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## Elderly Patients' Perception of Pain Management after Open and Reduction Internal Fixation Surgery

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## Elderly Patients' Perception of Pain Management after Open and Reduction Internal Fixation Surgery

### Abstract

Little is known about pain and pain management in older adults who experience open reduction and internal fixation (ORIF) surgery. This qualitative descriptive phenomenological study explored two research questions: (a) What are the perceptions of pain and pain management in patients between 65 and 75 years of age, 48 hours after ORIF surgery in a community hospital? (b) What are the perceptions of adaptation after ORIF? A pilot study included four patients in two units of a Southern California hospital, followed by open ended, semi-structured interviews with 10 participants. Four themes emerged: (a) elderly patients experience different patterns of pain and coping mechanisms; (b) elderly patients experience pain after gaining consciousness from ORIF surgery; (c) effective pain management requires patients' empowerment and opportunity to participate in pain management decisions; (d) elderly patients perceive adaptation as a process of change and acceptance. Multimodal pain management strategies, including regional opioids and systemic anti-inflammatories, could reduce post-operative, generalized bio-physiological stress experienced by elderly patients.

### Keywords

Acute Pain, Chronic Pain and Osteoporosis, Effective Pain Management, Open and Reduction Internal Fixation (ORIF) Surgery, Elderly Patients, Phenomenology, Qualitative

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*Little is known about pain and pain management in older adults who experience open reduction and internal fixation (ORIF) surgery. This qualitative descriptive phenomenological study explored two research questions: (a) What are the perceptions of pain and pain management in patients between 65 and 75 years of age, 48 hours after ORIF surgery in a community hospital? (b) What are the perceptions of adaptation after ORIF? A pilot study included four patients in two units of a Southern California hospital, followed by open ended, semi-structured interviews with 10 participants. Four themes emerged: (a) elderly patients experience different patterns of pain and coping mechanisms; (b) elderly patients experience pain after gaining consciousness from ORIF surgery; (c) effective pain management requires patients' empowerment and opportunity to participate in pain management decisions; (d) elderly patients perceive adaptation as a process of change and acceptance. Multimodal pain management strategies, including regional opioids and systemic anti-inflammatories, could reduce post-operative, generalized bio-physiological stress experienced by elderly patients. Keywords: Acute Pain, Chronic Pain and Osteoporosis, Effective Pain Management, Open and Reduction Internal Fixation (ORIF) Surgery, Elderly Patients, Phenomenology, Qualitative*

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### Background

Some older adults experience moderate to severe postoperative pain after they have undergone major surgery (Bremner, Webster, Katz, Watt-Watson, & McCartney, 2011; DeCrane et al., 2014; Moore, Derry, McQuay, & Wiffen, 2011), and often receive less attention for postoperative pain than younger individuals (Jensen-Dahm, Palm, Gasse, Dahl, & Waldemar, 2016; Rastegar, 2011). High levels of postoperative pain in older patients can cause increased anxiety, delirium, reduced ambulation, and higher chances of pulmonary complications (Jellish & O'Rourke, 2012; Ramirez, Roche, & Zimmern, 2014). Older adults not given attention for postoperative pain may experience prolonged hospital stays, reduced level of functioning after two months, and poorer ambulation half a year after discharge from the hospital (Jellish & O'Rourke, 2012; Ramirez et al., 2014).

Despite these negative outcomes, little research has examined perceptions of older adults who have undergone major surgery, particularly regarding pain after an operation and pain management practices. Research is lacking on pain and pain management in older adults who have experienced open reduction and internal fixation (ORIF) surgery for bone fractures in wrists or hips. This study sought to bridge the research gap regarding perceptions of elderly patients on pain and adaptation after open reduction and internal fixation surgery.

### Problem

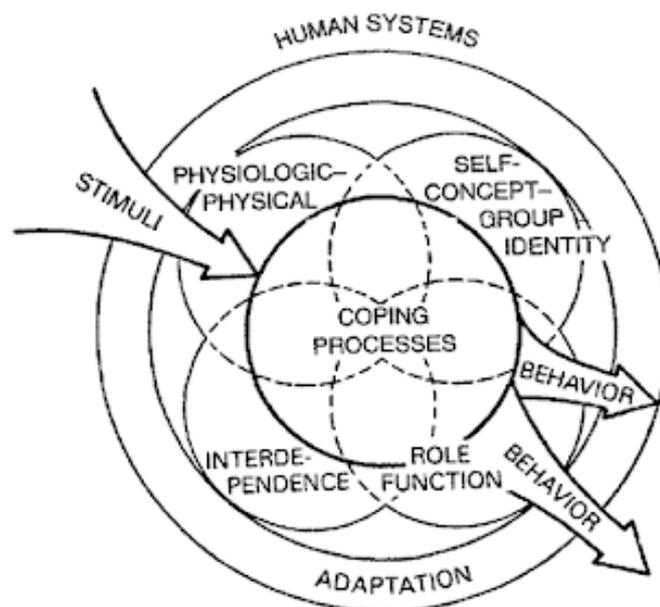
Pain management is an integral part of medical treatment teams in a variety of settings and with diverse populations (Nowakowski, Barningham, Buford, Laguerre, & Sumerau,

2017), though the concept of managing pain is esoteric. Pain is both a medical and a social issue. Traditionally viewed as either being indicative of a physical illness or a spiritual sickness, pain has been equated historically with a manifestation of social-spiritual justice, and was perceived as an indication of the willingness of an individual to endure personal sacrifice (Hudson, 2012).

