post-op patients, especially

> adolescents, where they've refused to order a narcotic at all, and their pain score is quite high and stays quite high.

Participant 9 demonstrated why this situation could be concerning when she stated:

> If we undertreat an adolescent's pain it is far easier, and I tell parents this, it is far easier to get something else to treat your pain weather that be marijuana or other drugs from their high school than it is from a prescriber and a pharmacy.

While not a common point of view, this discrepant case was considered as data was analyzed and conclusions were drawn. Figure 1 illustrates the four common themes that emerged from the data.

Figure 1

Four Common Themes

Summary

The overarching research question that guided my study was *What are RN's perceptions regarding the postoperative care they provide for acute pain management in the adolescent population?* E-interviews were conducted with 13 participants. As these participants shared their expertise in this area four main themes emerged. Participants discussed many types of pain, causes of pain, tolerance of pain, impacts of pain, how pain is assessed, and how pain is treated supporting the theme that pain is a multifaceted phenomenon. Participants discussed adolescent's emotional and physical maturity, gender differences, parent/guardian relationship, developmentally appropriate care, decision-making capacity, and age-specific concerns supporting the theme that adolescents have unique healthcare needs. Participants discussed changes in practice, variations in practice, guidelines, policies, and regulations that impact care, treatment options, barriers to care, and a team approach to care supporting the theme that pain management is an evolving field. Participants also discussed their role as caregivers, advocates, educators, and the pharmacological and nonpharmacological measures they implement supporting the theme that nursing interventions can enhance comfort. The 13 RN participants, who generously shared their time to complete an e-interview, provided insight on the topic of acute pain management for adolescents during the postoperative period.

In Chapter 4, the setting for my study and demographic information for the participants was shared. Then the data collection and analysis processes utilized were explained. Evidence of trustworthiness was provided, and study results were shared. Next

is Chapter 5, an interpretation of study results, including limitations that should be considered will be presented. Then I will provide recommendations for future research and describe the implications of my findings.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this research study was to describe RN's perceptions of the care they provide to adolescents regarding pain management and opioid use during the postoperative period. A general qualitative approach was used to explore this topic to allow participants to describe real-world experiences, share stories in rich detail, and express opinions from their unique perspectives to gain insight that could be used to guide nurses as they provide care to adolescents. Individual semistructured e-interviews were completed with 13 RNs to collect data. The e-interviews were audio-recorded and transcribed. The transcriptions were then analyzed and coded to develop themes. The four themes that emerged from the data were (a) pain is a multifaceted phenomenon, (b) adolescents have unique healthcare needs, (c) pain management is an evolving field, and (d) nursing interventions can enhance comfort. In this chapter an interpretation of these findings, limitations of the findings, recommendations, implications, and conclusions of this study are provided.

Interpretation of the Findings

The main findings of my study confirmed current nursing knowledge that has been published related to pediatric postoperative pain management. Pain is a common discomfort experienced after surgery, so Kolcaba's (1995) comfort theory was well suited to be used as the theoretical framework for this study as it is a nursing specific theory that focuses on a patient's healthcare needs, nursing interventions, intervening variables, health seeking behaviors, and institutional integrity to enhance comfort. The findings in my study suggest that pain is a multifaceted phenomenon that impacts a patient's comfort

postoperatively, adolescents undergo a wide variety of surgeries and have unique postoperative healthcare needs, pain management for adolescents is an evolving field, and nursing interventions can enhance comfort. A discussion of these findings, in comparison to peer-reviewed literature is provided.

Pain is a Multifaceted Phenomenon

In my study, RNs described a multitude of surgical procedures that adolescents undergo that have the potential to induce pain. They also identified other causes of pain that accompany surgery such as intravenous (IV) catheter starts and dressing changes. The RNs noted that a patient's pain experience is unique. Many RNs differentiated types of pain such as physical pain or emotional pain. Several RNs also detailed how pain was impacted by the context of surgery, gender, cultural norms, previous experiences, and/or family relationships. These finding are consistent with information in the literature where pain is described as a complex phenomenon that can have physical, sensory, affective, emotional, cognitive, and behavioral components and many factors can impact its perception, evaluation, and management (Manworren, 2022). In my study, anxiety was noted by most participants to be a contributing factor to pain in adolescents. Which is consistent with the literature as anxiety has been shown to impact pain responses in children (Williams, 2017). My study participants perceived that pain is an individualized and variable experience.

