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Knowledge of Pain Management in Older Adults as a Content Area for Continuing Professional Education for Licensed Nurses

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KNOWLEDGE OF PAIN MANAGEMENT IN OLDER ADULTS AS A CONTENT AREA FOR CONTINUING PROFESSIONAL EDUCATION FOR LICENSED NURSES

by

Wanda Cleveland Dubuisson

Abstract of a Dissertation
Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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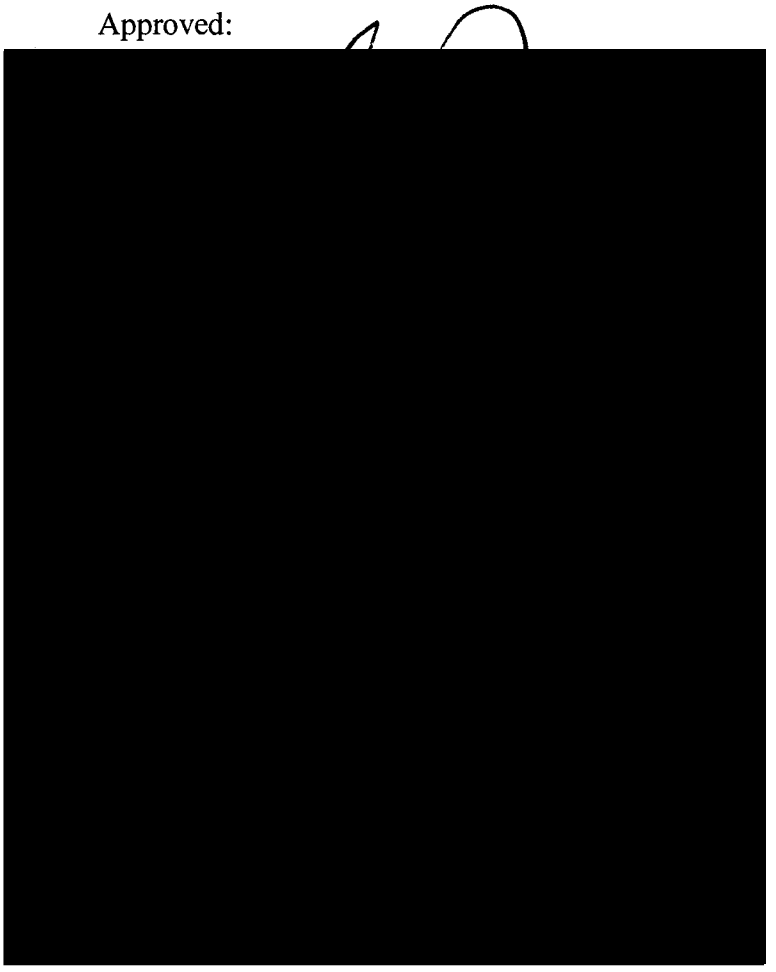

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ABSTRACT

KNOWLEDGE OF PAIN MANAGEMENT IN OLDER ADULTS AS A CONTENT AREA FOR CONTINUING PROFESSIONAL EDUCATION FOR LICENSED NURSES

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The research of the last 30 years has revealed the inadequacy of pain management in the older adult. Although evidenced based clinical practice guidelines exist to direct the management of pain in the older adult, health care providers are either unaware or lack the proper understanding of the guidelines. This study investigated the differences in knowledge of pain management in older adults when examining licensed acute care nurses and extended care nurses. It sampled 118 acute care nurses working in two hospitals in Mississippi and 78 extended care nurses working in six extended care facilities (ECF) in Mississippi.

Based upon the findings of this study, there was a significant difference in three of the four hypotheses. There was a significant difference in the knowledge of pain assessment scores with acute care nurses scoring higher than extended care nurses. There was a significant difference in the knowledge of pharmacological pain management scores with acute care nurses scoring higher than extended care nurses. There was no significant difference in the knowledge of non-pharmacological pain management scores between acute care nurses and extended care nurses. There was a significant difference in the knowledge of pharmacological and non-pharmacological pain management in the older adult scores with acute care nurses scoring higher than extended care nurses.

Interviews with educators in acute care facilities and extended care facilities revealed that there were more resources such as staff educator personnel devoted to continuing professional education in the area of pain management in acute care facilities than there were in extended care facilities. Comprehensive ongoing continuing professional education programs that contribute to transfer of learning and application of pain management principles may be the key to improving pain management in the older adult.

DEDICATION

The writer would like to dedicate this undertaking to those people who have been instrumental in helping me reach this point in my life. To my mother, Jewell Casey Cleveland, and my late father, Milton Dave Cleveland, who believed in the value of education and instilled that love of learning in me, thank you. I also want to recognize my children, Lorraine Michelle Dubuisson and Russell Cleveland Dubuisson, who have been my cheerleaders. To my brother, Glenn Dave Cleveland, who has also cheered me on and encouraged me, thank you. My biggest supporter has been my beloved husband, Fred Russell Dubuisson, without whose support, love, and encouragement, I could not have accomplished this milestone. Thank you all. Last, but not least, I want to acknowledge my savior, Jesus Christ, who gave me life and intellect to accomplish this task. I love you all.

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CHAPTER I

INTRODUCTION

Inadequate pain management has long been cited as a common factor in patients' dissatisfaction with the health care system (Marks & Sachar, 1973; Merboth & Barnason, 2000). According to the joint Standards of Clinical Nursing Practice for Pain Management of the American Society for Pain Management Nursing and the American Nurses Association (American Nurses Association, [ANA], 2005, p.85), pain is the most common nursing diagnosis encountered by clinicians. Additionally, pain is cited as the most common problem experienced by patients and encountered by clinicians that lead people to seek medical attention (Clarke, et al., 1996; Simpson, Kautzman, & Dodd, 2002).