Pain management is a definitive and distinct science in the medical treatment of patients (American Society of Anesthesiologists, 2012) and both physicians and nurses are crucial to help patients manage pain effectively. Physicians are vital for the diagnosis of potential causes of pain and identification of treatment. Nurses are charged with administering the prescribed treatment to alleviate the patient's pain. Unmanaged pain among elderly individuals leads to other complex medical issues such as cardiac, gastrointestinal, and psychological problems.

### Theoretical Framework Background

There are approximately 30 active nursing theories, models, and frameworks. Each theory has four main concepts: (a) person, (b) health, (c) environment, and (d) nursing. Sister Calista Roy developed the adaptation model of nursing in 1976, and I selected this model as the guiding theoretical framework for this study. The adaptation model is herein referred to in this work as Roy's adaptation model. Roy combined Harry Henson's adaptation theory with Rapoport's definition of system to arrive at a theory where the person is viewed as an adaptive system. McEwen and Wills (2001) noted that people adapt to environmental stimuli in positive or negative ways. According to Roy's adaptation model, the way that individuals respond to stimuli, or adapt, significantly affects the integrity of their health. The four modes of adaptation featured in Roy's adaptation model of nursing are (a) physiological, (b) self-concept, (c) role function, and (d) interdependence (Roy & Andrews, 1999; Figure 1).



*Figure 1.* Roy's adaptation model featuring four modes of adaptation. From "The Roy Adaptation Model" (2<sup>nd</sup> ed.) by C. Roy and H. Andrews. Copyright 1999 by Pearson Education.

I chose this model to guide this study because it has steered my own practice since my early nursing education. This model considers the goal of nursing to be to support patients in the adaptation process. Within this theoretical framework, important assumptions guide the research process. Roy's adaptation models, both implicit and explicit, can frame a qualitative

study of older patients' perceptions of post-operative pain. The following implicit assumptions of Roy's adaptation models need to be understood:

- A person can be reduced to parts for study and care.
  - Nursing is based on causality.
  - Patient's values and opinions are to be considered and respected.
  - A state of adaptation frees a person's energy to respond to other stimuli.
- ("Roy's adaptation model," 2013, para. 3).

Roy's adaptation model has consistently been used as a foundational basis in nursing inquiry. Research inspired by Roy's adaptation model and the ensuing theories born from its conceptual framework have supported the model's structure and progressed nursing science (Shosha, 2012). Elderly patients interact with dynamic environments and use biological, social, and psychological adaptive mechanisms to cope with this change. The model assumes that illness is inevitable and individuals need to adapt to illness using one or more of the four adaptive modes. According to Roy's adaptation model, "nursing accepts the humanistic approach of valuing other persons' opinions and viewpoints" ("Roy's adaptation model," 2013, para. 2), and interpersonal relations are an integral part of nursing. These assumptions consider patient interactions with the environment, nurses, and caregivers as an important part of the healing process.

### **Literature Review**

Current research literature focuses on four prevailing themes relevant to this study: osteoporosis and bone fractures in the elderly, pain management among the elderly, post-operative pain management, and best practices for pain assessment.

#### **Osteoporosis and Bone Fractures in the Elderly**

An increasing number of elderly people suffer from osteoporosis. Osteoporosis is the loss of bone mass due to a loss of calcium (Biskobing, 2013; Cosman et al., 2016; Edwards, Moon, Harvey, & Cooper, 2013; Rachner, Khosla, & Hofbauer, 2011). In this condition, the inside of the bone becomes weak, making the bone likelier to break. A bone density mineral test conducted by Edwards et al. (2013) showed that the incidence of osteoporosis increased with age. Total bone mass reaches a peak when an individual is aged in his or her late 20s or early 30s, and then bone density begins to reduce (Cosman et al., 2016; Silva & Bilezikian, 2011).

Females have less bone density than men and lose bone density more quickly after menopause, making them prone to osteoporosis (Biskobing, 2013; Cosman et al., 2016; Curtis, Moon, Dennison, & Harvey, 2014; Edwards et al., 2013; Rachner et al., 2011). Between the ages of 20 and 29, women have only 76% of men's bone mass, and this amount decreases to 60% when they reach their 70s (Curtis et al., 2014). Now, females' bone density begins decreasing, resulting in fragile bones. Bone loss may be experienced after the ovaries are removed (Hadji et al., 2011; Ishii et al., 2014). At least one vertebral fracture occurred in 5% of Caucasian females aged 50-59, and 25% by the age of 80 (Edwards et al., 2013). An observational study conducted with women older than 50 years of age indicated that females with osteoporosis experienced up to a four times higher likelihood of fractures than females with normal bone mineral density (Gillespie et al., 2012; Van den Bergh, Van Geel, & Geusens, 2012).

Genetics also contribute in determining the risk of osteoporosis (Curtis et al., 2014). A study assessing fracture risk found that the most effective way to predict hip fracture was to consider the following: gender (female), age (elderly), low weight, and non-use of (supplemental) estrogen at the time of assessment (Van den Bergh et al., 2012). Gender and genetics cannot be changed, but the risk can be markedly managed through diet and exercise (Curtis et al., 2014). In addition to calcium, a diet should include adequate amounts of vitamin D, protein, phosphorus, fluoride, vitamin A, and vitamin K (Bolland, Grey, Avenell, Gamble, & Reid, 2011; Prentice et al., 2013).