RNs routinely assess pain. The RNs in my study talked about how they assess pain. Several methods were discussed that are used to assess pain. The most reported method was having a patient self-report their pain with a 1-10 numeric rating scale. Other

frequently used pain assessment tools identified were the Wong-Baker Faces pain rating scale and the Face, Legs, Activity, Cry, Consolability scale. Challenges with these pain assessment tools were perceived by many RNs in my study. Similarly, Laures et al. (2021) reported that the wide variety of developmental levels, advanced disease processes, and specialized medical interventions makes pain assessments complicated in the pediatric intensive care unit. My study participants expressed that adolescents were often unfamiliar with these commonly used pain assessment tools so education and coaching to enable self-reporting was needed. In addition, parents/guardians were described as frequently influencing patient responses. Reported pain was described by participants in my study as sometimes seeming to be incongruent with the patient's clinical presentation. A frustration that several RNs in my study voiced was that pain score results were frequently needed to justify medication administration, due to the way orders were worded, which at times limited their ability to treat pain with pharmacologic methods. Several RNs in my study noted that assessing pain in the context of the patient's functional abilities and recovery goals was helpful. Similarly, Baamer et al., (2022) recommend that healthcare providers should use multiple approaches to assess pain and determine treatment interventions.

Adolescents Have Unique Healthcare Needs

RNs in my study perceived that the adolescent age group has unique healthcare needs related to variables such as surgical procedure, age, physical/emotional development, and parent/guardian relationships. Similarly, Mower (2015) reported that adolescents are unique physically, emotionally and psychologically. Most RNs in my

study described that adolescents either did not expect to experience pain or thought medications would keep them pain free postoperatively. RNs in my study explained that many adolescents do not have previous surgical experiences to draw from and most adolescents are opioid naïve. Participants in my study highlighted that adolescents may engage in risky behaviors, can lack coping skills, could be at increased risk for opioid misuse, and need guidance and education to facilitate healing. The RNs described the impact of including parents/guardians as part of adolescent's care team. Similarly, Dagg et al. (2020-b) shares that adolescents recognize that their family plays a role in their postoperative recovery. RNs in my study highlighted that care needed to be developmentally appropriate for adolescents with several RNs noting that adolescent's behavior often regresses initially after surgery. Several RNs in my study emphasized adolescents should be allowed some decision making capacity regarding their care and provided some privacy, which is consistent with current pediatric pain strategies as described by Wrona and Czarnecki (2021). Several RNs in my study also described efforts to normalize hospitalizations by having meal options, comfort options, and designated play areas just for teens. Several RNs in my study acknowledged that health care experiences now could impact future health seeking behaviors in adulthood.

Pain Management is an Evolving Field

RNs in my study perceived that pain management is an evolving field. Many described advances and changes in practice that they have seen over time through their career. All the RNs in my study voiced that an expectation of no pain postoperatively is unrealistic but acknowledged that good postoperative pain management was achievable.

All the RNs in my study also expressed that while other pharmaceutical and nonpharmaceutical options should be employed first, opioids remained a necessary effective pharmaceutical option to treat some cases of pain in some circumstances. Similarly, Gupta et al. (2018) shared that regional anesthesia combined with presurgical education to manage postoperative pain expectations reduced narcotic consumption. Many RNs in my study expressed concerns related to the risks of opioid misuse and addiction and voiced that these concerns were often shared by physicians, adolescent patients, and parents/guardians. These concerns are supported in the literature as it is recognized that for adolescents, legitimate prescription opioid use is associated with a 33% increased risk of future opioid misuse (Manworren et al., 2021). Most of the RNs in my study reported that multimodal pain strategies were being implemented more, and opioids were being used less in both intraoperative and postoperative settings and being prescribed less frequently and in smaller quantities for home use. This trend is supported by literature. A pediatric ambulatory surgical center reported a 90% reduction in intraoperative opioid use from 2017 to 2019 (Franz et al., 2021). A few participants in my study voiced concerns that efforts to reduce opioid use put adolescents at increased risk for undertreated pain. Literature suggests that for children, male teenagers, early hospital discharges, and in-hospital opioid users can be at risk for increased postoperative pain at home following laparoscopic appendectomies (Freedman-Weiss et al. 2020). All the RNs in my study described an increased reliance on alternating doses of acetaminophen and ibuprofen to manage postoperative pain. Many of the RNs in my study perceived that there were more medication options available now to facilitate pain management. This