The general population in America is aging, and the fastest growing segment of the population in the United States is composed of those older than age 85 (Ebersole & Hess, 1998; Eliopoulos, C. 2001; McCaffery & Pasero, 1999; Stanley, Blair, & Beare, 2005). Older adults utilize health care resources to a greater degree than do younger persons. The Administration on Aging reports that most older adults have at least one chronic condition, and many have multiple conditions (Administration on Aging, 2004). The Agency for Healthcare Research and Quality (AHRQ) found that in 2002 more than one-quarter of community-dwelling Americans with the very highest expenditures for healthcare were between the ages of 65 and 79, and another 14 % were aged 80 and older (Conwell & Cohen, 2005). Flaherty (2000) indicates that 25%-45% of older adults living in the community report having chronic pain. As a result, this population group is placing increased

demands on the health care system that will only worsen in time. Consequently, the health care of older adults is at risk of not being adequately managed, especially in the area of pain management.

Ageism, a type of discrimination that accompanies aging and that is based only on age (Ebersole & Hess, 1998), remains a challenge in delivering appropriate health care to older adults. As a group, older adults have often been seen in negative terms (Ebersole & Hess, 1998), resulting in misconceptions that can influence the care provided to them. Stereotypes and stigmatization are frequent outcomes of ageism. Further, a lack of knowledge of normal aging patterns by health care providers can have a negative impact on how they treat older adults. For example, one stereotype or misconception holds that pain is an expected outcome of growing old. This can lead to undermedication of the older adult.

Moreover, older adult patients are at increased risk for failure of health care providers to manage their pain appropriately due to misconceptions about pain management in this patient population (Pasero, Reed, & McCaffery, 1999). A study by Duerson, et al. (as cited in Ebersole & Hess, 1998) revealed that an increased amount of knowledge about aging decreased medical students' biases against aging as shown by scores on Palmore's Facts on Aging Quiz. Health care providers need to be aware of misconceptions about aging and their influence on patient outcomes, especially in the area of pain management.

Today's public is more discriminating and more demanding of quality health care. As a result of being better informed, consumers of health care insist on knowledgeable clinicians who are current in the field of pain management. In fact, as

a result of the focus on pain management in healthcare, the 106th U.S. Congress passed H. R. 3244 that declared January 1, 2001 the beginning of the *Decade of Pain Control and Research*. In order to meet the objective of the emphasis on knowledge and practice of pain management in the older adult, adult education must find a way to transform licensed nurses' knowledge of pain assessment and pain management behaviors. Identification of knowledge deficit areas is the first step. Continuing professional education that facilitates transfer of learning regarding pain management in the older adult is the best method for producing competent practitioners in pain management.

Background

Pain and suffering were historically believed to be punishment from the gods (St. Marie, 2002). Primitive societies as well as the ancient Hebrews, used shamans, sorcerers, or priests as practitioners for treating pain. Egyptians drilled holes in skulls to treat headaches; Chinese developed acupuncture to treat pain; and the Greeks expanded the pharmaceutical management of pain (St. Marie). The basic science of pain and pain management has continued to be explored over the years. DeLeo (2006) points to Rene' Descartes as being identified as the first scientist to attempt to understand pain. Published in 1664, Descartes' *The Treatise of Man* first documented a scientific theory of pain transmission, albeit an incorrect one (DeLeo, 2006).

In the early post World War II period pain was managed in nerve block clinics (St. Marie, 2002). In the 1970's pain management organizations began to be formed. The International Association for the Study of Pain (IASP) was formed in 1974; the American Society of Regional Anesthesia (ASRA) in 1976; the American Pain

Society in 1977; the American Academy of Pain Medicine in 1983; and the American Society of Pain Management Nurses (ASPMN) in 1990 (St. Marie, 2002).

For the past thirty years there has been an increased focus on understanding and treating pain. Marks and Sacher found in a study published in 1973 that a majority of medical inpatients reported experiencing moderate to severe pain and that their physicians did not appropriately manage the patients' pain pharmacologically. Although the past 15 years have shown progress in the study of pain, there has been little improvement in managing patient's pain (McCaffery & Pasero, 1999). More recent studies (Coyne et al., 1999; Gujol, M. C., 1994; Wessman & McDonald, 1999) have identified nurses' lack of knowledge of pain assessment and pain management. This knowledge deficit results in needless pain and suffering and negatively impacts the health care of patients (McCaffery & Pasero, 1999).

The Joint Commission on Accreditation of Health Care Organizations (JCAHO, 2000) specifies pain assessment and pain management standards that must be met in order for a health care organization to remain accredited. Because JCAHO has targeted pain management, health care facilities must now demonstrate that their employees are able to manage patients' pain appropriately. These pain management accreditation standards have been in place since January 1, 2001. Health care facilities have been working to ensure that the knowledge level of their nursing staff meets these standards. These facilities attempt to ensure competency in a variety of ways. Most commonly they require employees to attend continuing professional education programs. The education departments of health care facilities are responsible for developing and implementing programs that will meet the learning

needs of the nursing personnel. However, simple attendance at continuing professional education programs and learning are not synonymous. Nor does attendance ensure implementation of the new knowledge.

The research prior to January 2001 did not support institutional compliance in the area of pain management; thus, appropriate standards for quality care have not been met, resulting in the undertreatment of patients (McCaffery & Ferrell, 1997). While the JCAHO requirements have been in place since January 2001, little published research exists to support the belief that health care facilities have improved their nursing staff's basic knowledge of pain management or that patients' reported pain intensity has decreased. Even fewer published studies examine knowledge of pain management in the older population. Of particular concern is the lack of research regarding those working in extended care facilities.