### **Open Reduction and Internal Fixation**

ORIF is a surgical technique performed by orthopedic surgeons to repair fractures that would otherwise not heal properly with casting or splinting. The surgery has two parts: First, the surgeon opens the site of the break or fracture, reduces the broken or fractured bone, and puts it back in place. Second, the surgeon uses internal fixation devices, such as nails, plates, or screws to hold the broken bone together to enhance healing and prevent infection (Li, Goodman, Mihalov, & Oswald, 2014). This type of surgery is performed under general anesthesia. Recovery from a bone surgery can be painful and pain management is a significant concern for the patient.

Outcomes for patients with osteopathic fractures have generally been poor, with high rates of morbidity, mortality, and decrease in functional status, which is associated with a loss in independence for the elderly patient (Li et al., 2014). ORIF was developed as an attempt to improve outcomes for elderly patients. Successful ORIF surgery allows patients to return to normal daily activities as soon as they heal and avoids the need for heavy plaster castings. ORIF can provide the best possible outcome for some complex fractures (Li et al., 2014).

### **Pain Management among the Elderly**

When elderly patients are in a post-operative state, they may attribute levels of pain to their age, rather than as a side effect of their surgery (Kaye, Baluch, & Scott, 2010; McCartney & Nelligan, 2014; Pierides, Mattila, & Vironen, 2013). Often, a clinician has misconceptions about the pharmacological treatment of pain and exaggerated the risk of opioid-induced respiratory depression of the patients, resulting in the withholding of pain medication (Herr, Coyne, McCaffery, Manworren, & Merkel, 2011). This, along with infrequent monitoring and recording of severity of the patient's perception of pain, can lead to inadequate pain assessment practices, and medical staff are often unaware that a specific treatment is not effective (Herr et al., 2011; Quinten et al., 2011).

Hirsh, Jensen, and Robinson (2010) found that patient demographic characteristics and facial expression of pain were predictors many nurses used as assessment to make pain related decisions. Therefore, bias might be prominent in practitioner decision-making about pain. Pain studies have identified gaps in knowledge, unfounded beliefs, and myths in the nursing community regarding the assessment and management of pain (Cagle et al., 2014; Lake, 2013; Wilkie et al., 2010). Nowakowski et al. (2017) found in their literature review that "differences in provider perception of pain prevalence and severity as well as appropriate clinical responses may limit the number and scope of pain management services" (p. 1880). They continued to say that the differences could be attributed to, among other factors, "unconscious bias about people from different social backgrounds (Wandner et al., 2014), and/or diversity in how people from different cultures communicate about pain (Campbell & Edwards, 2012)" (Nowakowski et al., 2017, pp. 1880-1881). These issues are obstacles to comprehensive pain management.

Insufficient pain management for older surgical patients contributes to postoperative morbidity, including delirium, cardiorespiratory complications, and failure to mobilize. Although this is known, postoperative pain remains under-assessed and undertreated in geriatric patients, especially those with cognitive impairments. Government agencies and professional bodies have called for increased attention to the challenge of acute pain that goes untreated. The 2010 Patient Protection and Affordable Care Act required the Department of Health and Human Services (HHS) to enlist the National Institute of Medicine (IOM) to examine pain as a public health problem. The IOM assessed the state of the science regarding pain research, care, and education to make recommendations to advance the field. The IOM (2011) found that reliable data on pain assessment were lacking, especially among older people.

### **Post-Operative Pain Management**

Adequate postoperative pain management has been shown to improve surgical outcomes for patients. Regaining mobility after surgery is easier for patients with effective pain management. Faster mobilization is linked to reduced loss of muscle tissue and helps individuals avoid the inability to excrete fluids and reduces the risk of thrombosis and respiratory complications. Studies have indicated that severe postoperative pain may develop into chronic postsurgical pain (Pagé et al., 2012).

Preoperative pain management education geared toward older adults can significantly reduce their suffering after an operation (Capezuti, Boltz, & Kim, 2011; Li et al., 2014; Lussier et al., 2009; Rawal, 2011; Chou et al., 2016). During a pain management discussion, patients should be given a general overview of pain. This includes what pain is, why surgical pain can be experienced, how to utilize pain assessment scales, and why managing pain should be done pharmacologically and non-pharmacologically (Atkinson, Fudin, Pandula, & Mirza, 2013; Haasum, Fastbom, Fratiglioni, Kåreholt, & Johnell, 2011).

### **Best Practices for Pain Assessment**

A plethora of tools are available to assess the intensity of a patient's pain (Knox, 2012). The patient should be consulted in the decision-making process regarding the type of pain assessment tool used (American College of Emergency Physicians, 2009; Brorson, Plymouth, Örmon, & Bolmsjö, 2014). Other factors to determine the tool to be used include the patient's preference, their cognitive state, and their emotional state. Evans and Robertson (2009) advocated for shared decision making between elderly patients and their physicians. Allowing the patient to participate in this decision improves his or her levels of familiarity with the scale that the tool entails, enabling a more accurate result (Brorson et al., 2014; Knox, 2012; Lefevre, Teixeira, Lefevre, Cardozo de Castro, & Witt de Pinho Spínola, 2004). After interviewing 30 elderly patients in Brazil, Lefevre et al. (2004) were surprised by the amount of value the elderly patients gave to knowledge about their prescribed therapy and concluded that a respectful physician-patient relationship can result in optimum benefit of the prescribed therapy (p. 725).

