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by

Gloria Spencer

May 2016

BASELINE ASSESSMENT OF KNOWLEDGE AND ATTITUDES  
REGARDING PAIN OF NURSES IN A COMPREHENSIVE CANCER CENTER

A Thesis Presented to the  
Faculty of the College of Education  
University of Houston

In Partial Fulfillment  
of the Requirements for the Degree

Doctor of Education

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Thesis for the Degree  
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This is dedicated to my parents, Frank and Julia Hinojosa Spencer, who instilled in me the love of education and all that it brings. My father, a simple man, was wise in so many ways, despite only high school and minimal secondary education. My mother, a first generation Mexican American, demonstrated that even a young woman in the 1930s who was only one of 11 to graduate from high school and was unheard of in this era. My legacy to them is the completion of the promise I made as a child that I would finish my college education and go as far as I can. My hope is this inspires my sons to appreciate and enjoy education as much as I have.



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I want to give praise and honor to God that by his Grace I have completed this doctoral program, despite all obstacles. When diagnosed with breast cancer at the beginning of this journey, the Lord allowed me to stay on course and come this far. The test of faith and strength has given me a renewed faith in my heavenly Father. I know now that all things are possible with him by my side.

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#### Abstract

Pain management outcomes for hospitalized patients are often inadequate. One explanation validated in the literature is inadequate pain management by nurses due to a lack of knowledge and their negative attitudes. The purpose of this study was to analyze data from oncology nurses in a large academic cancer center regarding their knowledge and attitudes about pain. United States hospitals are feeling the pressure associated with Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey scores on pain management due to its effect on Medicare/Medicaid facilities' reimbursement. In this study, The Knowledge and Attitudes Survey Regarding Pain, developed by Ferrell and McCaffery (2012), plus 11 demographic items were used to survey a sample of 383 registered nurses involved in direct patient care. Archival data analysis included t-testing to compare scores between (inpatient and outpatient) nursing groups and Analysis of Variance (ANOVA) testing compared scores among more than two groups. The mean score for all participants calculated as a percentage correct answers for all questions, was 68.38% which is below the passing score of 70%. Scores differed significantly based on the nurse' age, current position, location of education, and certification status. The results concur with the findings in the literature and support the idea that this facility's nurses need further education about pain and its management. This is the critical first step of designing an effective customized program for this facility that will allow nurses to provide optimal pain management for cancer patients.

Keywords: pain knowledge, pain attitudes, pain management, cancer pain

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## **Chapter I**

### **Introduction**

Pain is a complex, multidimensional, and universal phenomenon, and almost every person has or will experience varying types of pain at some point in their lives. Pain defined is, “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (International Association for the Study of Pain, 2004, pp. 209-214). Pain may occur at a single site or may occur at multiple sites; it can be acute or chronic or both. From the time of the first diagnosis through survivorship, pain is one of the most feared symptoms of cancer patients (Howell, Butler, Vincent, Watt-Watson, & Stearns, 2000; Myers, 1995). The American Cancer Society (ACS, 2013) reported that nearly 1.7 million people diagnosed with cancer in 2013, and about 60%, experience pain during treatment. For a third of all cancer patients, pain persists after treatment ends, resulting in significant physical limitations, sleep problems, and diminished quality of life. There are an estimated 13.7 million cancer survivors living in the U.S. By 2022, that number rises to almost 18 million (ACS, 2013).

The 2013, the Oncology Nursing Society stated that 20% to 75% of patients with cancer report having pain at the time of diagnosis. The American Cancer Society (2013) noted that unmanaged cancer pain is a major barrier in the overall care of the oncology patient. According to National Comprehensive Cancer Network (NCCN, 2014), cancer pain frequently is assessed and treated inadequately. Pain that is not well controlled can transition from being acute pain into chronic (Brennan, Carr, & Cousins, 2007), and some types of chronic pain are diseases in their own right.



The results of the Institute of Medicine study (2010), “Relieving Pain in America: A Blueprint to Transforming Prevention, Care, Education, and Research,” indicated that a person’s beliefs about pain correlates with the outcomes of pain treatment. Unfortunately, cancer patients tend to receive inadequate analgesics and therefore have greater pain, especially if they harbor beliefs such as cancer pain is inevitable or side effects of analgesic drugs are unmanageable. They may feel that “a good patient” does not complain about pain, because it could distract physicians from treating the cancer (Gunnarsdottir et al., 2002). The 2010 IOM report stressed that correcting these beliefs and misperceptions is imperative and should be an important goal to improve pain management for patients.

#### Statement of the Problem

Advocates of international efforts to improve pain efforts state, “The unreasonable failure to treat pain is viewed worldwide as poor medicine, unethical practice, and an abrogation of a fundamental human right” (Brennan et al., 2007, p. 205). The International Association for the Study of Pain (IASP) and its European Federation have urged the World Health Organization (WHO) to recognize that “pain relief is integral to the right to the highest attainable level of physical and mental health” because there are major gaps in knowledge about pain across healthcare providers and society. The high prevalence of pain and its effect on society is of national and international alarm. The IASP initiated its first "Global Year Against Pain" with the motto, “The Relief of Pain Should be a Human Right” proposing that pain management as “a fundamental right” (IASP, 2004).

With the recent passage of the Patient Protection and Affordable Care Act in March 2010, the U.S. health care system has undergone significant changes, although how these changes will continue to evolve over the next decade is highly uncertain. New health care reform or other broad legislative actions may offer new opportunities to treat pain more effectively. In 2010, that act required the Department of Health and Human Services (HHS) to enlist the Institute of Medicine (IOM) in examining pain as a public health problem. The National Institute of Health (NIH) and the Health and Human Services (HHS) asked the IOM to assess the state of the science regarding pain research, care, and education. The IOM committee published some incredible and astounding findings. They reported that more than 100 million Americans have pain that persist for weeks and up to years, and these numbers do not include children or individuals from nursing homes or skilled facilities, prisons or the military hospitals. Analysis of the cost of pain revealed enormous costs of \$560-635 million per year and in the toll, it takes on people's lives. This estimated cost combines incremental cost of health care at \$261-300 billion and lost productivity at \$297-336 billion attributed to pain (IOM, 2010).

Many studies suggest that positive attitudes and beliefs in various areas of nursing can influence care constructively, whereas negative attitudes and beliefs can inhibit the therapeutic relationship (Ben-Ami et.al., 2001; Critchlow & Bauer-Wu, 2002; Kearney et.al., 2003; Osborne, 2003; Smith & Draper, 1994; Tsai, 2002). Individual attitudes and personal biases of both the patient and the nurse can also influence pain management in a variety of ways. Patients exhibiting a cheerful attitude with no outward signs of physical or emotional distress receive lower dose prescriptions or inadequate doses of pain

medication administered, despite being in severe pain (McMillan, Tittle, Hagan, Laughlin, & Tabler, 2000).

### Purpose of the Study

The purpose of this study was to analyze secondary data about knowledge and attitudes regarding pain from nurses collected at National Cancer Institute (NCI) - designated comprehensive cancer center. The results of this baseline data analysis identified gaps in knowledge and attitudinal barriers that could interfere with effective pain management for cancer patients. The knowledge gaps and attitudinal barriers identified among nurses can then be used in the development of effective educational strategies to remediate the problem. This assessment is critical in order to educate interdisciplinary teams to provide effective pain management outcomes and increase patient satisfaction.

### Research Question

This descriptive study answered the following research question. “What is the baseline knowledge and attitudes regarding pain among registered nurses in a comprehensive cancer center?” The primary objective of this study was to survey nurses in inpatient and ambulatory areas to obtain baseline data on their knowledge and attitudes regarding pain and to identify gaps in their knowledge and attitudes, as these could interfere with optimal pain management. Secondary objectives were to determine if there are significant differences between nurse’s knowledge and attitudes, based on the following criteria: nurses’ years of practice; level of proficiency; position on the career ladder; certification in pain management; and whether the nursing graduate trained in the United States or in another country.

### Context for the Study

The study occurred in a comprehensive cancer center in the southern United States. The nurses who provided direct patient care in either an inpatient or an outpatient setting participated in the study. The operating room nurses, research nurses, and nursing management were excluded because they did not provide direct pain management to patients.

### Significance of the Problem

The topic is significant for many reasons. First, pain management outcomes for hospitalized patients are often inadequate. One explanation of inadequate pain management by nurses has been a lack of knowledge about pain assessment and pain management principles, opioid use, and acute and chronic pain. Nurses' attitudes about pain vary and decrease a nurse's ability to effect pain management (McMillan, Tittle, Hagan, & Small, 2005; Willens, 2014). The knowledge and attitudes of nurses about evidence-based pain management likely affects their ability to manage pain appropriately. There is a need for additional evidence to understand the knowledge gaps and attitudinal barriers for nurses to provide effective pain management for hospitalized patients.

Second, performance measurement has become prevalent as a means of evaluating health care outcomes and patient perceptions. Consequently, hospitals across the United States are feeling pressure associated with the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. Public reporting of survey results allows consumers to compare the performance of hospitals in their area. HCAHPS is a major component in the Centers for Medicare & Medicaid's Value-based

Purchasing Program (VBP). In October 2012, this program started to affect Medicare and Medicaid reimbursement rates. In the August 2013 HCAHPS Fact Sheet, Ganey's (2011) Pulse Report: Perspectives on American Health Care, found that 25% of hospitals with the highest HCAHPS scores were also on average the most profitable. In addition, the hospitals that showed a positive profit margin were institutions that were highly rated by patients (Healthcare Source, 2012).

Third, patient satisfaction is a critical component that drives HCAHPS scores. The interaction a patient has with every staff member or clinician during their hospital visit is an opportunity for a hospitals' brand to be either positively reinforced or undermined. Most healthcare providers equate quality care with positive treatment outcomes. Patients, however, view quality healthcare as a satisfying in-hospital experience. Hospitals must educate every employee about how patients perceive quality and implement systems that help ensure patient expectations are necessary to maximize HCAHPS scores.

Finally, patient satisfaction scores connect to better patient outcomes. Individuals who have a positive hospital experience are more likely to comply with treatment and discharge instructions. To enhance patient perceptions about quality, hospitals need to focus on consistency in every aspect of a patient's stay, from interactions with staff members to care processes and handoffs across different disciplines within the hospital (Healthcare Source, 2012).

Patients need protection from and relief of pain and suffering that are fundamental features of the human, as well as a cardinal underpinning of the art and science of healing (IOM, 2011). Lack of knowledge and negative attitudes about pain management have

been evident for many years in the literature. Because nurses are the pivotal, members of the healthcare team for assessing and managing pain, gaps in their knowledge and negative attitudes about pain can serve as a barrier to proper care. Having this information can be used to alter behaviors and improve satisfaction for cancer patients in pain (McCaffery & Ferrell, 1997).