Pain is a universal problem. The risk for health care complications increases when health care providers do not manage pain appropriately (Furrow, 2001; Merboth & Barnason, 2000). When patients hurt, they do not move as much, deep breathe as much, or participate in activities as much. As a result, the risk for complications of immobility increases. Moreover, unrelieved pain can result in the following complications: a depressed immune response; initiation of the stress response; alteration in the cardiovascular system as a result of activation of the sympathetic nervous system; diminished gastrointestinal, genitourinary, and pulmonary functioning; delayed healing; and deep vein thrombosis (Curtiss, 2001; McCaffery & Pasero, 1999). Furthermore, inadequate pain management negatively affects quality of life and patient satisfaction.

In addition to the deleterious effects on patients, health care costs are increased when pain is not managed appropriately. Curtiss (2001) indicates that an estimated $100 billion annually is spent treating chronic, unrelieved pain and its effects. Furrow (2001) reports that appropriate pain management improves patient outcomes as evidenced by reduced hospital time and decreased hospital costs. McCormick, Cummings, and Kovner (1997, p.538) further report that after implementation of the acute pain standards from the 1992 AHCPR *Acute Pain Management Clinical Practice Guideline*, several hospitals documented reduced length of stays and increased patient reports of pain relief compared to a time period prior to implementation of the guidelines.

There are many barriers to effective pain management. The health care providers, both nurses and physicians, may have inadequate knowledge to effectively manage pain (Coyne, et al., 1999; Drayer, Henderson, & Reidenberg, 1999; Nagel-Erickson, 2002). Also, health care providers may believe that they are the best judges of the person's pain. It is often assumed that pain produces similar physiological responses in all persons. In addition, both patients and health care providers have an unrealistic fear of addiction or respiratory depression (McCaffery & Pasero, 1999; McGuire, 2005). Lastly, the cultural beliefs of both patients and healthcare providers influence pain management.

The percentage of the older population is increasing at a rapid rate. For this segment of the population pain is a significant problem. Older adults frequently have one or more chronic illnesses that may result in pain of some degree. This pain restricts their ability to carry out activities of daily living (ADLs) and erodes their

quality of life. Often both patients and clinicians stereotypically expect that pain is a normal function of aging and, therefore, do not aggressively treat the cycle of pain. Additionally, many older adults become disoriented or confused when admitted to the unfamiliar surroundings of a health care institution. As a result they do not adequately express their feelings of pain or discomfort to the health care provider. The literature presents many anecdotal accounts of nursing staff inadequately treating patients' pain. A number of articles deal with the psychological aspects of the pain experience (Davitz & Davitz, 1980, 1981; Raine et al., 2002; Soares & Grossi, 1999), while other articles cite research on gender and ethnic disparities (Ramer et al., 1999; Todd & Lee, 1994; Weisse, Sorum, Sanders, & Syat, 2001). All these factors compound the problems associated with adequate pain management in the older adult.

Utilizing principles of adult learning may be the key to improving the quality of the education program and ultimately the knowledge and practice of pain management among nurse clinicians. Adult education can address health management problems such as pain management through continuing professional education. Houle (1980) observed that continuing education contributes to the assurance of professional quality. As such, continuing professional education remains a cornerstone of sustaining quality patient care. In *Continuing Learning In the Professions* (1980), Houle additionally discusses the concept that life-long learning in the form of continuing professional education is essential for any profession to maintain quality of performance. Continuing professional education implies that transfer of learning occurs in order to make the education useful.

Transfer of learning can be defined as taking the generalization of information learned in training or professional education settings and applying it to the work environment or life situation as well as maintaining the learned information over time (Kirwan & Birchall, 2006). Kirwan and Birchall identified three categories of factors that affect transfer of learning in a training or continuing education setting. These broad categories are trainee factors, training design factors and work environment factors. They found that trainee factors encompass motivation to learn, personality factors, learner expectations, goal orientation, cognitive factors, and commitment to the organization. Training design factors are influenced by learning strategies, use of various training methodology, and use of distributed learning rather than massed learning. Further, goal setting and coaching have been found to be effective strategies in promoting transfer of learning. A work environment in which there is supervisory support and peer support is highly effective in facilitating transfer of learning from continuing education programs (Kirwan & Birchall, 2006).

Transfer of learning originally occurs when the would-be nurse completes an introductory nursing program, including supervised clinical experiences. Further transfer of learning takes place as the graduate practitioner gains clinical expertise through first hand experience. Some form of continuing professional education then is utilized to ensure that the practitioner's education and clinical practice remains current. Adult educators are responsible for facilitating the transfer of knowledge in a variety of human resource development settings.

As Houle (1980) asserted, initial preparation for practice does not sustain a clinician throughout the life of a career. Only continued learning assures the

maintenance and improvement of quality of practice. Licensed nurses must, therefore, be knowledgeable of how to translate pain management standards into practice. Improved practice as a result of these standards will impact pain management of older adults. Identifying general patterns of pain management knowledge deficit and, in particular, deficits related to pain management in older adults, will guide health care facilities' education departments in tailoring continuing professional education programs to meet the learning needs of the licensed nursing staff in facilitating transfer of learning.

Statement of the Problem

Ineffective pain management has been documented as an area of concern among clinicians, patients, and health care institutions. The "graying" of America is accelerating and leading to a management problem with this segment of the population. The thrust of past research has focused on pain management knowledge of health care providers in acute care settings. There are far fewer studies that concentrate on identifying the pain management knowledge level among nurses that care for older adults in extended care settings.

In spite of numerous studies identifying a general pain management knowledge deficit, the problem remains. Little current research assesses whether or not the organizational push from the JCAHO accrediting body is influencing pain management knowledge and spurring change. A number of questions remain unstudied. Thus this dissertation will address whether general pain management knowledge differs between licensed acute care nurses and licensed extended care

nurses and whether the difference in pain management knowledge differs in relation to older adults.