The literature on best practices for pain assessments indicates that assessment and treatment should be carried out early, and before, during, and after medical procedures (Registered Nurses Association of Ontario, 2013). Acworth, Bennetts, Doherty, and Taylor (2011) recommended reassessment of a patient's pain every five to fifteen minutes if the initial pain experienced was severe, or every thirty minutes to an hour if the pain was less severe. The American Psychological Association (2013) advised that seeing a psychologist can help people who experience chronic pain with associated detrimental psychological effects. Other co-

morbidities associated with chronic pain include anxiety, poor cognition, sleep disorders, and sexual dysfunction. Therefore, an overall health status should be conducted at regular intervals.

### **Gaps in Literature**

After an extensive review of the published literature, several gaps were identified. Effective pain management presents challenges for healthcare organizations because inadequate pain control is often multifactorial in origin (Knox, 2012). Few studies were conducted with older adult populations, and no studies investigated pain perception or adaptability among elderly after ORIF. There is also little available literature on the way that elderly patients perceive treatment of pain by nurses.

These gaps represent areas that clinicians and researchers should investigate to add to the knowledge base of the profession. In comparison with younger patients in the same situation, older people undergoing elective and especially emergency surgery easily suffer more postoperative adverse outcomes, including physiological decline, co-morbidities, concurrent use of multiple medications and decline in cognitive function, the possibility of geriatric syndromes and frailty (Griffiths, Beech, Brown, & Dhesi, 2014). Existing literature on caring for elderly patients across the spectrum of operative care is lacking (Griffiths et al., 2014). However, the published literature has suggested that some special attention is necessary for the elderly patient. This study sought to fill the literature gap by examining pain perception, pain management, and how the older adult population views pain and pain management.

### **Personal Context**

I have worked with patients in surgical and critical care areas during my career as a registered nurse for 17 years and as a nurse epidemiologist for 8 years. Over time, it became apparent to me that elderly pain perception after ORIF was an unanswered question. Part of growing in the medical field involves making connections and having a passion for the work and the patients. With this research, I hoped to broaden the perspective within the healthcare field on the topic of pain after ORIF for patients aged 65 to 75, gain deeper knowledge of this demographic and their experiences, and provide them with appropriate pain modalities.

## **Method**

### **Qualitative Design**

The philosophical underpinnings of qualitative studies include perspectives of phenomena and a consideration for multiple realities held by different individuals (Munhall, 2010). The outcomes of qualitative research rely heavily on the information provided by those with subject experience related to the study (the participants), providing data through first-person narratives (Munhall, 2010). The acquisition of contextualized, multi-faceted descriptions enrich the understanding of a phenomenon (Holloway & Wheeler, 2010). In contrast, a quantitative study focuses on collecting numerical data to validate hypotheses and draw generalizations (Maltby Williams, McGarry, & Day, 2013).

Phenomenology is based on the idea that understanding a phenomenon is attainable through the subjective perceptions of people who underwent the experience being studied (Flood, 2010). Phenomenological studies emphasize that the person is fundamental to the environment; therefore, researchers must focus on individual perceptions (Flood, 2010; James, Cottle, & Hodge, 2010). The purpose of phenomenological research is often to describe the participants' experiences with the phenomena, the interpretations of these experiences, and the

meaning of those experiences to the participants (Sissolak, Marais, & Mehtar, 2011). This study investigated the phenomenon of elderly patients' perceptions of pain 48 hours after undergoing ORIF surgery.

The study used a qualitative descriptive phenomenological approach to explore the following two research questions: (a) What are the perceptions of pain and pain management of patients between 65 and 75 years of age 48 hours after ORIF surgery? (b) What are the perceptions of adaptation for patients between 65 and 75 years of age after ORIF surgery? Husserl's (1970) descriptive approach was selected because it used knowledge development that could effectively achieve the objectives of this inquiry and supplement what was already known regarding the phenomenon under investigation. The philosophical underpinnings of qualitative studies include perspectives of phenomena and a consideration for the multiple realities held by different individuals (Munhall, 2010).

### **Data Collection and Instrumentation**

The study integrated a pilot study into the methodology, which explored one research question: What are the perceptions of pain and adaptation of patients 65 and 75 years of age after open reduction and internal fixation surgery? The pilot study was conducted with four patients, who answered 11 interview questions. Results of the pilot study were used to validate the appropriateness of the research questions.

Before conducting any data collection procedures, a letter of cooperation was received from the hospital prior to seeking Institutional Review Board (IRB) approvals from the University of Phoenix and the hospital. This facilitated the appropriate access to hospital records to identify the patients who had ORIF surgery within the specified period of the study. I sought self and peer monitoring to adhere to HIPPA laws. No participant information was left unattended and all documents pertaining to the study were confidential. Once IRB from the University of Phoenix and the hospital were approved, data collection started with recruiting participants for the study. An introductory and recruitment letter was sent to the patients and the orthopedic surgeons asking for assistance in finding candidates who were suitable for the study. Information on patients who had ORIF was obtained from the patients' charts. The patients consented to disclosing their identities and surgeries to a researcher. The participants were approached after their procedures, and informed consent and interviews were scheduled at the patient's convenience. No patient was asked to sign an informed consent or be interviewed while under the influence of pain medication.

Data collection was conducted as a one-on-one recorded personal interview and was facilitated by a semi-structured interview guide composed of ten open-ended questions, which made up the Pain Perception Interview Questions (PPIQ). A closing semi-structured question ("Do you have anything else to add?") was added to facilitate further information gathering or clarification. Interviews were one hour long and took place in the participant's room. Questions focused on the perceptions of pain and pain management 48 hours after ORIF surgery and adaptation after ORIF as narrated in participants' own words.