finding is consistent with current pediatric pain management strategies as described by Wrona and Czarnecki (2021). Many RNs in my study described increased use of nerve blocks and peripheral nerve catheters to manage postoperative pain. Most participants in my study perceived that anesthesiology and pain management specialists had become the experts in pain management and taken the lead within their institutions to guide postoperative pain management practices. Literature suggests that specialty consultation for pain management should be a standard of care for adolescents who are receiving opioids (Overman, 2020). Many participants in my study indicated that surgeons' individual preferences often resulted in wide variations in practice. Horton et al., (2019) also report underutilization of multimodal treatments, variety in prescribing practices and overprescription of narcotics. Some participants identified that regulatory agencies and state guidelines impacted care. Ideally, guidelines for opioids allow their use, when needed, but minimize risk (Degenhardt, 2019). Many participants voiced that the way medication orders were written could present challenges to nurses. Similarly, Czarnecki et al. (2019) reported that inadequate or insufficient medication orders are a significant barrier to optimal pain management. Some RNs in my study identified other barriers to pain management such as provider availability, medication costs, and insurance reimbursements. Most participants verbalized that more research to generate standards, support evidence-based practice and guide policies and regulations is needed. Similarly, a lack of guidelines at the national level and association level has been shown as a barrier to reducing procedural pain in children (Hu et al., 2020). Some participants perceived that their institutions could offer help to other institutions and providers by sharing

protocols and research results to help establish best practices. Literature suggested collaboration between doctors, nurses, other healthcare providers, policy makers, drug regulators, and drug manufacturers has been lacking when considering pain management (Almasri & McDonald, 2021). All the participants in my study indicated that their institutions incorporated a wide variety of nonpharmacologic interventions to help manage pain. This finding is supported in the literature as nonpharmacologic pain interventions are indicated for use in children and decrease the need for pharmacologic interventions (Bohr et al., 2022).

Nursing Interventions Can Enhance Comfort

RNs perceived that nursing interventions can enhance comfort. All the RNs in my study described their roles in providing comfort including a variety of hands-on interventions such as administering medications, monitoring vitals, and assisting patients to get up. The RNs described a variety of nonpharmacologic interventions that they used to enhance comfort with some study participants making mention of warm/cold packs, massage, aromatherapy, dim lights, and music. Complimentary therapies, such as aromatherapy, are recognized in the literature as being supportive of comfort postoperatively for pediatric patients (Norton et al., 2022). Many RNs in my study perceived that distraction, particularly with electronic devices such as phones and video games, was the most effective nonpharmacologic pain intervention for adolescents. This finding is supported in the literature as distraction is effective in older children at reducing distress during procedures (Bohr et al., 2022). Many RNs perceived that child life services were an excellent resource to help adolescents cope with being hospitalized,

reduce anxiety, and facilitate comfort. Most RNs in my study reported that family support and social support from friends were also key comforts to adolescents. Keeping families with adolescents as much as possible is preferred by adolescents and has been shown to reduce anxiety (Bilik et al., 2018).

All the RNs also described using their professional judgement and expertise to evaluate if pain management interventions were having an effective result. Nurses are described in the literature as being essential in assessing pain and evaluating the effects of pain (Cahyani et al. 2018). The RNs also described the roles they fill in facilitating care to enhance comfort. They are communicating with physicians and families, they are advocating for their patients' best interests, they are requesting services from other team members, and they are educating both patients and parents/guardians regarding how to manage pain and promote healing after discharge. This is consistent with the literature which recognizes that nurses serve as advocates and teachers for patients and parents/guardians (see Cahyani et al., 2018).