Purpose of the Study

The purpose of this study is to determine if differences exist between licensed acute care nurses and extended care nurses in their knowledge of pain management in older adults. This comparison study will include licensed nurses caring for adult patients and working in acute care facilities in Mississippi and licensed nurses caring for primarily older adults and working in extended care facilities in Mississippi.

The fundamental goals of the study are to improve the understanding of clinical applications of pain management knowledge, to guide planning of continuing professional education for licensed nurses, and to enhance and expand the theoretical foundation of adult education theory and nursing theory.

The specific goals of this study are:

1. To identify and evaluate descriptive data of the subjects relative to the variables of the study.
2. To compare pain management knowledge, including assessment and pharmacological and non-pharmacological, between licensed nurses working in acute care settings and licensed nurses working in extended care facilities.
3. To compare pain management knowledge relating to older adults between nurses working in acute care settings and nurses working in extended care facilities.

4. To determine deficit areas in pain management knowledge related to older adults as content areas for continuing professional education among licensed nurses.

Research Hypotheses

The hypothesis for this study will include:

H_1: There will be a significant difference in the knowledge of pain assessment scores between acute care nurses and extended care nurses.

H_2: There will be a significant difference in the knowledge of pharmacological pain management scores between acute care nurses and extended care nurses.

H_3: There will be a significant difference in the knowledge of non-pharmacological pain management scores between acute care nurses and extended care.

H_4 There will be a significant difference in the knowledge of pharmacological and non-pharmacological pain management in older adults scores between acute care nurses and extended care nurses.

Definitions of Terms

For the purposes of this study, the following operational definitions will be used:

1. *Acute care nurses* refer to nurses treating acutely ill patients in acute care facilities.
2. *Adult* refers to a person older than the age of 20 who is either living independently or has lived independently.

3. *Adult learner* is an individual who is involved in post-secondary formal or informal education.
4. *Andragogy* refers to an adult learning theory encompassing a set of assumptions that reflects the characteristics of adult learners (Knowles, 1990A).
5. *Clinical practice guidelines* are clinical management standards that have been systematically developed through research, extensive literature review, and expert clinical judgment. These standards are designed to assist health care providers in making appropriate decisions about pain management.
6. *Continuing professional education program* is an educational program that is considered staff development for a health care facility.
7. *Extended care nurses* refer to nurses working in nursing homes treating primarily older adults.
8. *Joint Commission on Accreditation of Healthcare Organizations (JCAHO)* is an independent, not-for-profit organization whose goal is to improve the safety and quality of healthcare provided to the public through the provision of health care accreditation and related services (2002).
9. *Knowledge of pain assessment* refers to the knowledge of those standards necessary for assessing the existence and intensity of the patient's pain and the effectiveness of any treatments (McCaffery & Pasero, 1999, p. 5)
10. *Knowledge of non-pharmacological pain management* refers to the knowledge of those standards necessary for utilization of non-medication

interventions or treatments for pain management including cutaneous stimulation, distraction, and relaxation (McCaffery & Pasero, 1999, p. 400).

11. *Knowledge of pharmacological pain management* refers to the knowledge of those standards necessary for administering analgesic medications, including non-opioids, opioids, and adjuvants (McCaffery & Pasero, 1999, p.104)
12. *Learning* is a process in which a change in behavior, knowledge, or attitudes occurs as a result of experience.
13. *Licensed nurse* is a nurse who has completed a vocational nursing program, diploma nursing program, an associate degree nursing program, or a baccalaureate nursing program and passed the state board licensing examination.
14. *Older adult* refers to an individual who is age 65 or older.
15. *Pain management* is a comprehensive approach to managing the pain of individuals that includes pain assessment, pharmacological pain interventions, and non-pharmacological pain interventions.

Delimitations

1. The study will be limited to licensed nurses working on adult medical-surgical nursing units in acute care facilities and licensed nurses working in extended care facilities.
2. The time frame for this study will be restricted to 2008.
3. The sample size in this study may be small.
4. There will be no randomization of subjects in this study.

5. All subjects, variables, and conditions not so identified are considered beyond the scope of this study.
6. The generalizability of the results may be limited by the design and the sample.

Assumptions

The following assumptions will be made in this study:

1. The anonymity of the participants will assure the honesty of the responses of nurses to test items regardless of the setting.
2. The sample will represent the population of interest.
3. Acute care nurses have experience working with patients experiencing acute and/or chronic pain.
4. Extended care nurses have experience working with patients experiencing acute and/or chronic pain.

Justification of the Study

Pain management is often ineffective because pain is a highly subjective phenomenon. Health care providers are taught the following accepted definition of pain: "Pain is whatever the person experiencing it says it is, and existing whenever the person says it does" (McCaffery & Pasero 1999, p. 17). Pain assessment has been found to be one area of deficient knowledge (Carr, 1997; Coyne et al., 1999). Carr (1997) found that although all nurses were able to use a pain assessment instrument, this knowledge did not guarantee an improvement in the quality of pain management. Carr's findings suggest that nurses need educational offerings that demonstrate the relationship between pain assessment and pain management.

Older patients are at increased risk for inadequate management of their pain. As a consequence, they continue to suffer pain needlessly. Therefore, pain must be assessed and managed appropriately. People do not necessarily perceive pain in the same way or possess the same beliefs about pain. To further complicate the situation, the established guidelines for assessing pain in adults are not intended for those who are unable to verbally communicate their discomfort. The result is unnecessary discomfort for patients, increased costs, and increased use of resources.