### **Population and Sampling**

Prior to data collection, each participant reviewed and signed a consent form and received information about the reasons for the study. Before the start of each interview, participants were made aware that they could discontinue the interview if they experienced pain and if their healthcare provider entered the room. One of the most important responsibilities of a researcher of human subjects is to ensure informed consent of any participants. Research cannot be undertaken without this consent. Informed consent gave the

researcher permission to delve into private areas of a human subject's life and enter a person's emotional, physiological, intellectual, or other very intimate arena that must be protected. I transcribed all information obtained from the participants and I was the sole individual with access to the participant information. At the conclusion of the study, all information, including audio recordings and field notes, were locked in an encrypted secure electronic database.

A total of 12 participants was recruited from a community primary care hospital that conducted an average of 12 ORIF surgeries monthly. Ten participants met the study's inclusion criteria: (a) age between 65 and 75 years; (b) have undergone ORIF surgery in the past 48 hours, (c) speak and understand English fully; and (d) should not exhibit any form of mental illnesses. The concepts of diminishing returns and saturation in qualitative studies were considered when determining the sample size for the study.

## Data Analysis

The use of NVivo 10.0 (QSR International) to process the data collected from the interviews enhanced categorizing statements and emerging themes. The modified Van Kaam (1969) method, based on Husserl's (1970, 2012) philosophy, was used to analyze the data collected. Van Kaam's method requires that intersubjective agreement be reached with other expert judges. Roy's four modes of adaptation -- physical, self-concept, role function, and interdependence -- were used to determine adaptation responses (AR) and ineffective responses (IR) of participants based on responses to the PPIQ. Van Kaam's (1969) approach in the phenomenological generation and analysis of data has been frequently utilized by nurse researchers because of its rigor in accomplishing accurate results from studies.

Using Moustakas' (1994) seven-step approach in conjunction with the NVivo<sup>®</sup> 10 software, participants were interviewed, and textual datum collected and analyzed to discern themes that developed from the data. Additionally, a descriptive analysis was conducted regarding the differences between the participants' responses. Analysis involved comparing the invariant constituents that was revealed within the main themes.

The coding process utilized the NVivo<sup>®</sup> 10 software that has the capability to list the key words and phrases emerging from the transcripts of the participants. For instance, key words identified in interview question one was (a) personal, (b) different, and (c) self. This list of words and phrases guided me to identify specific codes that were then re-uploaded in NVivo<sup>®</sup> 10 for code grouping. For instance, the key word "personal" was identified as "differences of pain." The grouped codes served as the basis for determining the themes. These themes were refined from the coded text to reflect the themes critical to the central question.

The preliminary grouping was coded by the following: (a) experiences of pain, (b) perceptions of pain, (c) failure of pain management, (d) understanding pain management options, (e) involvement mechanism in pain management, (f) factors affecting caregiver interaction, (g) meanings of adaptation, and (h) recommendations of pain management. These groupings were then utilized to understand the lived experiences of elderly concerning pain management.

## Results

**RQ1: Perceptions of pain and pain management of patients between 65 and 75 years of age 48 hours after ORIF surgery.** Three thematic labels emerged in the analysis: (a) elderly experienced different patterns of pain and pain coping mechanisms, (b) elderly experienced pain after gaining consciousness from open reduction and internal fixation surgery for bone fractures in their wrists or hips, and (c) effective pain management required patients' empowerment and opportunity to participate in pain management decisions.

Under the first thematic label, the findings of the study suggested that elderly patients perceived pain as a hurtful feeling that was personal and unique to an individual. Two participants stated that “My perception of pain is: it is personal” (MPS0552015) and “unique” (MPS0762015). While only two participants had direct statements about pain, four of the participants claimed that pain requires unique coping. Participant MPS0762015 said that pain “affects everyone differently.” These differences meant that patients also identified different patterns of coping. For instance, MPS0252015 perceived that “getting the right pain medication” was important coping for pain. MPS0252015 shared that she needed a pain management method that would last. MPS0252015 said, “I would like to get pain medication that lasts for a while so that I don’t have to call for it.” Other participants shared that they were dependent on the expertise of the caregiver and that they had basic knowledge on pain management but could not determine the type of pain treatments that were effective. MPS0252015 said, “I heard they have people who specialized in it.” MPS0352015 shared, “I know there are several types of pain medication, but I don’t know the one that is better.” MPS0452015 said, “I felt that I will not recover from this. I am 72 years old and this is just too much.”

The second thematic label indicated that gaining consciousness is essential in experiencing pain after the surgery. These participants shared that wearing off anesthesia and the demands for pain medication were indicators that patients were conscious of hurtful sensations. MPS0152015 stated that it was after the surgery that the pain “felt a little more pronounced.” MPS0252015 described the time of the pain as “immediately after I woke up from the surgery.” MPS0352015 said the pain was “numbing” and was felt “when I was transferred to the floor.”

The third thematic label was related to the need for the elderly patients for more in-depth information about pain management. According to these patients, they had limited knowledge concerning the pain medication available to relieve the sensation. Three of the participants believed that effective pain management would require them to learn pain management and available options that could support their coping. MPS0152015 said, “There is too much to learn about the different types of pain relief” and indicated that although she wanted to “be involved,” there was an obstacle: “I did not understand my options for pain management. Even if I was given an option I don’t think I would know what to choose.” Participants believed that if they received education about their pain management options, this would give them opportunities to participate in the decision concerning their pain management.