#### Educational Value of the Study

Nurses' knowledge about pain and current evidence-based pain management strategies and guidelines is limited and suboptimal. In addition, nurses frequently have misconceptions about pain management and develop negative attitudes about pain, patients with pain, and pain management. Such negative attitudes may stem from a lack of knowledge about pain and evidence-based pain management practices. Further research regarding the extent of the lack of knowledge and negative attitudes about pain among nurses is necessary. In addition, identifying specific deficits regarding pain knowledge and evidence-based pain management may help researchers to determine the most effective educational methods to increase nurses' theoretical and practical understanding of those subjects. Because nurses are the pivotal members of the healthcare team for assessing and manage pain, though their knowledge and attitudes about pain can serve as a barrier. Having information about nurses' knowledge and attitudes can be used to alter behaviors and improve patient satisfaction for cancer patients in pain.

## Operational Definitions

The following pain terminology is updated from "Part III: Pain Terms, A Current List with Definitions and Notes on Usage" Classification of Chronic Pain, Second Edition, IASP Task Force on Taxonomy.

1.     Pain: An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (IASP, 2011).
2.     Acute pain: Pain that comes on quickly, can be severe, but lasts a relatively short time (American Chronic Pain Association, ACPA, 2011).
3.     Chronic pain: Ongoing or recurrent pain lasting beyond the usual course of acute illness or injury or, generally, more than 3 to 6 months, and adversely affecting the individual's well-being. A simpler definition of chronic or persistent pain is pain that continues when it should not (American Chronic Pain Association, ACPA, 2011).
4.     Nociceptive pain: Pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors. This term describes pain occurring with a normally functioning somatosensory nervous system to contrast with the abnormal function seen in neuropathic pain. (IASP, 2011).
5.     Addiction: A primary, chronic, neurobiologic disease whose development and manifestations are influenced by genetic, psychosocial, and environmental factors. Addiction characterized by behavior that includes one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving (American Pain Society, APS, 2001).

## Summary

The purpose of this study was to analyze baseline data about knowledge and attitudes regarding pain from nurses in a comprehensive cancer center. Since nurses are pivotal members of the healthcare team, who assess and manage pain and patients in pain, their knowledge and attitudes toward pain and patients in pain can serve as a barrier to effective pain management. Information about nurses' knowledge and attitudes can help determine the most effective educational methods to increase their understanding of pain and its evidence-based management. Chapter I will provide a literature review to support the concept of pain and pain management including the knowledge gaps and attitudinal barrier issues related to this need. Chapter II will provide a description of the methodology used for this study. Chapter III will present the findings of the study and its analysis. Chapter IV will discuss the results, make recommendations and identify future research needs.



## **Chapter II**

### **Review of the Research Literature**

Many studies from around the world have found the knowledge and attitudes regarding pain are barriers that interfere with appropriate clinical care of people with pain. These studies were from diverse settings and age groups, adults, and the elderly. The participants varied from student nurses and nursing faculty to professional clinical nurses and doctors.

A computerized literature search of nursing and health databases conducted to obtain a comprehensive list of references. The following computerized databases were used (a) CINHALL, (b) PUB MED, (c) MEDLINE, and (d) the TEXAS HEALTH SCIENCE LIBRARIES CONSORTIUM CATALOG. The search strategy entailed specific keywords relevant to topic both alone and in combination. The keywords used included cancer pain; acute pain; pain management; knowledge about pain; attitudes regarding pain; pain theory; pain instruments; pain assessment; and nursing pain outcomes. The search yielded thousands of sources addressing the research question. A growing number of studies document progress in improving pain management, yet the literature regarding clinical management of pain is still suboptimal.

The literature search examined the concept of knowledge and attitudes regarding pain and covered not only medicine and nursing, but also healthcare disciplines. The search was divided into six sections, the first section is major landmark contributions from regulatory agencies and professional organizations, such as the World Health Organization (WHO), the Joint Commission for the Accreditation of Hospitals organization (JACHO), often simply called [Joint Commission] and, most recently, the

Institute of Medicine (IOM). The second section comprised studies on nurses' knowledge about pain, and the third included studies on the effects of negative nursing attitudes. The fourth section focused on attitudes as presented in nursing education, and the fifth examined studies among oncology nurses and non-oncology nurses. The final section includes studies on pain management specifically among patient groups considered minorities.

### Landmark Studies

The first major guidelines for the relief of cancer pain was the World Health Organization (WHO) (1986,1990) which developed a well validated and widely accepted three step "Pain Relief Ladder." This ladder recommends administration of increasingly strong analgesic agents in the effective titration of analgesic medications. Guidelines for Cancer pain, include the three-step "WHO Ladder", for increasing dosages of analgesia administration for pain relief in cancer patients. The Step 1, dosage for mild pain, is non-steroidal analgesic medication (NSAID's). Step 2 is moderate pain, or pain that does not respond to step one, and requires the clinician use a weak opioid and may be in combination with the weaker opioid. Step 3 is for severe pain or pain that is not relieved by step two approach. Patients in severe pain in that are at step three, receive medications such as strong opioids to increase to control pain. This follows the recommendations based on the WHO Ladder for Cancer pain management (WHO, 1986; WHO, 1990).

Founded in 1951, the Joint Commission (JC) is an independent, not-for-profit organization. It is the nation's oldest and largest standards-setting and accrediting body in health care. It seeks to improve health care for the public, in collaboration with other

participants. The JC evaluates health care organizations and inspires them to excel in providing safe and effective care of the highest quality and value.

The Joint Commission accredits and certifies more than 21,000 health care organizations and programs in the United States. This includes hospitals, health care organizations that provide ambulatory and office-based surgery, and behavioral health, home health care, laboratory and nursing care center services. However, health care organizations, programs, and services voluntarily pursue accreditation and certification. Joint Commission surveyors are highly trained experts who are certified doctors, nurses, hospital administrators, medical laboratory medical technologists, and other health care professionals.

The Joint Commission's state-of-the-art standards focus on patient safety and quality of care. On January 1, 2001, Joint Commission Pain Management Standards went into effect as part of JC accreditation for ambulatory care facilities, behavioral health care organizations, hospitals, home care providers, hospitals, office-based surgery practices and long-term care providers. The standard, R1.2.10, requires organizations to address the appropriate assessment and management of pain (Joint Commission, 2008). This movement by Joint Commission "exerted a major impact across setting in the United States" (Gordon et.al., 2008, p. 509).

The Institute of Medicine (IOM), 2010 landmark study, "Relieving Pain in America: A Blueprint to Transforming Prevention, Care, Education, and Research," offered a blueprint for action in transforming prevention, care, education, and research, with the goal of providing relief for people with pain in America. The IOM suggested the nation must adopt population-level prevention and management strategies, in order to

reach the vast multitude of people with various types of pain. They recommended that Health and Human Services (HHS) develop a comprehensive plan with specific goals, actions, and timeframes. Better data and more information to help shape efforts, to relieve pain especially on the groups of people currently underdiagnosed, undertreated is needed. These recommendations from IOM encourage federal and state agencies and private organizations to accelerate the collection of data on pain incidence, prevalence, and treatments.

The IOM recommends healthcare providers must aim to tailoring pain care to each person's experience and help to promote self-management. In addition, IOM recommended that federal agencies and participants redesign education programs to focus on the major gaps in knowledge about pain across health care and society. Pain is a major driver for visits to physicians, a major reason for taking medications, a major cause of disability, and a key factor in quality of life and productivity. IOM stated that the burden of pain in terms of human lives, dollars, and social consequences, relieving pain should be a national priority (IOM, 2010).

#### Nurses' Knowledge about Pain

Experience-based nursing practice, rather than evidence-based nursing practice for pain management guided nurses in the 1990s. Pain management was not an accepted specialty in nursing at that point (Pasero, 2015). In fact, Pain was not routinely assessed and minimal educational opportunities or resources related to pain management nursing were in existence (Pasero, 2015).

In a study by one of the earlier pioneer nurses in pain management, the findings revealed that nursing textbooks contained inaccurate information about opioid addiction,

tolerance, and physical dependence (Ferrell et al., 1992). Yet another study found baccalaureate-nursing programs allocate little time to cancer pain management (Ferrell et al. 1993; McCaffery & Ferrell, 1992; O'Brien et al., 1996; Pritchard, 1988; Watt-Watson, 1987). In addition, studies by Dalton (1989) and Strevy (1998) found that in general, nurses lacked knowledge about cancer pain assessment and may have overly focused on addictive behaviors, rather than pain intensity and other descriptive characteristics of pain.

A further study found nurses did not know that a patient's self-report of pain is the most accurate measure of pain (McCaffery & Ferrell, 1997). In a study by Howell, Butler, Vincent, Watt-Watson, and Stearns (2000), a misconception identified; nurses claimed that physicians or nurses could rate pain more accurately than their patients could. An audit of 93 charts of patients with cancer found no pain assessments and indicated that pain intensity charted only one to three times in a 24-hour period. Location and symptoms of patient pain as well as frequency of pain were also limited in nurse documentation or not accompanied in the nurse's note. After administering an educational intervention, Howell et al. (2000) noted a slight increase in nurse charting of pain intensity.

Some nurses may lack knowledge about appropriate analgesic administration and titration, which has led to using placebos, underusing oral analgesics (McCaffery & Ferrell, 1995), and requiring patients to experience pain before administering pain medications. Administering pain medications on an "as needed basis", instead of around the clock, prolongs the intervals between doses (Fox, 1982; Myers, 1985) and may lead to inadequate doses with failure to titrate doses, according to patients' stated pain

intensity (McCaffery & Ferrell, 1997; McCaffery, Ferrell, O'Neil-Page, Lester, & Ferrell, 1990; Sheidler, McGuire, Grossman, & Gilbert, 1992). Nurses who do ask patients to rate their pain on a 0 to 10 scale may rephrase or minimize patients' reports when charting pain assessments (Fox, 1982).

Lack of knowledge about drug interactions and the management of side effects caused by opioid analgesics can also cause some nurses to give inadequate doses (Fox, 1982). Nurses become more educated about the low risk of addiction by patients who use opioid medications for pain, and newer surveys indicated that fewer nurses believe that patients will become addicted to analgesics (McCaffery & Ferrell, 1997), when compared to older survey data (Fox, 1982; McCaffery et al., 1990; Watt-Watson, 1987).