Clinical practice guidelines have been developed as an organized method for directing patients and health care providers in making effective health care management decisions and in guiding the delivery of care. These guidelines identify appropriate care for specific clinical situations, e.g., pain management, both acute and chronic. In addition, these clinical practice guidelines are based on scientific evidence and a consensus of opinion of health care experts. The Agency for Healthcare Policy and Research (AHCPR), a division of the Public Health Service, was initially responsible for developing clinical practice guidelines for a variety of disorders. In 1996, it transferred this responsibility to individual specialty organizations that submit their standards of practice to the National Guideline Clearinghouse. The National Guideline Clearinghouse (2002) collects and disseminates this information to interested persons. The agency's mission is to improve the quality of health care and to improve access to health care services by providing an easily used mechanism for disseminating objective, detailed information on accepted clinical practice guideline standards.

Educators must make these standards for pain management available to nurses and readily transferable into practice in order for implementation of the standards to occur in the clinical setting. Nurses may desire to maintain currency in nursing knowledge but they don't know how to translate that knowledge into practice. Often current policies and procedures regarding pain assessment and management are not reflected in practice; therefore, continuing professional education in the area of pain management must be provided to clinicians. Continuing professional education is a fundamental component of quality patient care. Staff development educators must design and implement educational programs that increase nurses' knowledge and willingness to transfer that knowledge into practice. In addition, staff development educators must begin to address the effect of misconceptions about aging and pain and their influence on patient care.

The value of this research study is that it provides information regarding nurses' level of knowledge regarding pain management and attitudes toward older adults following the implementation of the JCAHO pain management standards. The need for research to support improved pain management for patients is both apparent and obvious. The population of those persons aged 65 years and older in the United States alone will reach between 20%-25% of the population by the year 2035, with the largest growth occurring in those aged 85 years and older (Stanley, Blair, & Beare, 2005). If the current state of scientific knowledge of pain management in older adults is translated into practice, then older adults will benefit from this research by experiencing adequate pain management. When deficits in knowledge are identified, then these deficits can be addressed. This research provides direction to

education departments of health care institutions as continuing professional education programs are planned. This study sought to provide direction for program development and improved delivery of pain management care in both acute and extended care facilities.

Summary

"Pain is a universal patient phenomenon" (Coyne et al., 1999, p.154). The last 30 years have seen a concerted effort by health care professionals to investigate the phenomenon. Unfortunately, health care providers have demonstrated only small increments in knowledge of pain management during that time. The primary accrediting agency for healthcare institutions has placed a priority on pain management; the United States Congress has designated the current decade as the *Decade of Pain Control and Research*; and healthcare institutions have begun to make commitments to confronting the problem. Older adults are especially vulnerable to the consequences of inadequate pain management. Comprehensive ongoing programs that contribute to transfer of learning and application of pain management principles may be the key to correcting the problem.

CHAPTER II

REVIEW OF LITERATURE

Theoretical Framework

The theoretical framework that informed this study was based upon principles of adult learning. Themes woven throughout the study were continuing professional education and knowledge of pain management standards in the older person including assessment, pharmacological and non-pharmacological interventions.

A comprehensive review of the literature in English relevant to the current study was completed using the computerized indexes of Academic Search Elite and Premiere, ANNA, CINAHL Plus, EBSCO Online Citations, ERIC, Education Research Complete Database, and MEDLINE to search for appropriate references. In addition, reference citations in books, articles, dissertations, and papers provided direction leading to further resources. The search of online databases yielded abstracts of articles, full-text articles, and books addressing the following topics: (a) pain management knowledge, (b) pain knowledge and attitudes, (c) pain management education, (d) nursing knowledge, (e) older adult/elderly/old age, (f) adult learning, (g) life-long learning, (h) continuing professional education, and (i) transfer of learning.

Although a large amount of data were collected on each of these topics, little published literature distinguishes whether or not the requirement by JCAHO to utilize pain management standards has resulted in changes in nurses' knowledge or implementation of that knowledge. On the other hand, there are numerous studies that examine attitudes toward the older adult. However, extensive research regarding

nurses' knowledge of pain management in the older person has not been published. Although some studies examine pain management knowledge among nurses working in extended care facilities (ECF), there exists a paucity of comparison studies of pain management knowledge between nurses working in acute care facilities (ACF) and those working in ECFs. A review of the literature relevant to nurses' knowledge of pain management in older persons as a content area for continuing professional education for licensed nurses will be summarized in this chapter.

Pain Management

Health care professionals are in agreement that pain is defined by the patient and is whatever the person experiencing it says that it is (McCaffery & Pasero, 1999). The patient's report of pain is the gold standard of pain assessment. "Pain, whatever its sources, is one of the most common complaints of the elderly" (Ebersole & Hess, 1998, p. 330). In the mid 1980's the World Health Organization (WHO) identified the undertreatment of pain to be a public health crisis.

Surveys of both medical and nursing schools reveal that there is inadequate time spent on pain management education (Breitbart, Rosenfeld, & Passik, 1998; Ferrell, McGuire, & Donovan, 1993; Frankel, 1998; Graffam, 1990; Zalon, 1995). Forty percent of U. S. medical school graduates reported that they received no training in pain management and little clinical experience in pain management (Frankel, 1998). A review of prestigious U. S. medical schools reveals that they devote approximately one hour in the curriculum to pain management content while U.S. nursing schools devote on average 3.9 hours in the curriculum to pain management content (Ferrell as cited in Batten, 1995). Carr (1998) reports that 82%

of physicians surveyed in a descriptive study indicated that their education had been deficient in the area of pain management. Graffam (1990) indicated that a National League for Nursing survey found 48% of the baccalaureate nursing programs spent 4 hours or less on pain management education. Likewise, a survey of faculty in schools of pharmacy in the United States reported that pain management was inadequately covered in the curricula of many schools of pharmacy (Singh & Wyant, 2003). The consensus is that pain management is not adequately addressed in the curricula of professional schools that deal with health care of individuals.