**RQ2: Perceptions of adaptation between patients 65 and 75 years of age after ORIF.** One thematic label emerged for research question two. Participants claimed that adaptation was both a process of change and acceptance. MPS0562015 described adaptation as “accepting your present condition or situation and work to adjust to those situations in good way.” MPS0462015 said, “Getting acclimatized, getting used to... developing an understanding of the present situation and how it will affect you in the long term.” MPS0262015 stated, “Adaptation is accepting the things you cannot change now and make the best of it. It is something you can never change, you just have to live it.”

## Themes and Invariant Constituents

**Thematic label one: Different patterns of pain and coping.** The first thematic label, elderly experienced different patterns of pain and pain coping mechanisms, emerged from the two themes or invariant constituents (Table 1). These themes included (a) self or personal feeling of pain, and (b) required unique coping. MPS0452015 explained that pain was a feeling that was uniquely felt by an individual: “My perception of pain is that whatever it is it hurts

like hell! Sometimes I can't explain it, but I guess everybody must experience it differently; this morning it was aching, but it's okay now." MPS0552015 stated, "My perception of pain is: it is personal. I don't believe everyone experiences pain the same way. It has to do with how you experienced pain." MPS0662015 indicated, "My perception of pain is that you experience the pain different as you get older and am very sure this does not feel like when I am having one of my headaches." MPS0762015 identified the term "unique" to describe pain. MPS0762015 said, "I don't know how to say it, but one thing I can say is that it is unpleasant and annoying, and it affects everyone differently." MPS09622015 said, "My perception of pain is something that takes your well-being, and everyone experiences it differently. Even though we may have the identical surgery, my pain is not somebody else's pain."

Table 1

*Thematic Label One: Elderly Experienced Different Patterns of Pain and Pain Coping Mechanisms*

Invariant Constituents	Number of participants to offer this experience	Percentage of participants to offer this experience
Pain requires unique coping	4	40%
Self or personal feeling of pain	2	20%

Four participants described pain as bad feeling. MPS0352015 said, "My perception of pain is that pain is not good, anything that hurts so badly is not good." MPS0862015 stated, "My perception of pain is that it is a terrible thing to experience it makes me anxious." MPS1062015 described pain as: "It is something that is traumatic and fearful, even though you know you will have surgery, the pain is like something you do not expect, and it causes a lot of emotion and turmoil." MS0152015 justified the pain: "I am the only one who knows what it feels like; nobody feels my pain, I know it is real and it is physical, someone has just cut into you." MPS0252015 added, "It is hard to put into words, but I believe that it is something that a person feels and only that person can say what it is and how it affects them."

**Thematic label two: Pain after gaining consciousness from ORIF surgery.** The second thematic label, elderly experienced pain after gaining consciousness from the surgical operation, was determined from the two themes or invariant constituents (Table 2). These themes included (a) anesthesia wearing off, and (b) demand for pain medication after surgery. MPS0152015 described his experience with pain as something that was "not too bad" but shared that after the surgery the pain "felt a little more pronounced." MPS0252015 said the pain occurred "immediately after I woke up from the surgery." MPS0352015 described the pain as "numbing" and stated that it was felt "when I was transferred to the floor."

The code consciousness was described by MPS0552015 as "Yesterday morning at about 6:30AM, I remember the time because that woke me up." MPS0962015 further added that his consciousness happened when "I was transferred to the floor and they were transferring me to the other bed, I had a lot of pain." MPS1062015 identified this pain experience: "The night of my surgery after I came to the unit it was quite painful."

Table 2

*Thematic Label Two: Elderly Experienced Pain after Gaining Consciousness from ORIF Surgery*

Invariant Constituents	Number of participants to offer this experience	Percentage of participants to offer this experience
Anesthesia wearing off	4	40%
Demand for pain medication after surgery	1	10%

Four participants described their pain experiences immediately after the effect of anesthesia faded. MPS0452015 said, "About an hour after I was transferred to the floor, the anesthesia was wearing off, I had some pain, but it was not bad." MPS0662015 stated, "While I was still in recovery I had some pain, but it was taken care of down there." MPS0762015 shared, "A few hours after surgery after the first set of pain medication wore off. In recovery, they gave me morphine twice before they took me to the floor." Participant MPS0862015 described how administration of pain medication was delayed: "I had to wait for the pain medication because ... the nurses that brought me up from the recovery room were giving a report to the nurse I was assigned to. So, I waited almost 45 minutes for pain medication."

**Thematic label three: Patients' empowerment and participation in decisions.** The third thematic label, effective pain management requires patients' empowerment and opportunity to participate in pain management decisions, was determined from four invariant constituents. These constituents included educating patients concerning pain management and available options. Also included in the third thematic label were involvement mechanisms of pain management, understanding the unique patients' needs, and quality experience with the caregiver.

Table 3

*Thematic Label Three: Effective Pain Management Requires Patients' Empowerment and Opportunity to Participate in Pain Management Decisions*

Invariant Constituents	Number of participants to offer this experience	Percentage of participants to offer this experience
Educate patients concerning pain management and available options	5	50%
Involvement mechanism of pain management	5	50%
Understanding the unique patients' needs	3	30%
Quality experience with caregiver	2	20 %

Three participants believed that effective pain management would require them to learn pain management and available options that could support their coping. MPS0152015 said "there is too much to learn about the different types of pain relief" but also indicated that she wanted to be involved: "If I am involved in what I take to ease the pain I would have more control." MPS0552015 related the feeling of not knowing what questions to ask and stated, "I would like to be involved in my pain management, but it's hard when you don't know the type of pain relief that is best for you." MPS0662015 also iterated the desire to be involved "in what

medication, and how much, and at what time it is given.” MPS0662015 further detailed that “everybody has different threshold for pain. ... When you have a planned surgery ... you should be planning with your doctors how your pain will be managed.”