Additional roles some of the RNs described demonstrated their efforts to ensure institutional integrity by promoting the use of best practices and best policies to facilitate high quality care. Literature has shown that when nurses participate in hospital quality improvement processes, quality of care, operational efficiency, revenue growth, job satisfaction, and staff attendance all improve (see Robinson & Gelling, 2019). The RNs shared how they are reviewing literature, participating in committees, promoting change, writing institutional policies, helping to develop guidelines, conducting research, monitoring quality, evolving their practice, and sharing knowledge.

Many of the nurses in my study perceived that their role as an educator was one of their most essential roles in pain management. However, many also perceived there was a lack of time to provide the volume of education required. RNs in my study reported that staffing ratios were appropriate, but with more pain management options being available and with most adolescent patients having limited prior surgical pain experiences a vast amount of education was required for patients and their parent/guardian. Some of the RNs in my study indicated that alternative methods for education such as, patient-family support group meetings, having pharmacists conduct discharge medication teaching, and using child life were being employed by their institution with success. Patient and parent/guardian education has been identified as an essential step to stop opioid misuse in adolescents (Napier & Pearsons, 2019). However, the RNs, in my study, perceived that, for planned surgeries, increased preoperative education was needed with several RNs commenting that due to pain, fatigue, and stress the immediate postoperative period was not an ideal time for patient and parent/guardian teaching. The literature suggests additional research is needed to determine the right format and timing of educational approaches to support parents/guardians as they manage their child's pain at home (Dagg et al., 2020-b).

Very few RNs in my study indicated that they had contact with patients after discharge to evaluate continued postoperative pain management in the home setting. However, several RNs in my study perceived that medication safety was a concern in the home setting and suggested that more education was required to ensure the medications were being dispensed by an adult, taken appropriately, stored securely, and disposed of

safely if not needed. This is consistent with reports that parents do not administer pain medications in the home setting as prescribed without objective guidance (Manworren, et al. 2021).

Nurses are part of a multidisciplinary team that provides care to adolescents after surgery and nurses often serve as the primary point of contact for patients and their parents/guardians while preparing for discharge home (Wrona & Czarnecki, 2021). Nurses take on many roles to ensure that team members work together to meet patient and parent/guardian needs. Patients credit nurses when comfort is enhanced and when patients are satisfied with their care the healthcare facility retains its integrity (Kolcaba, 2001). This reflects well on all the team members involved in the patient's care. Many RNs highlighted the importance of collaboration not only to enhance their patient's immediate comfort but also to promote trust and confidence in the healthcare system to positively impact future health seeking behaviors. Adolescent patients often have concerns about healthcare autonomy, privacy, and confidentiality and establishing higher levels of trust in healthcare providers is a predictor of healthier lifestyle behaviors (Hardin et al., 2021).

As all my study participants were RNs, they readily identified how nursing interventions positively enhanced comfort. However, Kolcaba's (1995) comfort theory acknowledges that there are multiple other factors, beyond nursing interventions, that can enhance comfort. Some of these additional factors were described by study participants. As examples, Participant 6 discussed that a patient can have unique healthcare needs stating:

> We do take care of like oncology patients sometimes or complex kiddos that maybe have been hospitalized for more surgeries or, you know this isn't their first go round, so really making sure we tailor their plan of care, and we make sure we are providing adequate pain control for them.

While Participant 3 shared that the ability to use nitrous oxide to alleviate pain during some procedures was limited by the facility design, "When we built our new unit, they made sure that the set ups, like the connections for that, are present in our treatment room because that was a barrier from our old unit." Another example was shared by Participant 5 who explained how medication cost impacted the ability to enhance comfort stating:

> They would always give the narcotics they hardly ever gave IV Tylenol because it was so expensive and some insurances rejected that expense but now it has come down in price and it works…it was like 5 or 6 years ago… now we have IV Ibuprofen now that's still cost prohibitive, so they just give Toradol because that's much cheaper.