In a review of content relating to pain management in older adults, Ferrell (1991) found a paucity of information included in medical and nursing textbooks. Additionally, Ferrell, McCaffery, and Rhiner (1992) reviewed 14 nursing textbooks published from 1985 to 1991. Eight of the textbooks were pharmacology texts and six were medical-surgical textbooks. The researchers found confusing terminology and incorrect information. The fear of addiction with the use of narcotics for analgesia was incorrectly fostered.

In a study that analyzed the amount and types of content regarding pain and end-of-life care in 50 nursing textbooks, Ferrell, Virani, and Grant (1999; 2000) found that not only were the subjects inadequately covered, but that in some cases erroneous information was provided.

Internationally, Twycross (2000) found in a study of select British nursing programs that there was superficial coverage of pain management. The author suggested that nursing education did not appear to be adequately preparing nurses in the area of pain management. It is evident from the preceding data that both nursing

and medical students are not receiving a sufficient education in the area of pain management and certainly not pain management in the older adult. Moreover, even the textbooks are deficient in these areas.

In a follow-up study Twycross (2002) reviewed the literature for articles related to the effectiveness of current methodologies used to educate nurses regarding pain management. The majority of articles were published between 1990 and 2001. The author suggests that nursing education does not seem to be adequately preparing nurses to manage pain in the clinical arena. The recommendations from this review of research studies found:

1. There is a need to ensure that nurses have the knowledge and skills to manage pain effectively;
2. Regular updates about pain management should be provided for all nurses;
3. Educational initiatives should be evaluated with relation to changes in practice over a prolonged period;
4. The teaching strategies which support adult learning and encourage deep approaches to learning should be used;
5. A variety of teaching strategies should be used to teach pain management including: teaching rounds, case studies, journal clubs, reflection and teaching rounds (sic);
6. There is a need to carry out further research to ascertain:
    - Whether an increase in knowledge is reflected by changes in practice;

- Which teaching methods are most effective in facilitating changes in practice (p. 712).

People do not necessarily perceive pain in the same way or possess the same beliefs about pain. These differences in belief can influence the way that nurses care for patients in pain. Failure to manage pain effectively relates to the reality that pain is a highly subjective phenomenon. In the past thirty to forty years, nursing education has taught that the patient is the authority on the pain experience (McCaffery & Pasero, 1999, p. 17). Because of this subjectivity, the use of a formal assessment instrument can standardize the assessment and treatment of pain. Although a variety of reliable pain assessment tools exist (numerical scales and visual analog scales are the two most commonly used), Carr (1997) found that healthcare providers were not utilizing pain assessment tools in the general hospital environment. Furthermore, Carr found that although all nurses were able to use a pain assessment instrument, this knowledge did not guarantee an improvement in the quality of pain management. Carr's findings suggest that nurses need educational offerings that demonstrate the relationship between pain assessment and pain management.

A study reported in the *Journal of Advanced Nursing Practice* (Starck, Sherwood, & Adams-McNeil, 2000) found a number of factors contributed to poor pain management. Among these were knowledge/education deficiencies; lack of assessment and documentation; inappropriate drug choice, route, and scheduling; and failure to use appropriate non-pharmacological adjuncts.

In an investigation of 30 pain assessment instruments for use in the cognitively impaired older adult, Stolee et al. (2005) found that overall the

instruments were inadequate and needed further research. In addition the researchers found that reliability and validity were either basic or unavailable for most instruments.

In a study of trauma patients in the emergency room, Silka, Roth, Moreno, Merrill, and Geiderman (2004) found that when verbal pain scores were used to assess for pain, analgesic administration increased. It was not reported if this result held up over time.

McCaffery's Pain Knowledge and Attitude Survey is one of the most commonly used instruments to identify health care providers' knowledge and attitudes regarding pain management. Using this instrument, McCaffery and Robinson (2002) surveyed via a professional nursing magazine over 3,000 nurses regarding their knowledge of pain management. Only 4% of respondents answered all of the questions correctly. More than 50% of those respondents received a score of less than 80% (the minimum score identified for adequate knowledge). So it would seem that, in general, nurses continue to exhibit deficits in pain management knowledge.

As previously mentioned, basic nursing education in pain management has historically been minimal. A descriptive study conducted in a baccalaureate nursing program during the years of 2000 and 2002 demonstrated that some improvements are being made in nursing knowledge even though gaps remain (Goodrich, 2006). McCaffrey's Pain Knowledge and Attitude Survey was administered to sophomore, junior, and senior nursing students at the beginning and the end of each semester for two consecutive years. Additionally faculty were administered the survey plus

questions related to pain-related content in their courses. The researcher found that although students' knowledge and attitudes regarding pain management improved over time in the program, deficit areas still remained. While faculty members have basic pain management knowledge, implementation in the curriculum is spotty at best. This inconsistency may translate into the identified student gaps in knowledge.

Barriers to adequate pain control that nurses experience have been identified in the literature. Inadequate or faulty educational preparation has already been addressed. Further barriers are lack of skill to assess and manage pain effectively, failure to accept the patient's self-report of pain (belief that the patient is exaggerating), unjustified fear regarding the side effects of opioids (respiratory depression and addiction), confusion regarding the difference between tolerance and addiction, staffing patterns/workloads, cultural/communication impediments; institutional support for pain management, and lack of comprehensive treatment protocols (McCaffery & Pasero, 1999; Merboth & Barnason, 2000; Simpson et al., 2002; Starck et al., 2000; St. Marie, 2002). Puls-McColl, Holden, and Buschmann (2001) found in their study that insufficient time to manage workload and patient care responsibilities was the most significant barrier to effect pain management.