#### Effects of Negative Nursing Attitudes

Negative nursing attitudes create barriers to effective cancer pain management. In earlier studies, some nurses expressed fear of contributing to patient opioid addiction (McCaffery et al., 1990; McCaffery & Ferrell, 1992; Myers, 1985; Strevy, 1998). In order to address this issue, Howell et al. (2000) used an educational intervention to improve the knowledge and attitudes of oncology nurses in cancer pain management. Although the intervention did change the knowledge, attitudes, and behavior of the nurses studied, the interventional changes was not maintained over time. Before the intervention, 38% of nurses did not believe that patients should remain pain free. Although the intervention altered this belief, improvement declined three months post intervention. Most of the knowledge, attitude, and behavior scores at three months post intervention were approaching their pre-intervention levels. Prior to the study intervention, 34% of nurses reported a willingness to contact physicians when pain was

unrelieved. This increased to 50% immediately after the intervention, but it decreased to 24% three months after the intervention.

Fox (1982) found that nurse-physician relationships were a likely factor when nurses were reluctant to recommend changes in pain management to physicians. This finding was supported when McCaffery and Ferrell (1995) surveyed nurses in Australia, Canada, Japan, Spain, and the United States about their knowledge of cancer pain management. Although results varied in some of the survey items, overall 25% or more of nurses in each country expressed the attitude that patients over-report their pain. In addition, Howell et al. (2000) found that nurses believed that their patients should experience pain before giving pain medication. These two beliefs may discourage nurses from providing adequate administration of analgesics. Nurses also may adhere to rigid dosing schedules, instead of individualizing schedules, and believe that the goal of chronic pain management is to achieve the lowest possible dose of medication (Strevy, 1998). Even in the face of ongoing, unrelieved pain, some nurses administered less-than-maximum prescribed doses at longer-than-prescribed intervals (Fox, 1982; Howell et al.; Marks & Sachar, 1973).

#### Effect of Negative Attitudes on Pain Management

Negative patient attitudes also may create barriers to effective pain management when patients expressed fear or concern about bothering nurses and about tolerance and addiction. Fear of tolerance was more prominent than fear of addiction among patients reporting the highest levels of pain. This suggested a significant need for patient education about tolerance and addiction. Nurses will have difficulty allaying their

patients' fears when the nurses also lack adequate knowledge and have negative attitudes about patient tolerance and addiction to analgesics.

Barriers to effective cancer pain management include the lack of knowledge and the negative attitudes about cancer pain relief that many nurses, physicians, and patients exhibit. Whether oncology nurses are more knowledgeable and have more positive attitudes about cancer pain management than non-oncology nurses is not clear. Paice et al. (1998) conducted a study of barriers to cancer pain relief; they found many cancer studies related to pain management and minorities under treatment for pain.

A more current study, in the issue of the March 2014, *Pain Management Nursing* journal featured an article titled, "Enhancing knowledge and attitudes in pain management: a pain management education program for nursing home staff" (Tse and Ho, 2014). In this study, the authors used a pre/post-test design to measure changes in knowledge before and after nurses attended a pain management program. The researchers noted a significant increase in knowledge and attitudes in the post-test.

In another article in the same *Pain Management Nursing* journal issue was "Nursing Attitudes Toward Patients with Substance Use Disorders in Pain." Morgan (2014) argued there was a lack of knowledge of appropriate pain treatment and substance use disorders (SUDs) among nurses. Those who harbored negative attitudes regarding pain management also had negative attitudes toward patients with substance use disorders. Morgan (2014) went on to state that barriers in the workplace, such as low staffing patterns, high acuity, inability to contact prescribers, and a lack of resources, contributed to nurses' inability to provide adequate pain management.



### Comparison of Oncology and Non-Oncology Nurses and Pain Management

Controversy exists in the literature in determining whether oncology nurses are (O'Brien et al., 1996) or are not (Sheidler et al., 1992) more knowledgeable about cancer pain management than non-oncology nurses. In the study by Sheidler et al. (1992), 177 registered nurses attending a continuing education program about oncology nursing completed a short quiz containing four scenarios. Twenty-nine percent did not determine correctly whether a suggested opioid analgesic dose was appropriate, too high, or too low in any of the scenarios. Only two percent answered all four questions correctly. No statistically significant association existed between correct answers and oncology or non-oncology work settings. However, O'Brien et al. (1996) found that a sample of 212 nurses who cared for patients with cancer were more knowledgeable and more liberal in their attitudes about cancer pain management than a sample of 122 nurses who did not care for patients with cancer. In addition to nurses, physicians (Anderson et al., 2000; Fox, 1982; Marks & Sachar, 1973) and patients (Paice et al., 1998; Strevey, 1998) lack knowledge regarding the treatment and relief of cancer-related pain. Physicians receive little pain management training in medical school, so they may be hesitant to prescribe adequate doses of opioid analgesics. Further compounding the problem, many patients do not know that their cancer pain can be relieved effectively, so they do not demand adequate pain management from their healthcare providers.

Negative patient attitudes also may create barriers to effective patients expressed fear or concern about bothering nurses and about tolerance and addiction. Fear of tolerance was more prominent than fear of addiction among patients reporting the highest levels of pain McCaffery et al. (1990). This suggests a significant need for patient

education about tolerance and addiction. Nurses will have difficulty allaying their patients' fears when the nurses also lack adequate knowledge and have negative attitudes about patient tolerance and addiction to analgesics. Patients with cancer fear pain and often endure unrelieved pain even though cancer pain relief is achievable. Barriers to effective cancer pain management include the lack of knowledge and the negative attitudes about cancer pain relief that many nurses, physicians, and patients exhibit Paice et al. (1998) conducted a study of barriers to cancer pain relief and the study found many cancer studies undertreated pain.

#### Current Research

In the March 2014, issue of Pain Management Nursing journal featured an article titled "Enhancing Knowledge and Attitudes in Pain Management, "A Pain Management Education Program for Nursing Home Staff" by Tse and Ho (2014). In this study the authors used a pre- and post-test design to measure changes in knowledge before and after nurses attended a pain management program. The researchers noted a significant increase in knowledge and attitudes in the post-test.

Another article in the same issue was "Nursing Attitudes Toward Patients with Substance Use Disorders in Pain" by Morgan (2014). This author argued that a lack of knowledge of appropriate pain treatment and substance use disorders (SUDs) among nurses with negative attitudes is associated with those nurses also having negative attitudes toward patients with SUD. The investigator went on to state that barriers in the workplace, such as low staffing patterns, high acuity, inability to contact prescribers, and a lack of resources, contributed to nurses' inability to provide adequate pain management.

Voshall et al. published a paper titled “Knowledge and Attitudes of Pain Management among Nursing Faculty” in the December 2013 issue of *Pain Management Nursing* journal (Voshall, Dunn, & Shelestak, 2013). They noted that most of the faculty studied recalled having basic pain management education, but less than 50% felt adequately prepared. Of the faculty that taught pain management, only half used specific pain management guidelines. Faculty that reported teaching pain management had sufficient knowledge of pain assessment and pathophysiology. Areas identified as needing more education included medications, interventions, and addiction. Faculty that had been practicing for longer periods of time felt less prepared to teach pain management. The authors recommended more continuing education on pain management be offered.

In 2013 an article by Al Khalaileh and Al Qadire measured nursing students’ knowledge and attitudes found that the students had low levels of pain knowledge. The average score on the Attitudes Survey Regarding Pain was 16 correct out of 40. Less than half of the students recognized that pain could be present even when the patient’s vital signs are normal.

### Theories and Models

Pain management is a global concern for healthcare providers as well as the nursing profession. Nurses play an essential role in the assessment and optimal management of patients in pain. Therefore, it is crucial for nurses to have knowledge of pain management theories and current standards of practice.

In the 1996 book by Bates, titled “Biocultural Dimensions of Chronic Pain,” describes a model combining the physiologically-based gate-control theory (Melzack & Wall, 1983) with social learning and social comparison theories to describe the pain

experience more comprehensively. Important influences acting on the perception of pain as proposed in the gate control model are added: the social comparison and social learning processes within ethno-cultural situations in which the individual interprets prior pain experiences and forms an attitude toward pain. These factors influence the attention given the painful stimulus and the cognitive control that is exerted on the gate control mechanism, subsequently leading to the pain response.

Nursing practice is deep-seated in Maslow's Hierarchy of Human Need Theory (Maslow, 1943) and pain is at the lower order of this basic human biophysical need. Maslow's theory regarding pain can be interpreted to show that unless pain control is met the person will not be able to reach the other level of needs they may have.

Pioneer nursing theorist Jean Watson's 1995 Theory of Science of Caring speaks to approaching health (pain free status) as a holistic-dynamic process, integrating mind, body and spirit, and environment. Nurses must have knowledge of pain management, skills to assess and treat patients in order to achieve positive patient outcomes (Good & Moore, 1996). Pain management knowledge includes physiological, psychological, pharmacological and non-pharmacological understanding of the treatment of pain as well as the standard of care to be provided to the patient (Weber & Kelley, 2001, 2007).

#### Instruments to Measure Patient's Pain Intensity

The knowledge to use pain measurement tools and when to use them and their interpretation is often inadequate and leads to poor pain management. The pain assessments tools below are the most common ones used for a variety of patient types. Pain rating scales used daily in clinical practice deals with pain intensity to measure how much a patient's level of pain. Each scale has no standardized title, definition, or method

of measure. However, these basic assessment tools are often not utilized or utilized incorrectly, potentially affecting the high quality of care for patients of different cultural backgrounds.

The Numerical Rating Scale (NRS) has been given verbally or visually (0 to 10). In this measure, the patient is asked to self-rate pain (0 = no pain and 10 = worst possible pain). It is the most commonly used since 1986, when it was published in the *Pain Clinical Nursing Manual* by Ferrell and Beebe.

The Wong Baker Faces rating scale was originally created in 1983 for children to help them communicate about their pain. Now it is used around the world to improve pain assessments with people ages 3 and older. Explain to the person that each face is from a person who has no pain (hurt), some pain, or a lot of pain. Face 0 does not hurt at all. Face 2 hurts just a little bit. Face 4 hurts a little bit more. Face 6 hurts even more. Face 8 hurts a whole lot. Face 10 hurts as much as you can imagine, although you don't have to be crying to have this worst pain. Ask the person to choose the face that best depicts the pain they are experiencing. There are several versions of this measure. The Wong Baker Faces rating scale has directions on how to present it. This has been translated into Chinese, French, Italian, Japanese, Portuguese, Romanian, Spanish, and Vietnamese.