Participant 9 reiterated that insurance reimbursements impacted the ability to offer certain comfort measures such as medications and transcutaneous electrical nerve stimulation even after costs came down adding that, "Hospitals are really slow to change their processes and you know, since there were restrictions there are still restrictions". This participant also noted that hospital staffing practices can impact pain management noting that at one institution she had previously worked at, "The anesthesia service really didn't have good night coverage…somebody would have to come in and bolus an epidural and so there is a delay in that care." Participant 8 similarly shared that staffing prohibited

using a pharmacist for patient education stating, “Our pharmacy is so short staffed we can’t.” Participant 12 also identified that facility resources such as pharmacist availability and room availability, which can enhance a patient’s comfort, can be impacted by the community’s health care needs sharing:

> We have a huge viral epidemic right now with multiple viruses hitting us and our census is way up there. ER is double our capacity, we are using treatment rooms to have to admit patients in who have to stay there for days and days, in a treatment room with no window no bathroom, it’s pretty bad right now.

According to Kolcaba’s (1995) comfort theory, pain would be an element within the physical context of a patient’s comfort needs. However, pain, much like comfort, can be impacted by many things. Kolcaba’s comfort theory also includes psychospiritual, environmental, and social contexts of comfort needs. In the acute care environment pain can be related to psychological, environmental, and social factors (Rosen et al., 2022). Kolcaba’s comfort theory provided a wide perspective to facilitate data analysis and interpretation as I explored the topic of adolescent postoperative pain management. Next, limitations of the study will be described.

Limitations of the Study

This study had a few limitations that should be noted. While this study included RNs with varying years of experience, who work in different settings, and come from various areas of the United States, their experiences may not be representative of all RNs. One limitation is that while the contiguous United States has four standard time zones, this study only had participants from the Pacific Standard, Central Standard, and Eastern

Standard Time zone areas. Thus, the results of this study may not be representative of nurses working in other locations of the United States or outside of the United States.

Another limitation is that the focus of this study was the immediate postoperative period after surgery and leading up to an adolescent's discharge to home. RNs who encounter adolescents later in their postoperative recovery period, perhaps at postoperative follow-up appointments may provide additional information on this topic. Another limitation is that all of the RN participants identified themselves as female. Gender was not part of the inclusion/exclusion criteria to participate in this study and the study invitation was shared with a diverse population. However, the RN participants who volunteered all self-identified as female. Nonfemale nurses may have provided different perceptions and insight on this topic.

Additional limitations relate to the method used for data collection and qualitative design of the study. For this study e-interviews were conducted remotely via phone for 12 participants and via Facetime for one participant. While this method was convenient, eliminated safety concerns related to COVID-19, and allowed for RNs to participate from a more diverse geographic region, it limited communication. Facial expressions and body language were unable to be observed in most of the interview sessions. To minimize this limitation, clarifying questions were utilized as needed throughout the interview process to enhance communication.

Another limitation relates to the qualitative design of this study. In a qualitative study, the researcher directly interacts with the participants and the relationship they form can impact findings (Korstjens & Moser, 2017). As the researcher I interacted directly

with participants to collect data, thus personal biases could contribute to study limitations. To manage this limitation, during interview sessions, I tried to project a nonjudgmental tone and refrained from interrupting, with my personal thoughts or experiences, to encourage participants to express their points of view. In addition, to manage researcher bias I utilized a diary to journal my thoughts to allow reflexivity and enhance mindfulness.

Recommendations

My study on RN perceptions of postoperative pain management and opioid use in adolescents focused on the immediate postoperative period. The findings in this study suggest that education plays a key role in pain management. Some of the RN participants in my study voiced concerns regarding how well adolescents and parents/guardians understood the aftercare education and instructions they were provided with in preparation for managing pain at home as recovery from surgery continued. Aftercare instructions described by almost all of the RN participants involved face-to-face discussions supplemented by paper handouts. Most of the participants noted that the paper handout teaching tools for adolescents and their parents/guardians were the same and, as they were written at a low literacy level, they were understandable by both groups. In most cases, once patients were discharged from the hospital, the nurses who were providing care had no further contact with the patient. In addition, hospital lengths of stay postoperatively, in many cases, have shortened over time. So, more of the surgical recovery period is in the home setting. With that in mind, I would recommend that future

research studies that explore adolescent postoperative pain management focus on the time frame from discharge until they follow up with their surgical provider.