These experiences were countered by patients who had negative experiences of pain management with their caregivers. MPS1062015 stated, “I did not understand my options for pain management. Even if I was given an option I don’t think I would know what to choose.” MPS0662015 also reported, “I was not given an option to choose, I was asked if I was allergic to certain drug. ... So, to answer your question, No! I did not understand pain option management.”

MPS0762015 also said, “I was not given an option. I was given what they thought was best for me; I would have liked to ask for what I want, you know... make that decision for myself.” MPS0862015 said, “I had an explanation and what was the best course of treatment that would be best for me after the surgery, but I was not given an option of what pain medication to choose from.” MPS0252015 related, “My understanding was that I would get what works for me and if it doesn’t, then I could get something else. I was not given any name for the others. Only the name of the one I would start with.”

Four participants shared that more than educating themselves in pain management, they need the caregiver to understand their pain experiences and decide on medications that would help them cope with their pain experiences. MPS0152015 shared that “patients may need to understand the pain and the options. ... I was afraid of over medicating myself. I understand there were other options, but the doctor thinks this was best for me.” MPS0352015 indicated “I understood that if my pain is not managed well I can ask for something else. I will discuss that with the doctor when he came to see me.” MPS0452015 shared that necessary pain doses were not received as promised: “My understanding is that we would start out with morphine every two hours, and I could have a smaller dose in-between if I need it, but that did not happen regularly.” MPS0552015 claimed “I was offered the pump, but I opted for the IVP [intravenously push]. I did not trust the pump. I am afraid of over medicating myself.”

**Thematic label four: Adaptation as a process of change and acceptance.** The fourth thematic label, elderly patients’ perceived adaptation as a process of change and acceptance, emerged after 10 of the participants shared the invariant constituents “process” and “acceptance.” MPS0562015 described adaptation as “accepting your present condition or situation and work to adjust to those situations in good way.” She also described adaptation as “changing to a new environment, or changing your way of life because you are sick [and] adapting to something new.” Other participants associated the following definitions with adaptations: MPS0462015 claimed “getting acclimated, getting use to... developing an understanding of the present situation and how it will affect you in the long term.” MPS0162015 indicated “adaptation is accepting your present situation and sees how it best fits other parts of your life. It is up to the individual to move on with it.” MPS0262015 defined adaptation as “accepting the things you cannot change now and make the best of it. It something you can never change you just have to live it.” MPS0362015 stated “adaptation is a change in condition that you either accept it in a positive way or you don’t accept it that way. Things like this are hard to adjust to especially when you were always active.”

MPS0662015 noted “life has many changes and you accept what is dealt to you and see how you can live with it. Accepting is important and this is how I would describe adaptation.” MPS0762015 claimed adaptation is “accepting the changes in your life and make it work for you.” MPS0762015 indicated “adaptation can mean moving to a new county or something new in your life. In my case it is adapting to my surgery and healing time and working with everyone to make it better.” MPS0862015 thought that “accepting the position you’re in allows it to work for you; if you are not in a position to change things, will you just

accept it.” MPS0962015 noted “adaptation means changes, and you accept the changes as you go along. I may have to go to a nursing home so that I can get help, I live alone.”

## Discussion

This qualitative descriptive phenomenological study explored the perceptions of elderly patients concerning pain and pain management and adaptation after surgical operation. Four thematic labels were identified.

**Theme 1: Elderly patients experienced different patterns of pain and pain coping mechanisms.** Participants revealed that that pain is a personal feeling of hurting that requires unique and appropriate coping management. According to Mandel, Davis, Secic (2013), the human nervous system functions as an electro-chemical process. Through the different sense receptors in the human nervous system, various types of stimulus can be activated. This understanding of pain supports the finding that elderly patients have different experiences of pain and coping mechanisms. The structure of the sense receptors of one individual differs from another. Thus, different patients experienced different levels of pain severity, even given the same level of pain. The magnitude of pain experienced by the elderly may be less than the pain experienced by younger patients (International Association for the Study of Pain, 2011; Kaye et al., 2010). Experiential pain threshold is the stage at that a person begins to experience pain, and tends to be at a much higher threshold in older people. Reduction in functionality of the nerve fibers works to help give elderly people lower pain endurance and tolerance in comparison with younger patients (Hallingbye, Martin, & Viscomi, 2011; Lautenbacher, 2012).

Elder adults have been found to better manage pain compared to younger patients (Corbett et al., 2012; Herr, 2011; Husebo, Strand, Moe-Nilssen, Husebo, & Ljunggren, 2010; Takai, Yamamoto-Mitani, Okamoto, Koyama, & Honda, 2010). Although, the notion that older individuals do not feel as much pain could also be a result of the belief that older individuals are more tolerant and more likely to accept pain than younger patients (Hallingbye et al., 2011; Lautenbacher, 2012). Pain has been found to be an accepted part of the aging process (International Association for the Study of Pain, 2011). Kaye et al. (2010) discovered that older people perceive that pain is a given and that reporting pain shows weakness. Thus, a patient’s satisfaction is an unreliable indicator of whether pain management is effective. This established conclusion supports the finding that elderly patients experienced different patterns of pain and pain coping mechanisms.

In the current study, one participant stated that “It is hard to put into words, but I believe that [pain] is something that a person feels, and only that person can say what it is and how it affects them” (MPS0252015). Elder adults use different words than younger patients to describe the pain they feel (Corbett et al., 2012; Herr, 2011; Husebo et al., 2010; Takai et al., 2010). Some adults use words such as “hurting” and “discomfort,” while others use “aching” and “soreness” to describe their pain. This could confuse caregivers concerning the level of pain experienced (Corbett et al., 2012; Herr, 2011; Husebo et al., 2010; Takai et al., 2010).