The Visual Analog Scale (VAS) is a horizontal or vertical 10 cm line with word anchors at the extremes, such as "no pain" and "pain as bad as it could be." The patient is asked to make a mark along the line where the pain intensity is best represented. Even though it is easy to administer and has documentation validity, the scoring of this instrument can be time consuming.

The Graph Rating Scale (GRS) is an instrument that builds on the VAS by adding words or numbers to the measure line between the extreme ends of the scale. If words are added to the line, such as “no pain, mild pain, moderate, and severe pain,” it is called a verbal rating scale. If numbers are added, such as “0 to 10,” it is called a numerical graphic rating scale.

Simple descriptor (SDS) is a list of adjectives for describing the different levels of pain intensity. Four words, such as “no pain, mild, moderate, severe pain,” can be used and have numerical numbers assigned to them (0 to 3) for scoring. A pain scale measures a patient’s pain intensity and other features.

Pain scales are based on self-report, observational (behavioral), or physiological data. Self-report is considered primary and should be obtained, if possible. The literature supports the concept that nurses must rely on a patient’s self-report of pain as the most reliable form of pain assessment. Pioneer pain nurse expert, Margo McCaffery (1968) famously defined pain as “whatever the experiencing person says it is, existing whenever he says it does” (McCaffery & Pasero, 1999, p. 17). Based on the definition of pain, one must take the words of the patient at face value and nurses must accept the patient’s subjective report as being so. Having one’s pain disbelieved may be described as the failure to accept an individual’s account of his or her pain as true; this is not acceptable in the nursing profession, especially in regard to pain and its management.

### Summary

The literature has moved slowly from measuring attitudes and knowledge to finding ways to amend the problem and improved pain management; however, this has taken more than 40 years to occur. Recent publications about nurses’ attitudes and

knowledge are used to promote the need for pain management, courses in nursing curricula and in staff development. A compounding problem lies in the domain of nursing education. Sheehan et al. (1992) found that in baccalaureate nursing programs, nursing faculty with limited understanding of opioid analgesics may pass on misinformed beliefs. Ferrell et al. (1996) found that in baccalaureate nursing programs, nursing faculty with limited understanding of opioid analgesics may pass on misinformed beliefs about drug-seeking behavior and clockwatching behaviors of patients to nursing students. Consequently, this misinformation perpetuates negative attitudes about patients with pain. Many studies also point to attitudes of nurses that interfere with appropriate clinical care of those patients with pain.

There is a need to move forward using the results of the knowledge and attitude studies to plan and implement pain seminars and courses into nursing curricula. Information about medications used to treat pain can be taught in pharmacology courses. Conferences at the end of a clinical experience would be another opportunity for students to learn about pain management. However, a thorough assessment of nurses' knowledge and attitudes regarding pain lays the foundation for evidence-based education and interventions.

The literature extensively shows the urgent need to improve pain management. Many of the studies in the literature review support the research design and methodology used in Chapter 11. This study in some part has replicated some or parts of the studies reviewed. The validated survey tool used was the "Knowledge and Attitudes Survey Regarding Pain," by Betty Ferrell and Margo McCaffery is proven to be a strong predictor of the information collected.

## **Chapter III**

### **Methodology**

The main objective of this study was to analyze archival data about knowledge and attitudes regarding pain from surveys for nurses that were collected at a comprehensive cancer center. This baseline data could be used in order to provide professional development of nurses' knowledge and attitudes and, possibly, to influence pain management for cancer patients. The purpose of this chapter is to describe the methodology used in this study, regarding the context, subjects, participants, instruments, procedures, data collection, and data analysis procedures.

#### **Research Question**

The research question for this study was "What is the baseline of knowledge and attitudes regarding pain among registered nurses working at a comprehensive cancer center?"

#### **Measures**

The independent variables of this study were knowledge and attitudes toward pain. Dependent variables were the inpatient and outpatient units. The measurement tool used was the 2012 version of "Knowledge and Attitudes Survey Regarding Pain," (KASRP) designed to assess nurses' knowledge gaps and their attitudes regarding patients in pain. The tool was developed in 1987 and revised several times and most recently in 2012 (Ferrell & McCaffery, 2012). The KASRP is a 38-item questionnaire and has 22 true-or-false questions and 16 multiple-choice items. It contains two patient care scenarios that require the participant to assess and subsequently to reassess a patient. The content of the tool was derived from current standards of pain management, such as



the American Pain Society, the World Health Organization, and the Agency for Health Care Policy and Research (Ferrell & McCaffery, 2012).

### Research Design

This study was an exploratory descriptive study that used archival data to analyze the survey results of the 2012 version of the Knowledge and Attitudes Survey Regarding Pain (KASRP), developed by Betty Ferrell, RN, PhD, FANN, and Margo McCaffery, RN, MS, FANN. This study used the 2012 version of this survey. The setting for the survey was at a comprehensive cancer center in the south. Responses to the survey were anonymous; this archival data was obtained by permission of the institution and downloaded from a program called Research Electronic Data Capture (REDCap™). IBM Statistical Package for the Social Sciences (SPSS) was used for statistical analyses and Microsoft Excel was used for analysis and graph findings.

### Participants

The population was adult (male and female) registered nurses working with direct patient care from inpatient units, outpatient clinics/centers, and four regional care centers. The inclusion criteria were inpatient nurses and outpatient nurses with direct care to cancer patients. The exclusion criteria were nurses working in nonclinical areas that had no direct patient care contact and did not manage pain, such as a research nurse or administrative leadership with non-patient direct care. The 11 demographic characteristics of the study population were:

1. Age Range of Nurses
2. Employment Status
3. Shift Worked

4. Current Position Held
5. Practice Location
6. Years of Experience in Nursing
7. Educational degree
8. Location of Initial RN Education
9. Certification Status
10. Career Level
11. Currently in Advance RN Academic Program

### **Reliability and Validity**

Construct validity was established by comparing scores of nurses at various levels of expertise such as students, new graduates, oncology nurses, graduate students, and senior pain experts. The tool was identified as discriminating between levels of expertise. Test-retest reliability was established ( $r > .80$ ) by repeat testing in a continuing education class of staff nurses ( $N = 60$ ). Internal consistency reliability was established ( $r > .70$ ) with items reflecting both knowledge and attitude domains (Ferrell & McCaffery, 2012).

### **Data Analysis Procedures**

The archival data for this study was downloaded and was transferred from the REDCap<sup>TM</sup> format to interface with SPSS program for tabulation and analysis of data collected to answer the primary research question and Microsoft Excel was used for graphic findings. REDCap<sup>TM</sup> is a free, secure, web-based application that allows users to build and maintain online surveys and databases which was developed at Vanderbilt

University. While REDCap can be used to collect virtually any type of data, it is specifically designed to support data capture for research studies.

The analysis was based on the recommendation from the creator of the KASRP which was to avoid distinguishing items as measuring either knowledge or attitudes. Many items such as one measuring the incidence of addiction really measures both knowledge and attitude about addiction. Therefore, the data was analyzed in terms of the percentage of complete scores, as well as in analyzing individual items; for example, those items were isolated with the least number of correct responses and those items with the best scores. The demographic data collected was also analyzed to answer the secondary aims in this study.

Summary statistics were calculated for the overall scores from the nurses “Knowledge and Attitudes Survey Regarding Pain.” Scores were calculated as percent correct out of 40 total questions. If someone skipped more than 5 questions they were excluded from analysis. A t-test was used to compare scores by two groups and ANOVAs were used to compare scores by more than two groups.

### Summary

This chapter described the participants, context, and survey instrument used to collect the data for analysis. The tool used is highly validated, has been used for nurses both nationally and internationally, and has been updated several times; this study used the 2012 version. The uniqueness of this study is that is the first time that data obtained from the KASRP was used with REDCap™ application software to collect data. This data was then downloaded for secondary analysis by interfacing with SPSS and Excel

software at this institution. Chapter 4 presents the results of analyzing the data obtained by using this methodology.

## **Chapter IV**

### **Results of Data Analysis**

#### **Overview of the Problem and Methodological Approach**

This study analyzed archival data on the baseline knowledge and attitudes of nurses regarding patients in pain to identify gaps in these areas. The Knowledge and Attitudes Survey Regarding Pain (KASRP) instrument was used to identify areas that prevent optimal pain management and need improvement. The data consisted of responses to 11 demographic questions as well as the responses to the 22 true-or-false questions, 16 multiple-choice questions, and two scenario-type questions on the survey, for a total of 40 questions. The following research questions guided the analysis of data: “What is the baseline knowledge and attitudes regarding pain among the registered nurses in a Comprehensive Cancer Center?” Secondary objectives were to determine whether there are significant differences between nurses’ knowledge and attitudes, according to the following criteria: their number of years of practice, level of proficiency, position on this facility’s career ladder, certification in pain management, and whether they had obtained graduate training in the United States or in another country.

#### **Results of Data Analysis**

The descriptive statistics consisted of analysis of the secondary data used for this study, which were downloaded from REDCap storage and analyzed with SPSS software. The initial sample included 504 nurses, 21 of whom declined to participate and 11 who did not answer the request to participate. Of the 472 nurses who consented to participate, 89 skipped more than five questions (43 of them skipped all 40) and were excluded, so the final sample size for analysis consisted of 383 nurses.

### Responses to Demographics Questions

As Table 1 shows, most participants (>96%) were employed full time, and more than 46% worked 8-hour daytime shifts. The remaining participants worked 12-hour shifts. Owing to the institution's staffing patterns, the nurses working 8-hour shifts were assumed to be RNs working in outpatient areas because 8-hour shifts are offered only in those areas. Most (>80%) were in staff nursing positions, and the practice location was split between inpatient clinics (nearly 52%) and outpatient clinics (>43%). The number of nurses working at the Regional Care Centers is smaller because a limited number of positions are available in those centers.