The findings in my study also suggested that adolescents had unrealistic expectations regarding postoperative pain and that teaching adolescents and their parents/guardians about pain and pain management was a crucial but time intensive task. Several of the RN participants in my study voiced a lack of time to provide the depth of teaching that was needed during the postoperative period and suggested that additional preoperative teaching was needed. Preoperative teaching was described in a variety of ways. RN participants described preoperative teaching as something that took place in the surgical providers' office or via phone call. Some RNs reported that adolescents had access to and utilized additional preoperative educational opportunities such as surgical area tours with a child life specialist or family support-group style type meetings with former patients and their families. RNs reported that utilizing these additional educational opportunities resulted in increased preparedness for surgery and increased comfort postoperatively. Perhaps virtual visits or prerecorded instructional videos designed for adolescents specifically would be useful for institutions to meet pre-op educational needs. With that in mind, I would recommend that future research explore preoperative education to see what is being done, what is most successful, and what preoperative learning opportunities for adolescents can be expanded and enhanced to promote comfort and reduce the volume of education that is required during the postoperative period.

In addition, to when education is being provided, findings from my study indicate that how education is being provided is also an important consideration. Tablet and

smartphone applications are becoming increasingly popular to help manage illnesses and promote health (O'Connor et al., 2021). Most RN participants in my study indicated that the adolescents they cared for benefited from distraction to cope with pain and enjoyed using smart phones, tablets, and video gaming systems as a form of distraction and/or communication. Studies on the use of smartphone applications to facilitate adolescent asthma management have shown them to be an effective way to deliver education and self-management interventions resulting in improved asthma control (O'Connor et al., 2021). Similar applications could be developed and used to guide adolescents' post-op care and pain management. It is important to ensure that future educational methods utilized to promote health seeking behaviors in adolescents are formed in a way that both meets their health needs and appeals to their learning preferences. Adolescents have indicated that they see smartphones and tablets as beneficial devices to their healthcare and prefer applications that are customizable, show health trends, incorporate games, and include social media links (O'Connor et al., 2021). I would recommend that the use of information and communication technologies be enhanced in healthcare to improve communication and provide education to adolescents.

My last recommendation focuses not on the educational needs of patients and families/caregivers, but on the needs of the RNs providing care. The findings from my study indicated that there are numerous variabilities that impact post-op care and pain management for adolescents. However, as RN participants shared their experiences, they all felt that they did a good job of managing pain for adolescents postoperatively at their respective institutions most of the time. However, one participant shared a story about

how changing jobs completely changed her perspective on postoperative pain management. Participant 13 stated:

> The postoperative experience, my experience with kids and pain is 100% directly related to our anesthesia team. You are only as good as your anesthesia team. So at [redacted: facility name] vs [redacted: facility name] two very different teams and two very different styles. And holy cow it makes a big difference it's just night and day it's astonishing.

Some RNs will not have the benefit of this kind of personal experience of working with different teams, to compare the different methods, and to shape their viewpoint on the best approaches. There is variability in practice in pediatric pain management in part due to a lack of guidelines to support healthcare providers. It is essential that pediatric nursing organizations use the benefit of having a wider viewpoint, from their collective members, to develop standardized practice guidelines on pediatric pain management to support and guide RNs in a variety of settings to ensure they are consistently providing the best care.

Implications

By exploring this area and gaining a deeper understanding of adolescents' pain management needs it was hoped that the findings of this study could be used to promote positive social change. Improving postoperative pain management can promote positive social change at multiple levels.

Adolescents may be temporarily unable to attend school, participate in extracurricular activities, work, and/or assist with family household responsibilities due to surgery. At the individual level, when pain is well-managed, patients can be discharged

from the hospital more quickly. This allows them to return to their usual activities more quickly, reduces their use of healthcare resources, and decreases the burden on their family.

Having a child hospitalized often disrupts the family unit. Participant 5 highlighted the burden an adolescent's hospitalization can cause stating:

> If you have two working parents, and you have to both work, it can be very stressful about how many days they are here in the hospital or if they have small kids and they don't have any resources to watch the other one.