**Theme 2: Elderly patients experienced pain after regaining consciousness from open reduction and internal fixation (ORIF) surgery.** One coping mechanism used by caregivers to lessen the pain experienced by elderly patients is music relaxation. The purpose of music relaxation activity is to reduce anxiety, stress, tension, and to facilitate entry into altered states of consciousness (Allred, Byers, & Sole, 2010; Chi et al., 2014; Lin, Hsieh, Hsu, Fetzer, & Hsu, 2011; Mandel, Davis, & Secic, 2013). Moreover, Loewy, Stewart, Dassler, Telsey, and Homel (2013) stated that medical practitioners have used music to reduce anxiety before and during surgery or other medical procedures to facilitate anesthesia and the regaining of consciousness. This intervention reduces stress and discomfort during and immediately after

the procedure, enhances the effects of pain medication, and assists in the monitoring and control of physiological responses during the procedure (Loewy et al., 2013).

**Theme 3: Effective pain management requires patients' empowerment and opportunity to participate in pain management decisions.** Patients in the study revealed that pain management was solely decided by their caregivers. These patients justified this with the belief that they had limited understanding of managing pain. MPS1062015 stated, "I did not understand my options for pain management. Even if I was given an option I don't think I would know what to choose." Three participants believed that effective pain management would require them to learn pain management and available options that could support their coping. MPS0152015 said, "there is too much to learn about the different types of pain relief." MPS0152015 also indicated that she wanted to be involved: "If I am involved in what I take to ease the pain, I would have more control." MPS0552015 stated: "I would like to be involved in my pain management, but it is hard when you don't know the one that is best for you."

Giving patients the opportunity to participate in pain management decisions can improve pain management among elderly patients. Hirsh et al. (2010) argued that, while bias might be prominent in practitioner decision-making about pain, providers had minimal awareness of or a lack of willingness to acknowledge this bias. In addition, Brorson and colleagues (2014) posited that the patient should be consulted in the decision-making regarding the pain assessment tool to be used. Patient-participation increases his or her levels of familiarity with the scale that the tool entails, enabling a more accurate result (Brorson et al., 2014; Knox, 2012). A patient-centered approach should be adapted to relieving pain among elderly patients (American College of Emergency Physicians, 2009).

**Theme 4: Elderly patients perceived adaptation as a process of change and acceptance.** All participants described adaptation as a process of change and acceptance. MPS0562015 described adaptation as "accepting your present condition or situation and work to adjust to those situations in good way." MPS1062015 described adaptation as "changing to a new environment or changing your way of life because you are sick. Adapting to something new." The participants structurally described their situation as something that requires adapting with the change of time and that pain is a feeling that is normal for the elderly. MPS0162015 shared that "adaptation is accepting your present situation and sees how it best fit other parts of your life. It is up to the individual move on with it." MPS0262015 further stated, "adaptation is accepting the things you cannot change now and make the best of it. It something you can never change. You just have to live it."

According to Roy's adaptation model, elderly patients can adapt biologically, sociologically, and psychologically (Shosha, 2012). Moreover, patients continually interact with dynamic environments, and use their biological, social, and psychological adaptive mechanisms to cope (Shosha, 2012).

## Conclusion

Interviews revealed that participants felt pain immediately after surgery and therefore pain management is critical for elderly patients before, during, and after surgery. As stated by some of the participants, although pain was present after they woke from anesthesia, few were administered pain medication in the post anesthesia care unit. Most participants had to wait until they arrived at the admitting units. Pain management for elderly patients in the post-operative stage should begin during earlier periods in the operative process. Forty percent of participants in this study indicated that their pain experiences began immediately after the effect of analgesia. Inadequate perioperative analgesia can potentially contribute to higher incidence of myocardial ischemia and impaired wound healing. Ongoing assessment of directed pain history, multimodal individualized pain control, and vigilant dose titration in the

perioperative state is recommended. Findings suggest a multimodal pain management strategy that includes regional opioids, and systemic anti-inflammatories. This pain management strategy will reduce the post-operative, generalized bio-physiological stress experienced by the elderly patient. Inadequate post-surgical pain management can contribute to the development of perioperative complication. Four of five elderly patients have at least one comorbidity. One third have at least three or more comorbidities. In addition, several participants indicated that they were not given choices or educated about their pain management plan. Elderly patients need to be educated and involved in the decision making in the process of pain management.

### Limitations

The findings of this study may not apply to larger hospitals. This study was set in a community primary care hospital with 158 beds. The participants were patients who had undergone ORIF surgery within the past 48-hours and their experiences and perceptions of pain may be different from patients who undergo other surgical procedures. The ages of the participants of the study could also limit the generalizability of the study. Furthermore, the participants may have had individual health concerns or issues that could have affected their perceptions of pain, and personal preferences that affected their perceptions of the quality of pain management that would be different from patients from other age groups. Therefore, the findings may vary if this study were to be conducted with another age group.

### Recommendations and Future Research

Future research could be modified to a quantitative study that may advance more generalizable conclusions with a larger number of participants. In future studies, researchers may use a mixed method design to provide rich data. The phenomenological method of research gives voice to the voiceless and enable them to express their perceptions in their own words. Finally, future research should include both male and female participants, and expand the scope of the geographical location for recruitment of participants.

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