Slightly more than 75% of the RNs at this Comprehensive Cancer Center hold Bachelor's degrees, and 12.3% hold Master's degrees, an overall educational level that reflects one of the components of the institution's Magnet certification. The institution has a nursing career ladder, and 59.52% were rated at the "Proficient" level. The last demographics question asked whether the nurse was currently enrolled in an advanced RN academic program; 83.46% are not enrolled in such a program

Table 1

#### *Participants Demographics*

Characteristic	N	%
Age range		
≥ 45 years	166	43.46
31-44 years	154	40.31
21-30 years	62	16.23
Employment status		
Part time	14	3.67
Full time	367	96.33
Shift worked		
8 hour, - days	178	46.84
12 hours, days	128	33.68
8 hour, nights	6	1.58

12 hour, nights	68	17.89
Current position		
New graduate (Resident)	14	3.71
Staff Nurse	303	80.37
Charge Nurse/Coordinator	39	10.34
Clinical Nurse Leader	6	1.59
Clinical Resource Nurse	3	0.80
Nurse Educator	12	3.18
Practice location		
Inpatient	195	51.59
Outpatient clinic	165	43.65
Regional care center	18	4.76
Years of experience in nursing		
<1 (Residency program)	14	3.67
1	7	1.84
2 to 5	54	14.17
6 to 10	65	17.06
11 to 20	112	29.40
21 to 30	79	20.73
≥31	50	13.12
Educational level		
Associate's Degree in Nursing	40	10.47
Diploma in Nursing	5	1.31
Bachelors of Science in Nursing	288	75.39
Masters of Science in Nursing	47	12.30
Doctorate	2	0.52
Location of initial RN education		
United States	248	65.44
Other	131	34.56
Certification		
Certified in pain management	21	5.53
Not certified	133	35.00
Other certifications	226	59.47
Institutional career level		
Novice	43	11.38
Competent	77	20.37
Proficient	225	59.52
Expert	33	8.73
Currently in advanced RN academic program		
Yes	63	16.54
No	318	83.46

*Note.* Provided are the frequency and percentage for each demographic characteristic.

The first seven are only descriptive findings with no statistically significant findings above in Table 2. The last four demographics resulted in significant findings as demonstrated by their p value in Table 3. The demographics that differed significantly are age, current position, location of education, and certification. The age range that reflected the highest mean score was the 21 to 30 years of age group, who had a mean score of 73.70%; these were followed by the 31 to 44 years of age group but had a lower score. These findings were not expected findings. The more experienced nurses were expected to have higher scores; however, the younger nurses had the higher scores. This may be attributed to the fact that this facility has a very intense residency program of which a pain management presentation is part of the educational program. Another reason that may account for findings may be that the local nursing programs may be implementing the recommendations from current literature to include pain management into their curriculum. The years of experience ranged from two years to 31 years or more. However, the results show 11 to 20 years of experience, followed by 21 to 30 years, which reflected the very experienced nursing staff.

The current position held by the respondents at this facility made a significant difference. This facility has a clinical nurse leader position prepared at the Master of Nursing level and resulted in the highest mean score of 84.2%. The clinical charge nurses had the next highest scores with a mean score of 72.4%. The nurses enrolled in the new graduate residency program were third, with a mean score of 70.9%; yet, they scored higher than the largest group: staff nurses with a mean score of 67.3%. The educators are centralized at this facility, but are assigned to their specialty unit-based clinical resource



nurses (Unit based educators) with a mean score of 66.7%. The p-value of this group showed  $p < .001$ .

The location of the nurses' education was either United States or other. The nurses educated in the US had a mean score of 70.70%. The nurses who were not educated in the US had a mean score of 63.70%. This results had a significant  $p < .001$ . The two countries with the highest representation had English classes in their nursing training.

Table 2

*Demographics Findings with No Significant Between-Group Differences*

Characteristic	N	Mean	SD	Med	Min	Max	p
Employment status							0.458
Part time	14	70.7	11.2	70	55	95	
Full time	367	68.4	11.6	70	35	100	
Shift worked, hours							0.676
8, days	178	67.7	12.3	67.5	35	100	
12, days	128	69.2	10.8	70	42.5	97.5	
8, nights	6	66.3	5.2	63.8	62.5	75	
12, nights	68	68.6	12	70	37.5	97.5	
Practice location							0.107
Inpatient unit	195	69.6	11.3	70	35	97.5	
Outpatient clinic	165	67	12	67.5	37.5	100	
Regional care center	18	68.8	10.6	67.5	50	85	
Years of experience in nursing							0.132
< 1 (Residency program)	14	70.9	8.6	71.3	55	82.5	
1 to 2	7	72.5	7.1	72.5	62.5	85	
2 to 5	54	71.1	10.2	72.5	37.5	100	
6 to 10	65	70.3	10.4	70	47.5	95	
11 to 20	112	66.8	12.6	66.3	35	97.5	
21 to 30	79	66.8	11.9	67.5	42.5	100	
≥ 31	50	67.7	12.6	67.5	37.5	95	
Educational level							0.381
Associate's in Nursing	40	69.8	11	70	50	100	
Diploma in Nursing	5	64.5	16.5	67.5	37.5	80	
Bachelor's in Nursing	288	67.9	11.7	67.5	37.5	100	
Master's Degree	47	70.8	11.2	70	35	97.5	

Doctorate	2	73.8	8.8	73.8	67.5	80	
Institutional career ladder							0.885
Novice	43	69.5	10.2	70	47.5	100	
Competent	77	67.8	10.9	67.5	35	97.5	
Proficient	225	68.4	11.9	67.5	42.5	100	
Expert	33	68.2	13	70	37.5	87.5	
Currently in advanced RN academic program							0.609
Yes	63	67.7	11.4	70	35	90	
No	318	68.5	11.7	68.8	37.5	100	

The last group that showed significance was the section on certification. The largest group was the group that had certifications in another specialty other than pain management; this group had a mean score of 67.2%. The next group, “not certified,” had a mean score of 69.0%. The nurses certified in pain management had the highest mean score of 76.4%. The significance difference of this group was shown by a p-value < .002. This researcher found that it does make a difference if nurses have certification in pain management. The next section reflects the results of the survey. The survey data were analyzed, following the recommendations of the authors of the tool used in this study. The data analysis utilized terms of the percentages of the completed scores, as well as in analyzing individual items. This researcher analyzed each item to isolate items with the least number of correct responses and items with the best scores, in order to guide the educational needs.

Table 3

*Demographic Characteristics with Significant Findings*

Characteristic	N	%	Mean Score	SD	Med	Min	Max	p
Age range, years								<0.001
≥ 45	166	43.46	67.2	12.2	67.5	35	100	
31-44	154	40.31	67.5	11.6	67.5	37.5	100	
21-30	62	16.23	73.7	8.2	72.5	55	95	

Current position								0.001
New graduate (Residency)	14	3.71	70.9	8.6	71.3	55	82.5	
Staff Nurse	303	80.37	67.3	11.5	67.5	35	97.5	
Charge Nurse/Coordinator	39	10.34	72.4	11.1	72.5	52.5	100	
Clinical Nurse Leader	6	1.59	84.2	14.7	83.8	70	100	
Clinical Resource Nurse	3	0.8	66.7	17.7	70	47.5	82.5	
Clinical Nurse Educator	12	3.18	70.8	10.5	70	50	87.5	
Location of initial RN education								<0.001
United States	248	65.44	70.7	11	70	35	100	
Other	131	34.56	63.7	11.4	62.5	37.5	97.5	
Certification								0.002
Certified in Pain Management	21	5.53	76.4	11.8	80	35	95	
Not certified	133	35	69	10.5	70	37.5	100	
Other certification	226	59.47	67.2	12	67.5	42.5	100	

Note. Items in red indicate statistically significant values with  $p < .002$ .

### Survey Questions Responses

Results showed passing results were 25 out of 40, indicating that 62% of the questions reflected correct answers ranging from 70% to 96%. A score of 70% was chosen as a passing core for this study. Results showed that 15 of the 40 questions under the 70% that was set as the passing score in this study. Table 3 shows only the questions that fell below the 70% correct criteria for passing score on the survey tool. Results show that 15 of the 40 questions = 37% were under the 70% passing score. Range was from 13% to 62%.

Table 4

#### *KASRP Survey Questions Correct Below 70%*

Survey Item No.	Question	% of Time Correctly Answered
5	Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.	49

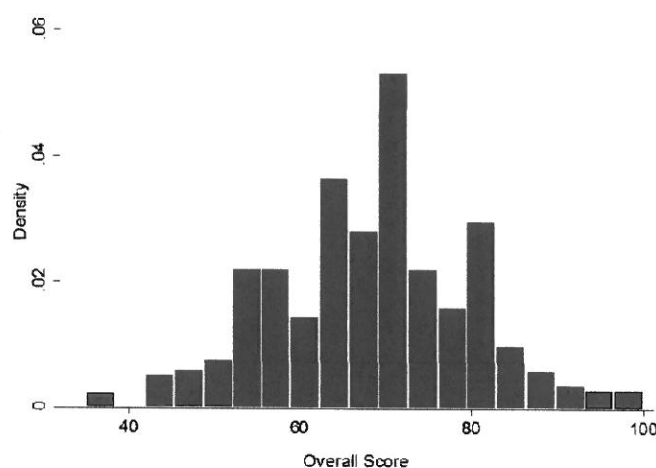
6	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	39
8	The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.	57
9	Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.	36
11	Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained)	47
18	Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5-10 mg of morphine PO.	29
19	If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.	51
21	Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.	57
26	Which of the following IV doses of morphine administered over a 4-hour period would be equivalent to 30 mg of oral morphine given q 4 hours?	44
28	A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is...	13
33	How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?	38
35	The time to peak effect for morphine given orally is?	62
36	Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:	30

- 37b Patient A: Andrew is 25 years old and this is his first day following abdominal surgery. As you enter his room he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: B/P = 120/80; HR = 80; R = 18; on a scale of 0-10 (0 = no pain/discomfort, 10 = worst pain/discomfort), he rates his pain as 8. Document your assessment score. 30
- 38b Your assessment, above, is made two hours after he received morphine 2 mg IV. Half-hourly pain ratings following the injection ranged from 6 to 8, and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time. 46

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*Note.* Items are listed in sequence presented in the KASRP survey.

These data showed a distribution of the scores that reflect a normal distribution. There are only a few outliers noted at the upper tail at 100 and the lower tail at 13. The scores ranged from the lowest score of 13% on question #28 to 96 on question #13.



*Figure 1.* Distribution of Scores on the KASRP Survey. N = 383.

### Summary of Research Results

This study assessed the baseline levels of the knowledge and attitudes about pain and patients with pain by administering the KASRP survey to a total population of 383 nurses at a Comprehensive Cancer Center. A score of 70% of the questions answered correctly was set as the passing score. The overall mean score for all participants was 68.38%. The study population was characterized by the responses to 11 demographics questions. Four of the 11 characteristics (age, current position, location where initial nursing education was obtained, and certification status) revealed significant differences in scores on the KASRP between the groups of nurses. Chapter 5 discusses the results, limitations, implications, and conclusions of this study and makes some recommendations for future research.