Poorly managed pain can delay healing and parents/guardians may struggle to continue working and caring for other family members while they try to support their recuperating adolescent. Well managed pain reduces stress on parents/guardians and allows them to resume their usual roles both within the family and beyond their family, such as in their place of work.

Well managed pain also encourages patients and their families to engage in health seeking behaviors more fully (Kolcaba et al., 2006). Increased engagement in health seeking behaviors contributes to positive social change at the institutional level. Increased engagement allows healthcare providers to decrease length of stays resulting in reduced costs of care while increasing patient satisfaction which increases the institution's financial stability and positive public reputation (Kolcaba et al., 2006). Enhanced health seeking behaviors have also been associated with increased institutional integrity which is linked to increased staff satisfaction and retention (March & McCormack, 2009).

Institutional integrity can promote positive social change beyond the healthcare facility itself by improving community health. Positive patient outcomes can be utilized by high integrity institutions to develop best practices and policies to guide care (March & McCormack, 2009). These best practices and policies can then be shared with other organizations. A culture of comfort can only be achieved, within pediatric settings, with institutional commitment and support. (Kolcaba & DiMarco, 2005). A challenge for pediatric pain management has been the lack of best practice guidelines and the resulting wide variations in care. Nursing organizations can support the dissemination of evidence-based standards of practice to their members supporting positive social change at the organizational level.

Nurses can also effect positive social change by helping to develop national standards to regulate certain aspects of acute pain management for children. Discharge opioid prescriptions are often excessive, when compared to a child's analgesic needs, and for adolescents, with risk factors, have been associated with long term opioid use (Rosen et al. 2022). Nurses that care for adolescents later in their post-op recovery period, after they have been discharged home, can provide essential insight to help understand discharge medication needs. Nurses may be able to enhance patient and family postoperative education, minimize pain and suffering, decrease risks to adolescents associated with opioid use, and positively impact the opioid epidemic problem that the United States is currently facing as improved guidelines are developed and the nursing professional knowledge base continues to grow supporting positive social change at the society level. Further research on this topic is needed.

My study explored this topic from the perspective of the RN providing care. Kolcaba's comfort theory (1995) was used to guide this study and a general qualitative approach was followed. Using Kolcaba's comfort theory as the theoretical framework to guide my study and to interpret the findings was beneficial. It encouraged exploration of the topic of postoperative pain management from multiple perspectives. As a novice researcher a general qualitative approach was also beneficial. It was a flexible approach that was easy to use. It allowed participants to share their stories and provided rich detailed information. Utilizing e-Interviews was helpful to collect data from participants over a wide geographic region. Similar future qualitative studies could be conducted exploring this topic from the perspective of the patient, parent/caregiver, or other healthcare team members. For future similar qualitative studies, considerations to save time and decrease workload would be to utilize a transcription service, and/or qualitative data analysis software. Managing a large volume of data manually, in the form of interview transcripts, can become challenging. In addition, future research on the topic of adolescent postoperative pain management and opioid use should also include quantitative approaches to gather different types of data.

With that in mind, the last recommendation I would make is to encourage pediatric healthcare providers to continue to collaborate and pursue evidence-based guidelines to support postoperative pain assessment and management for adolescents. RNs in clinical settings encounter wide variations in practice in adolescent pain management. As one example, findings from my study suggest that implementing a multifactorial pain assessment system that incorporates a functional assessment in

addition to a patient's self-report of pain could be a valuable tool. Some of the participants I spoke with were at facilities that were starting to incorporate this type of pain assessment approach, some participants were familiar with this approach but not using it yet at their institution, and some participants had not heard of this approach before, but after a brief description indicated that it would be useful in practice. Findings from my study suggest there are other variations in anesthesia practices, in surgical provider practices, in medication orders and availability, in nonpharmacologic comfort measures, and in state guidelines, just to name a few examples.