Gordon et al. (2002) examined the literature from 1992-2001 relating to quality improvement in pain management. They analyzed the data and determined six quality indicators for hospital-based pain management. "These indicators include: The intensity of pain is documented with a numeric or descriptive rating scale; pain intensity is documented at frequent intervals; pain is treated by route other than intramuscular; pain is treated with regularly administered analgesics, and when

possible, a multimodal approach is used; and patients are adequately informed and knowledgeable about pain management" (Gordon et al., 2002, p.117).

Further, Gordon et al. (2002) found in examining the literature that certain trends emerged. One finding indicated that pain intensity ratings by patients remained consistently high, even in studies done over time at the same institutions. This seems to suggest that pain is not being managed effectively. A second trend was the impact of pain on function. Higher pain intensity ratings were associated with impaired physical and psychological functioning. A paradoxical finding indicated that even though patients reported high pain intensity ratings, the majority described high satisfaction ratings with pain management. Often patients did not understand or know how to answer the questions. This seems to suggest that patients may not be knowledgeable enough about their pain management to be able to appropriately evaluate it.

A further finding revealed an increased frequency of pain assessments over time with no decrease in patient report of pain intensity. In other words, the documentation may increase but management interventions are not increasing correspondingly that result in decreased reports of pain. Lastly, the range and appropriateness of pain management treatment has not been adequately studied. Several non-recommended treatments continue to be implemented. These are the use of the intramuscular route, the use of meperidine, and the use of "as needed" (PRN) rather than round-the-clock dosing. The authors (Gordon et al., 2002) indicated that post-operative pain in the hospital setting is most effectively managed using multiple

methods such as regional anesthesia, non-steroidal anti-inflammatory drugs (NSAIDS) and opioids, as well as, non-pharmacologic methods.

The pattern of inadequate pain management knowledge has continued through the 1990's and into the 21st Century. A number of studies worldwide support the notion that deficient pain management knowledge among health care providers is an international problem as well (Brown, Bowman, & Eason, 1999; Cason, Jones, Brock, Maese, & Milligan, 1999; Ger & Wang, 2000; Gujol, 1994; Manworren, 2000; McMillan, Tittle, Hagan, Laughlin, & Tabler, 2000; Puls-McColl et al., 2001; Tanabe & Buschmann, 2000; Van Niekerk & Martin, 2001).

Although a study by Manworren (2000) identified a wide range of pain management knowledge deficiencies, nurses with master's degrees and specialty area nurses (hematology/oncology, intensive care, and emergency room) scored higher than nurses from other patient care areas. This may suggest that either the academic arena and/or frequent exposure to critical patients in pain have spurred these nurses to increase their pain management knowledge.

Mackintosh and Bowles (2000) recount that a report in 1990 by the Royal College of Surgeons and College of Anaesthetists in the United Kingdom spurred the development of the Acute Pain Services (APS) in an attempt to correct pain management deficits. Mackintosh and Bowles replicated a study from 1994 that was made prior to the development of the APS. A questionnaire was used to obtain information regarding improved knowledge about and attitudes toward pain. The findings were inconclusive. There was an upward but statistically non-significant trend in improvement of scores.

As an alternative to a short continuing professional education program, 18 nurses completed a 32-hour intensive pain management course designed to prepare them as pain resource nurses (PRNs) and role models on their respective units (McMillan, Tittle, Hagan, & Small, 2005). Eleven of the 18 nurses had baccalaureate degrees or higher. The results indicated pain knowledge scores increased but the testing was completed immediately following the educational intervention. A qualitative interview at one year revealed that the PRNs felt empowered in pain management and mentoring of colleagues. There was no report of the survey being repeated at that year interval so it is unknown if the knowledge scores held up over time.

One-time educational interventions often show transient improvement in nurses' knowledge (Woodward, 1997). In one study a three-hour educational intervention was directed at paramedics' knowledge of basic pain management principles as well as their use of nonpharmacologic pain therapies, documentation of pain severity and characteristics, and in reassessment of pain following interventions (French et al., 2006). The researchers found that there was an increase in the paramedics' knowledge of basic pain management principles and increased utilization of non-pharmacologic pain therapies, but there was no significant change in the administration of analgesic medications. These paramedics were evaluated one-month post-educational intervention. No further testing was done to determine if gains were sustained over time.

While some studies have shown an immediate improvement in knowledge scores following an educational intervention (Erkes, Parker, Carr, & Mayo, 2001),

there is little research to support the belief that pain management knowledge is sustained over time. A study by Howell, Butler, Vincent, Watt-Watson, and Stearns (2000) found just the opposite. They found in a continuing professional educational program aimed at exploring the effects of an educational intervention on nurses' knowledge, attitudes, and practice in pain assessment and management, that the intervention was effective in initially improving knowledge, attitudes, and behaviors of the nurses' in the study, but the gains were not sustained over time.

Dalton et al. (2001) audited the charts of 787 patients at 6 sites following an educational program on postoperative pain management that was presented to a multidisciplinary team comprising nurses, physicians, and pharmacists. The findings revealed that there was a 10% increase in documentation of pain parameters among the experimental group versus the control group who did not receive the educational program. It is not known if this result was maintained over time.

Pain management initiatives that cover a wide range of strategies in delivering pain management education seem to be more effective in the long-term than single continuing professional educational programs. A pain management education program was implemented in a southeastern Unites States community hospital that included a comprehensive organizational policy for pain management (Simpson et al., 2002). This program incorporated a pain management team that emphasized bedside clinicians, administrative and physician champions, standardized pain rating scales, an annual day-long pain conference, quarterly 60-minute pain management classes, and an annual skills validation workshop that used case studies, videos, and

brochures. In addition the institution monitored patient satisfaction with pain management and benchmarked against similar institutions within the state.