## **Chapter V**

### **Discussion and Conclusion**

Nurses play a critical role in the assessment and management of pain. In many ways, they are the link between scientific advances in pain management and the bedside care of patients in pain (Ferrell et al., 1993). Nurses spend more time with patients than any other members of the healthcare team do; as a result, nurses are the primary care providers for cancer patients in pain (McCaffery and Ferrell, 1997). Likewise, nurses implement many interventions for pain relief and/or further individualize the interventions prescribed. Nurses are also the care providers who are most likely to be in a position to evaluate the effectiveness of the pain-management plan and to initiate any changes prescribed (McCaffery and Ferrell, 1997). To optimize pain management for patients, it is therefore essential to first assess the level of nurses' knowledge and attitudes about pain and then to identify any gaps in that knowledge or those attitudes, ascertaining what improvements are needed for the nurses' educational development. In 2010, the Office of the Army Surgeon General released the Pain Management Task Force's Final Report completed by the Department of Defense and the Veterans Health Administration. That report describes a holistic, multidisciplinary, multimodal approach to pain management. Evidence from this work suggests that the depth of nurses' knowledge and perceptions about pain is linked to patients' perception of adequate pain control (Bernhofer, 2012; Herr et al., 2010; Lewthwaite et al., 2011.)

Another advance in pain management came about when the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey was put into use in October 2012. This survey asks recently discharged patients questions about various



aspects of their hospital experience, including questions designed to measure the ability and willingness of the nursing staff to manage pain. It obtains patients' perceptions about the pain they had experienced by asking how well their pain had been controlled during their hospital stay and whether the nursing staff did everything possible to alleviate their pain. The information obtained from this HCAHPS program will not only provide important feedback to the hospital but, because nurses can be held legally accountable for the pain management they provide or fail to provide, this information may also be used to aid in the direction of nurses' continuing education needs.

The methodological approach to this locally conducted descriptive study was to analyze archival data to evaluate the baseline level of knowledge and attitudes regarding pain among the nurses employed in a large Comprehensive Cancer Center. This exploratory study was conducted by administering the previously validated Knowledge and Attitudes Survey Regarding Pain (KASRP) to a sample of 383 nurses working in the institution's inpatient and outpatient settings. Some of the initial data for analysis in this study were obtained by asking 11 questions about the nurses' demographics characteristics. Four of those 11 characteristics evaluated for this study's population significantly affected the nurses' survey scores. Some of this study's findings are consistent with those of other relevant research studies of nurses' knowledge and attitudes regarding pain (McCaffery and Robertson 2002); (Clark et.al 1996), whereas others differ. The first of the four demographic characteristics that influenced the survey scores was age. Nurses older than age 45 constitute the largest segment of the nursing staff at this cancer center, and the next-largest age group is nurses 31–44 years old. Together, these two age groups comprise 83% of the study participants, which suggests



that the nurses in this facility are generally mature in their profession, with greater experience. In terms of survey scores by age group, the finding that the youngest group had the highest mean score was unanticipated. One would expect that the older nurses would score higher owing to their greater experience, but the reverse was true among these nurses. This might be attributed to the fact that this facility has an intensive Graduate Residency program, which includes a pain-management presentation. Another possible explanation for this difference is that the local nursing programs may be implementing the recommendations from the current literature and are including pain management in their curricula.

The second characteristic that significantly influenced survey scores was the nurses' currently held positions. The study data show that 80% are Staff Nurses and only 3% are new graduates enrolled in the Graduate Residency Program. The location of the nurses' practices was split almost evenly between inpatient units (52%) and the combined outpatient clinics and regional care centers (48%), thus providing a balanced overview of nurses working in both outpatient and inpatient areas. Among the various positions, Clinical Nurse Leaders had the highest mean score on the KASRP survey, 84.2%. This is perhaps not surprising because those nurses at this facility have recently graduated with Master's degrees from the Clinical Nurse Leader Program, which was established only three years ago at the institution. The mean survey score obtained by newly graduated nurses enrolled in the institution's new Graduate Residency Program was also relatively high, about 71%. The mean scores of the nurses at both of these positions were significantly higher than those obtained by the Staff Nurses and the Clinical Resource Nurses ( $p < 0.001$ ). An interesting note is that both of those educational programs

incorporate formal pain-management training in their classes, which supports the concept that continuing education specifically about pain and its management fills the knowledge gap among even experienced nurses.

These findings differ from those previously reported in the literature. For example, previously published findings from a number of studies over the last two decades show that students near graduation or shortly afterward have minimal knowledge of basic pain management (Ferrell et al., 1993; Lasch et al., 2002; McMillan et al., 2000; Plaisance & Logan, 2006; Rushton et al., 2003). In contrast, in this study, the overall mean KASRP score of the new graduates with Bachelors of Science in Nursing degrees (70.9%) was higher than those of some groups of nurses who had been practicing longer (Staff Nurses [67.3%] and Clinical Resource Nurses [66.7%]). Further, the study participants who had only 1 year of experience in nursing had scores that were higher than the scores of all the nurses with more experience (72.5% vs. 66.8–71.1%). Moreover, the nurses at the Novice level on the institution's career ladder had slightly higher mean scores than did those at the higher levels on the ladder.

The third demographic factor that significantly influenced the nurses' KASRP scores was the location where they obtained their initial nursing education. Nurses educated in the U.S. had a mean score of 70%, which is roughly comparable with the overall population's mean score of about 68%, despite the fact that 70% was the passing score and 68% was a non-passing score. However, the mean score of the nurses who were initially educated in other countries, 63.7%, was significantly lower than that of the overall population ( $p = <0.001$ ). Identifying the country of their initial nursing education was optional, but all of those nurses chose to include it. An interesting note is that the two

countries most often named, the Philippines ( $n = 52$ ) and India ( $n = 35$ ), both teach their nursing classes in English.

Certification is the final demographic characteristic that was significantly related to higher mean scores and thus supportive of the idea that continuing education about pain is needed to improve nurses' pain-management knowledge and attitudes. Only 21 of the participants were specifically certified in pain management, but their mean score was 76.4%, which is significantly higher than the mean score of the 226 nurses certified in other areas, 67.2% ( $p = 0.002$ ). This is not surprising because it indicates that certification alone does not yield higher scores, whereas certification in pain does. The mean score of this group of nurses was the second-highest overall, after the Clinical Nurse Leaders. Some previous studies have shown that nurses working in an oncology setting have higher KASRP scores, on average, than those of nurses working in non-oncology settings (Rushton, Eggett, & Sutherland, 2003). Analysis of the data from this study, however, indicates that at least some of the nurses working in the setting of this cancer center need some remedial education about cancer pain and the drugs used to manage it. The analyses of scores for the questions in the survey instrument showed that the answers to 15 of the total of 40 questions yielded scores below the passing level of 70%, with the mean scores for those 15 questions ranging from 13% to 62% (in contrast, the other 25 questions yielded scores ranging from 70% to 96%). Further examination of those 15 questions that presented the biggest challenge to the nurses revealed that five of them (items 8, 11, 26, 28, and 35) specifically test their knowledge about morphine, including the dose size, the duration of its effect, and the ceiling dose. Additional gaps involving morphine indicate that further education is needed about its equivalent dosing and its peak and

respiratory effects. The nurses' lack of knowledge about opioids revealed by the study also involves understanding of the World Health Organization's Pain Relief Ladder, including the combinations of drugs that can be used and the associated risk factors for respiratory depression.

Another of those 15 problematic questions points out a gap in the nurses' attitudes toward pain and patients with pain. The mean score for item 38, which concerns documentation and acceptance of the patients' own evaluations of their pain, also fell below the 70% passing level.

#### Limitations of Study

This study is strictly exploratory and descriptive and as such does not have any interventional aspects or controls. The population and setting are limited to the direct patient care nursing staff at a single Comprehensive Cancer Center in the southern United States. The data are limited to this population types and inpatient and outpatient clinics of this institution. Another limitation is that only direct patient care nurses excluded were the operating room nurses.

#### Implications

The information learned from this study has identified gaps in knowledge and problematic attitudes regarding pain and its management among the nurses at this institution and thus help to raise awareness of the need for remedial education in the deficient areas. The additions and modifications to the institution's current educational programs that will result from these evidence-based findings will be customized to meet the needs of the nursing staff at this particular cancer center and should thus improve safe practice, ensure the achievement of good patient outcomes, and increase patient-

satisfaction scores. Sufficient time will be needed for the educators to create new teaching materials appropriate for use with several teaching methods to impart the additional knowledge about pain that will induce changes in pain-management practice. Ultimately, the results will provide a win-win situation for everyone involved: foremost, the patients and the nurses caring for the patients; the physicians; the healthcare facilities; and finally, society as a whole will benefit from these efforts to meet the challenge of pain management as a public health problem.

### Conclusions

This study revealed that knowledge gaps and attitudinal barriers regarding pain exist at this institution. The need for continuing education to help the nurses and other healthcare team members is critical. The collected data are specific and have pointed out topics of significance and critical need as well as those needing only reinforcement and review. The future of pain education lies in better education of nurses, to empower them in the provision of evidence-based safe and effective pain management.

### Recommendations

Because patients and their families often see nurses as being the experts, nurses need regular and continual education about the principles of cancer pain management. As reflected in the nursing process, assessment is always the first step in data collection and problem identification; this study has identified the gaps in knowledge and attitude that are barriers to effectively improving pain-management care for patients. The comprehensive, evidence-based educational plan now needing to be developed must include the topics that will address the specific needs identified by this study. Recommendations for future study are to perform a follow-up study to investigate

associations between nursing knowledge and attitudes and the HCAHPS patient-satisfaction scores and to repeat this study after a comprehensive education program is developed and presented for comparison of the effects of the educational program and HCAHPS scores.

## References

- Agency for Health Care Policy and Research (AHCPR). (1994). *Clinical practice Guideline: Acute pain management in adult; operative procedures*. Rockville, MD: United States Department of Health and Human Services.
- Agency for Health Care Policy and Research (AHCPR). (1994a). *Clinical practice guideline: Cancer pain management*. Rockville, MD: United States Department of Health and Human Services.
- Al Khalaileh, M., & Al Qadire, M. (2013). Pain management in Jordan: Nursing students' knowledge and attitude. *British Journal of Nursing*, 22(21), 1234–1240.
- American Cancer Society. (2013). Palliative care research. Retrieved from <http://www.cancer.org/research>
- American Chronic Pain Association. (2011). Definitions. Retrieved from <https://theacpa.org/>
- American Nurses Association Code of ethics for nurses with interpretive statements. Retrieved from <http://www.nursingworld.org/ethics/code/>
- American Pain Society. (2001). Education. Retrieved from <http://americanpainsociety.org/education/overview>
- Anderson, K. O., Mendoza, T. R., Valero, V., Richman, S. P., Russell, C., Hurley, J., et al. (2000). Minority cancer patients and their providers: Pain management attitudes and practice. *Cancer*, 88, 1929–1938.
- Bates, M. S. (1996). *Biocultural dimensions of chronic pain*, Implications for treatment of multi-ethnic populations. Albany, NY: State University of New York Press.