All these variations in practice impact postoperative pain management for adolescents. RNs in leadership positions can play a key role in developing policies and procedures to guide care and ensuring that resources to support best practices are available within facilities. An area that could be supported by further education for RNs is providing care for postoperative adolescents with underlying chronic pain, and/or opioid use history. These patients are a subpopulation of adolescents that require specialized pain management care. Informatics upgrades can be utilized to streamline screening processes to evaluate if adolescents have special pain management needs and to increase medication safety. Medication prescribing and administration errors are a major safety issue in pediatrics (Rosen at al., 2022). Computer systems and standardized order sets can improve safety. RNs in my study expressed frustration with how medication orders were phrased and expressed that contacting providers for clarifications and new orders increased workloads and delayed care. Informatics can be utilized to further improve the medication ordering process. Exciting advances have been made in recent

years and will undoubtedly continue. Sharing knowledge to standardize practice can help to improve safety and quality while eliminating disparities in the healthcare system.

Conclusion

Nurses are an essential part of the team that provides care to adolescents during the postoperative period. My qualitative study utilized semistructured e-interviews to explore 13 RNs perceptions of postoperative pain management and opioids for adolescents. Key findings from this study resulted in four major themes (a) pain is a multifaceted phenomenon, (b) adolescents have unique healthcare needs, (c) pain management is an evolving field, and (d) nursing interventions can enhance comfort.

The results of this study support current literature and highlight that there is still significant variety in clinical practice amongst healthcare providers. Anesthesiologists seem to have become pain management leaders and are now guiding pain practices at many institutions. Postoperative pain management techniques for adolescents are utilizing more multimodal treatment methods and good pain management can be obtained with a reduced reliance on opioids. Parents and adolescents are more frequently indicating that they would prefer to avoid opioids suggesting a heightened public awareness of opioid associated risks for adolescents. However, education for adolescents and parents/guardians regarding postoperative pain management options and comfort strategies is still needed to support care. While further research and collaboration is needed to ensure best practices can be determined and guidelines can be developed to standardize care and further improve treatment effectiveness and safety. Nurses continue to play an integral role in pain assessment and management as they provide interventions

to support comfort and promote healing and their perspectives offer unique insight on this topic.

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Appendix A: Invitation

Interview Study seeks RNs who care for Adolescents Post-Operatively:

Nurse stories, experiences, and perspectives wanted for a study on pain management and opioid use for adolescents during the post-op period. Study is looking to better understand the unique needs of this patient population to help healthcare providers support patients and their families after surgery.

About this study:

- 1 Virtual interview session
  - 60 min or less time commitment
  - Flexible scheduling times available
  - Phone or FaceTime option to participate
- Session will be audio recorded
- Participant's privacy will be ensured

Participant volunteers must meet these requirements:

- 18 years old or older
- Licensed RN in the US for 1 year or more
- Have work experience providing care to adolescents after surgery
- English speaking

This interview is part of the doctoral study for Susan Miller, MSN, RNC-NIC, C-ELBW a PhD student at Walden University. Interviews will take place during September-December 2022.

To confidentially volunteer, email the researcher

* Please feel free to share this invitation with other RNs who may be interested, Thanks!

Appendix B: Interview Guide

Introduction

Hello, I am Susan Miller. Thank you so much for agreeing to talk to me for my doctoral research study!

Prior to Beginning

I want to remind you that this interview session is being recorded and you are free to stop this interview at any time if you so wish.

Introductory Statement

The purpose of my study is to explore registered nurses' perceptions about post operative pain management and opioids for adolescents. I appreciate your generous giving of your time and sharing of your expert nursing knowledge, at no personal benefit, to advance care for adolescents after surgery.

Interview Questions

To begin: please tell me about your experiences of managing pain for adolescents during the postoperative period?

Next, I would like to ask: How do you feel about the use of opioids for pain management for adolescents?

Lastly, in terms of adolescent pain management, what areas of opportunity do you see to ensure best practices are being applied?

Closing Statement

As we wrap up, I want to thank you so much for taking the time to talk to me and sharing your experience. If you know of any other nurses that would be a good fit for this study, please forward my invitation or contact information to them. I also want to check if you have any last questions for me about this interview before we say Goodbye?

Appendix C: Demographic Data

Please complete this form and return it by email

- Gender:
- Age:
- Number of years worked as a nurse:
- Primary work setting (ex: hospital, outpatient surgery center, etc.):
- Time zone:
- Preferred interview method (Phone or Facetime):