- Ben-Ami, S., Shaham, J., Rabin S., Melzer, A., & Ribak J. (2001). The influence of nurses' knowledge, attitudes, and health beliefs with cytotoxic drugs in Israel. (2001). *Journal Cancer Nursing*, 24 (3):192-200.
- Brennan, R., Carr, D., & Cousins, M. (2007). Pain management: A fundamental human right. *Anesthesia & Analgesia*, 105, 205–224.
- Carr, D. (2004). Pain relief as a human right. PAIN Clinical Updates, *International Association for the Study of Pain*. XII, (5), 1-4.
- Clarke, E., French, B., Bilodeau, M., Capasso, V., Edwards, A., & Empoliti, J. (1996). Pain management knowledge, attitudes and clinical practice: the impact of nurses' characteristics and education. *Journal of Pain Symptom Management*, 11(1):18–31.
- Cousins, M. J., Brennan, F., & Carr, D. B. (2004). Pain relief: a universal human right. *Pain*, 112(1-2), 1-4.
- Critchlow, J., & Bauer-Wu, S. M. (2002). Dehydration in terminally ill patients: perceptions of long-term care nurses. *Journal of gerontological nursing*, 28(12), 31-39.
- Dalton, J. A. (1989). Nurses' perceptions of their pain assessment skills, pain management practices, and attitudes toward pain. *Oncology Nursing Forum*, 16, 225–231.
- Duke, G., Haas, B., Yarbrough, S., & Northam, S. (2013). Pain management knowledge and attitudes of baccalaureate nursing students and faculty. *Journal of Pain Management Nursing*. 14(1), 11–19



- Ferrell, B. R., McCaffery, M., & Rhiner, M. (1992). Pain and addiction: An urgent need for change in nursing education. *Journal of Pain and Symptom Management*, 7, 117–124.
- Ferrell, B. R., McGuire, D. B., & Donovan, M. I. (1993). Knowledge and beliefs regarding pain in a sample of nursing faculty. *Journal of Professional Nursing*, 9, 79–88.
- Fox, L. S. (1982). Pain management in the terminally ill cancer patient: An investigation of nurses' attitudes, knowledge, and clinical practice. *Military Medicine*, 147, 455–460.
- Good, M., & Moore, S. (1996). Clinical practice guidelines as a new source of middle-range theory: Focus on acute pain. *Nursing Outlook*, 44(2), 74–79.
- Gordon, D. B., Rees, S. M., McCausland, M. P., Pellino, T. A., Sanford-Ring, S., Smith-Helmenstine, J., & Danis, D. M. (2008). Improving reassessment and documentation of pain management. *The Joint Commission Journal on Quality and Patient Safety*, 34 (9), 509-517.
- Gunnarsdottir, S., Donovan, H., Serlin, R., Voge C., & Ward, S. (2002). Patient-related barriers to pain management: The barriers questionnaire II. Pain, *International Association for the study of Pain*, 99(3), 385–396.
- Harris, P., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J.. (2009). A metadata-driven methodology and workflow process for providing translational research informatics support: Electronic data capture (REDCap). *Journal of Biomedical Information Research*, 42(2), 377–81.

*Healthcare HR and the Bottom Line: 5 Focus Areas for Improving HCAHPS Scores*

(2012). Retrieved from [www.healthcaresource.com](http://www.healthcaresource.com)

Holzheimer, A., McMillan, S.C., & Weitzner, M. (1999). Improving pain outcomes of hospice patients with cancer. *Oncology Nursing Forum*, 26, 1499

Howell, D., Butler, L., Vincent, L., Watt-Watson, J., & Stearns, N. (2000). Influencing nurses' knowledge, attitudes, and practice in cancer pain management. *Cancer Nursing*, 23, 55–63.

Institute of Medicine. (1999). *To err is human: Building a safer health system*. Washington, DC: National Academies Press.

Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press.

Institute of Medicine. (2011). *Relieving pain in America: A blueprint to transforming prevention, care, education, and research*. Washington, DC: National Academies Press.

International Association for the Study of Pain (IASP). (2011).

International Association for the Study of Pain (IASP). (2005). Core curriculum for professional education in pain (3rd ed). Retrieved from <http://www.iasp-pain.org>

International Association for the Study of Pain (IASP). (1994). Pain terminology: Current list with definitions and notes on usage (209–214) updated from H. Merskey and N. Bogduk (eds.), *Classification of chronic pain, second edition, IASP Task Force on Taxonomy*. Seattle, WA: IASP Press. Retrieved from <http://www.iasp-pain.org>

- Jacox, A., Carr, D., Payne, R., et al. (1994). *Management of cancer pain. Clinical Practice Guideline No. 9* [AHCPR Publication No. 94-0592]. Rockville, MD: Agency for Health Care Policy and Research.
- Joranson, D., & Gilson, A. (1998). Regulatory barriers to pain management. *Seminars in Oncology Nursing*, 14, 158–163.
- Kearney, N., & Molassiotis, A. (2003). “‘I have a dream...’ cancer nursing leadership.” *European Journal of Oncology Nursing*. 7(4), 227-228.
- Lasch, K., Greenhill, B., Wilkes, G., Carr, D., Lee, M., & Blanchard, M., (2002). Why study pain? A qualitative analysis of medical and nursing faculty and students' knowledge of and attitudes to cancer pain management. *Journal of Palliative Medicine*. 5(1), 57–71.
- Marks, R. M., & Sachar, E. J. (1973). Undertreatment of medical inpatients with narcotic analgesics. *Annals of Internal Medicine*, 78, 173–181.
- McCaffery, M. (1968). *Nursing practice theories related to cognition, bodily pain and main environment interactions*. Los Angeles, CA: University of California.
- McCaffery, M., & Ferrell, B. (1992). Opioid analgesics: Nurses’ knowledge of doses and psychological dependence. *Journal of Nursing Staff Development*, 8, 77–84.
- McCaffery, M., & Ferrell, B. (1995). Nurses’ knowledge about cancer pain: A survey of five countries. *Journal of Pain and Symptom Management*, 10(5), 356–369.
- McCaffery, M., & Ferrell, B. (1997) Influence of professional vs. personal role on pain assessment and use of opioids. *Journal of Continuing Education in Nursing*, 23(4), 69–77.

- McCaffery, M., & Ferrell, B. (1997a). Nurses' knowledge of pain assessment and management: How much progress have we made? *Journal of Pain and Symptom Management*, 14(3), 175–188.
- McCaffery, M., Ferrell, B. R., O'Neil-Page, E., Lester, M., & Ferrell, B. (1990). Nurses' knowledge of opioid analgesic drugs and psychological dependence. *Cancer Nursing*, 13, 21–27.
- McCaffery, M., Ferrell, B. R., O'Neil-Page, E., Lester, M., & Ferrell, B. (1990). Nurses' knowledge of opioid analgesic drugs and psychological dependence. *Cancer Nursing*, 13, 21–27.
- McCaffery, M., & Hart, L. (1976). Undertreatment of acute pain with narcotics. *American Journal of Nursing*, 76(10), 1586–1591.
- McCaffery, M., & Moss, F. (1967). Nursing intervention for bodily pain. *American Journal of Nursing*, 67(3), 1224–1227.
- McMillan, S. C., Tittle, M., Hagan, S. J., & Small, B. J. (2005). Training pain resource nurses: Changes in their knowledge and attitudes. *Oncology Nurs Forum*, 32(4), 835–842. doi: 10.1188/05.ONF.835-842
- Morgan, B. D. (2014). Nursing attitudes toward patients with substance use disorders in pain. *Pain Management Nursing*, 15(1), 165–175.
- Morse, J. M. (1995). Exploring the theoretical basis of nursing using advanced techniques of concept analysis. *Advances in Nursing Science*, 17(3), 31–46.
- Morse, J., Mitcham, C., Hupcey, J., & Tason, M. (1996). Criteria for concept evaluation. *Journal of Advanced Nursing*, 24(2), 385–390.

- Melzack, R., & Wall, D. (1965). Pain mechanisms: A new theory. *Science*, 150(11), 971–979.
- Myers, J. S. (1985). Cancer pain: Assessment of nurses' knowledge and attitudes. *Oncology Nursing Forum*, 12(4), 62–66.
- Myers, R. R. (1995). The pathogenesis of neuropathic pain. *Regional Anesthesia and Pain Medicine*, 20(3), 173–184.
- National Comprehensive Cancer Network. (2014). NCCN Guidelines. Retrieved from [https://www.nccn.org/professionals/physician\\_gls/f\\_guidelines.asp](https://www.nccn.org/professionals/physician_gls/f_guidelines.asp)
- O'Brien, S., Dalton, J.A., Konsler, G., & Carlson, J. (1996). The knowledge and attitudes of experienced oncology nurses regarding the management of cancer-related pain. *Oncology Nursing Forum*, 23, 515–521.
- Oncology Nursing Society. (2013). Pain. Retrieved from <https://www.ons.org/practice-resources/pep/pain>
- Paice, J. A., Toy, C., & Shott, S. (1998). Barriers to cancer pain relief: Fear of tolerance and addiction. *Journal of Pain and Symptom Management*, 16, 1–9.
- Pasero, C. (2015). Focus Issue: Innovations in Pain Management: Guest Editorial. *Journal of PeriAnesthesia Nursing*, 30(3). 178–180.
- Pett, M. A., Beck, S. L., Guo, J. W., Towsley, G. L., Brant, J. M., Lavoie Smith, E. M., . . . Donaldson, G. W. (2013). Confirmatory factor analysis of the pain care quality surveys (PainCQ(c)). *Health Service Research Journal*, 48(3), 1018–1038. doi: 10.1111/1475-6773.12014
- Pritchard, A. P. (1988). Management of pain and nursing attitudes. *Cancer Nursing*, 11, 203–209.

- Rushton, P., Eggett, D., & Sutherland, C. W. (2003). Knowledge and attitudes about cancer pain management: A comparison of oncology and nononcology nurses. *Oncology Nursing Forum*, 30(5), 849-855.
- Ruzicka, D.L., & Daniels, D. (2001). Implementing a pain management service at an army medical center. *Military Medicine*, 166, 146–151.
- Sheidler, V., McGuire, D., Grossman, S., & Gilbert, M. (1992). Analgesic decision-making skills of nurses. *Oncology Nursing Forum*, 19, 1531–1534.
- Strevy, S. R. (1998). Myths and facts about pain. *RN*, 61(2), 42–45.
- Tse, M., & Ho, S. (2014). Enhancing knowledge and attitudes in pain management: A pain management education program for nursing home staff. *Pain Management Nursing*, 15(1), 2–11.
- Voshall, B., Dunn, K. S., & Shelestak, D. (2013). Knowledge and attitudes of pain management among nursing faculty. *Pain Management Nursing*, 14(4), e226–e235.2014
- Watson, J. (1985). *Nursing the philosophy and science of caring*. Boulder, CO: Associated University Press.
- Watt-Watson, J. H. (1987). Nurses' knowledge of pain issues: A survey. *Journal of Pain and Symptom Management*, 2, 207–211.
- Weber, J., & Kelley, J. (2007). *Health assessment in nursing* (3rd Ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins.
- Wells, N. (2000). Pain intensity and pain interference in hospitalized patients with cancer. *Oncology Nursing Forum*, 27, 985–991.

Willens, J. S. (2014). Nurses' knowledge and attitudes about pain. *Pain Management Nursing*, 15(3), 555–556. doi: 10.1016/j.pmn.2014.07.002

World Health Organization. (1986). WHO's cancer pain ladder for adults. Retrieved from <http://www.who.int/cancer/palliative/painladder/en/>

World Health Organization. (1990). Cancer Pain Relief and Palliative Care. Report of a WHO Expert Committee (WHO Technical Report Series, No.804). Geneva. Switzerland: World Health Organization.

## **Appendix A**

### **Survey**



**Knowledge and Attitudes Survey Regarding Pain**

**True/False – Circle the correct answer.**

- |   |   |                                                                                                                                                                                                                                                    |
|---|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T | F | 1. Vital signs are always reliable indicators of the intensity of a patient's pain.                                                                                                                                                                |
| T | F | 2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.                                                                                      |
| T | F | 3. Patients who can be distracted from pain usually do not have severe pain.                                                                                                                                                                       |
| T | F | 4. Patients may sleep in spite of severe pain.                                                                                                                                                                                                     |
| T | F | 5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.                                                                                                                               |
| T | F | 6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.                                                                                                                       |
| T | F | 7. Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.                                                 |
| T | F | 8. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.                                                                                                                                                                             |
| T | F | 9. Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.                                                                                                                         |
| T | F | 10. Opioids should not be used in patients with a history of substance abuse.                                                                                                                                                                      |
| T | F | 11. Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained).                                                                                                                                                 |
| T | F | 12. Elderly patients cannot tolerate opioids for pain relief.                                                                                                                                                                                      |
| T | F | 13. Patients should be encouraged to endure as much pain as possible before using an opioid.                                                                                                                                                       |
| T | F | 14. Children less than 11 years old cannot reliably report pain so nurses should rely solely on the parent's assessment of the child's pain intensity.                                                                                             |
| T | F | 15. Patients' spiritual beliefs may lead them to think pain and suffering are necessary.                                                                                                                                                           |
| T | F | 16. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.                                                                                                  |
| T | F | 17. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.                                                                                                                                        |
| T | F | 18. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5-10 mg of morphine PO.                                                                                                                                         |
| T | F | 19. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.                                                          |
| T | F | 20. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.                                                                                                                                           |
| T | F | 21. Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.                                                                                                                                                       |
| T | F | 22. <u>Narcotic/opioid addiction</u> is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving. |

**Multiple Choice – Place a check by the correct answer.**

23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is
  - ☐ a. intravenous
  - ☐ b. intramuscular
  - ☐ c. subcutaneous
  - ☐ d. oral
  - ☐ e. rectal
24. The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is
  - ☐ a. intravenous
  - ☐ b. intramuscular
  - ☐ c. subcutaneous
  - ☐ d. oral
  - ☐ e. rectal
25. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?
  - ☐ a. codeine
  - ☐ b. morphine
  - ☐ c. meperidine
  - ☐ d. tramadol
26. Which of the following IV doses of morphine administered over a 4 hour period would be equivalent to 30 mg of oral morphine given q 4 hours?
  - ☐ a. Morphine 5 mg IV
  - ☐ b. Morphine 10 mg IV
  - ☐ c. Morphine 30 mg IV
  - ☐ d. Morphine 60 mg IV
27. Analgesics for post-operative pain should initially be given
  - ☐ a. around the clock on a fixed schedule
  - ☐ b. only when the patient asks for the medication
  - ☐ c. only when the nurse determines that the patient has moderate or greater discomfort
28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is
  - ☐ a. less than 1%
  - ☐ b. 1-10%
  - ☐ c. 11-20%
  - ☐ d. 21-40%
  - ☐ e. > 41%
29. The most likely reason a patient with pain would request increased doses of pain medication is
  - ☐ a. The patient is experiencing increased pain.
  - ☐ b. The patient is experiencing increased anxiety or depression.
  - ☐ c. The patient is requesting more staff attention.
  - ☐ d. The patient's requests are related to addiction.
30. Which of the following is useful for treatment of cancer pain?
  - ☐ a. Ibuprofen (Motrin)
  - ☐ b. Hydromorphone (Dilaudid)
  - ☐ c. Gabapentin (Neurontin)
  - ☐ d. All of the above

31. The most accurate judge of the intensity of the patient's pain is  
☐ a. the treating physician  
☐ b. the patient's primary nurse  
☐ c. the patient  
☐ d. the pharmacist  
☐ e. the patient's spouse or family
32. Which of the following describes the best approach for cultural considerations in caring for patients in pain:  
☐ a. There are no longer cultural influences in the U.S. due to the diversity of the population.  
☐ b. Cultural influences can be determined by an individual's ethnicity (e.g., Asians are stoic, Italians are expressive, etc).  
☐ c. Patients should be individually assessed to determine cultural influences.  
☐ d. Cultural influences can be determined by an individual's socioeconomic status (e.g., blue collar workers report more pain than white collar workers).
33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?  
 < 1%-                      5 - 15%                      25 - 50%                      75 - 100%
34. The time to peak effect for morphine given IV is  
☐ a. 15 min.  
☐ b. 45 min.  
☐ c. 1 hour  
☐ d. 2 hours
35. The time to peak effect for morphine given orally is  
☐ a. 5 min.  
☐ b. 30 min.  
☐ c. 1 - 2 hours  
☐ d. 3 hours
36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:  
☐ a. sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued  
☐ b. Impaired control over drug use, compulsive use, and craving  
☐ c. The need for higher doses to achieve the same effect.  
☐ d. a and b

#### Case Studies

Two patient case studies are presented. For each patient you are asked to make decisions about pain and medication.

**Directions:** Please select one answer for each question.

37. Patient A: Andrew is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Andrew's pain.

0	1	2	3	4	5	6	7	8	9	10
No pain/discomfort					Worst Pain/discomfort					

B. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.

- ☐ 1. Administer no morphine at this time.  
☐ 2. Administer morphine 1 mg IV now.  
☐ 3. Administer morphine 2 mg IV now.  
☐ 4. Administer morphine 3 mg IV now.

38. Patient B: Robert is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Robert's pain:

0	1	2	3	4	5	6	7	8	9	10
No pain/discomfort					Worst Pain/discomfort					

B. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time:

- ☐ 1. Administer no morphine at this time.
- ☐ 2. Administer morphine 1 mg IV now.
- ☐ 3. Administer morphine 2 mg IV now.
- ☐ 4. Administer morphine 3 mg IV now.

## **Appendix B**

### **Consent for Use of Archival Data**



Making Cancer History®

March 24, 2015

Sara McNeil, Ed.D.  
 Associate Professor and Program Area Coordinator  
 Learning, Design & Technology Graduate Program  
 Department of Curriculum and Instruction  
 Room 315C-Farish Hall  
 University of Houston-College of Education  
 Houston, TX 77204-5027  
[smcneil@uh.edu](mailto:smcneil@uh.edu)

Dear Dr. McNeil,

This letter is to verify that Gloria spencer, a student in your Doctor of Education Program at The University of Houston, has permission from Dr. Robert L. Massey, Assistant Professor in the Department of Nursing at the MD Anderson Cancer Center and owner of the requested dataset, to use data obtained from the Knowledge and Attitudes Regarding Pain Questionnaire for the purpose of analysis for her doctoral study. This data was collected with permission of The University of Texas MD Anderson Cancer Center Quality Improvement Assessment Board as quality improvement data. We will continue to provide mentoring and support for Gloria as she completes her doctoral education program. If I can be of any further assistance, please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert L. Massey".

Robert L. Massey, Ph.D., R.N., NEA-BC  
 Assistant Professor, Department of Nursing  
 Director of Nursing  
 The University of Texas MD Anderson Cancer Center  
 1400 Herman Pressler Dr, Unit 1408  
 Houston, TX 77030  
 713-792-3704  
[rlmassey@mdanderson.org](mailto:rlmassey@mdanderson.org)

## **Appendix C**

### **Human Subject Approval**

UNIVERSITY of HOUSTON  
DIVISION OF RESEARCH

July 29, 2015

Ms. Gloria Spencer  
c/o Dr. Sara G. McNeil  
Dean, Education

Dear Ms. Gloria Spencer,

Based upon your request for exempt status, an administrative review of your research proposal entitled "Baseline Assessment of Nurses' Knowledge and Attitudes Regarding Pain" was conducted on May 13, 2015.

At that time, your request for exemption under Category 4 was approved pending modification of your proposed procedures/documents.

The changes you have made adequately respond to the identified contingencies. As long as you continue using procedures described in this project, you do not have to reapply for review. \* Any modification of this approved protocol will require review and further approval. Please contact me to ascertain the appropriate mechanism.

If you have any questions, please contact Alicia Vargas at (713) 743-9215.

Sincerely yours,



Kirstin Rochford, MPH, CIP, CPIA  
Director, Research Compliance

\*Approvals for exempt protocols will be valid for 5 years beyond the approval date. Approval for this project will expire **July 28, 2020**. If the project is completed prior to this date, a final report should be filed to close the protocol. If the project will continue after this date, you will need to reapply for approval if you wish to avoid an interruption of your data collection.

Protocol Number: 15426-EX

316 E. Cullen Building Houston, TX 77204-2015 (713) 743-9204 Fax: (713) 743-9577

COMMITTEES FOR THE PROTECTION OF HUMAN SUBJECTS.

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