Initially the researchers administered McCaffery's Pain Knowledge and Attitude Survey in 1998 (Simpson et al., 2002). At the end of the first phase of the program in 2000 a modified version of McCaffery's and Pasero's Pain Knowledge and Attitude Survey of 1999 was given to a convenience sample. In most cases the nursing 2000 scores were improved over the 1998 scores. The one score that was lower dealt with a ceiling for morphine. Unfortunately, even after two years of education there were some nurses who continued to consider that vital signs (temperature, pulse, respirations, and blood pressure) were more reliable indicators of pain than the patient's self-report. The researchers suggest that an extended time period is needed to affect changes in knowledge and attitudes. The findings from the study may point to the ongoing emphasis on pain management as the key difference in the effectiveness of continuing professional education.

A study by Stromberg, Wickstrom, Joelsson, Sjostrom, and Haljamide (2003) examined the effect of a quality assurance program for postoperative pain management. This study scrutinized the long-term effects of such an ongoing program on staff members' attitudes toward pain management and on clinical outcomes. When comparing the experimental hospital with the control hospital, the researchers found that three years after implementation the staff members employed at the hospital with the ongoing quality assurance program, had scores on attitudes that were higher than the control group and were in compliance with generally accepted clinical practice guidelines for pain management. There were differences in

patient reports of pain experience on post-operative days two and three but no significant difference in patients' overall satisfaction with their pain management. There were no differences in postoperative nausea/vomiting between patients in the two hospitals.

Although estimates vary, inadequate pain management is a major documented problem in health care (Carr, 1998). Regarding nurses' knowledge of pain management, there are several major sub-themes in the literature. One is that nurses do not possess adequate knowledge of pain management in general and that pharmacologic pain management knowledge is the most deficient area (Cason et al., 1999; Coyne et al., 1999; McMillan et al., 2000). In addition, academic preparation, including didactic, clinical, and textbook offerings, is insufficient for appropriate pain management preparation for the novice nurse. Furthermore, traditional continuing professional education has not corrected this deficit.

The Older Adult

Although the category of old is arbitrary and varies with perception, older persons are often classified as to a specified age grouping: the young old or younger old (age 65-75), the older old, middle old or old (age 75-85), the old-old (age 85-100), and the elite or oldest old (> age 100) (Eliopoulos, 2001, p. 14; Miller, 2004, p. 5; McCaffery & Pasero, 1999, p. 677; St. Marie, 2002, p. 418). Females over 85 years of age are the fastest growing group of elders in the United States (Ebersole & Hess, 1998, p.6; Miller, 2004, p. 5; St. Marie, 2002, p. 418). The U.S. Census Bureau predicts that the population over age 65 will rise from its current 13 % to almost 20 % by 2030 (U.S. Census Bureau, 2004). The population will be older and because of

chronic issues, require more health care interventions in general than would a younger population. However, each category of older adults will within them have individuals with widely varying health statuses.

Furthermore, Palmore (1998, p. vii) indicates that the findings from 150 studies have demonstrated a pervasive ignorance about aging and the older person in America. In a sample of persons with a high school or less education, the quiz scores averaged around 50% correct. This would suggest that the overall knowledge and attitudes about aging are deficient.

Older adults have often been victims of negative stereotyping. With limited health resources and the increased costs associated with health care, older adults are sometimes considered social and financial liabilities. This may lead to negative ageist attitudes. Health care professionals may expect poor therapeutic outcomes based upon biased concepts of aging.

There are a number of misconceptions about pain and older adults that are held by both health care professionals and patients alike. Ebersole and Hess (1998) indicate that among these are: those in pain will exhibit observable physiologic signs; those in pain will tell the nurse when they are in pain and will use pain terminology; pain is an expected component of the aging process; chronic pain is not as significant as acute pain; the person in pain is not the expert on their pain but rather the health care professional is the expert; or treatment will lead to polypharmacy. Additionally, McCaffrey and Pasero (1999) report that undertreatment of pain in the older adult may be related to seven misconceptions regarding pain management in this age group. They are:

1. Pain is a natural outcome of growing old.
2. Pain perception, or sensitivity, decreases with age.
3. If the elderly patient does not report pain, he or she does not have pain.
4. If an elderly patient appears to be occupied, asleep, or otherwise distracted from pain, he or she does not have pain.
5. The potential side effects of opioids make them too dangerous to use to relieve pain in the elderly.
6. Alzheimer's patients and others with cognitive impairment do not feel pain and their reports of pain are most likely invalid and are more likely to receive antipsychotic and anti-anxiety agents.
7. Elderly patients report more pain as they age. (pp. 675-676)

Undertreatment of pain, whatever its sources, is one of the most common complaints of the older adult (Tabloski, 2006, p. 250). McGuire (2005) states, "Most health professionals have little knowledge of the prevalence of pain in older adults because of a lack of assessment and documentation" (p. 216). Marks and Sachar (1973), in their classic study on undertreatment of pain in hospitalized patients, reported that 73% of medical patients experienced moderate to severe pain in spite of being medicated with narcotic analgesics. Although this study was not limited to older persons, it has implications for this population.

Older adults are at greater risk of experiencing pain than younger adults due to the increased number of chronic conditions that they may experience. Nurses' treatment of the pain experience in older persons is influenced by the experiences, perceptions, social and ethnic context, and meanings that they attach to pain. In

addition, older persons often underreport pain for a variety of reasons. These patients may fear that they will disappoint or bother the health care provider or that reporting will lead to institutionalization. Also, older adults may fear that the high cost of treating the pain will lead to financial hardship. Further, a fear of addiction to medication may lead the older adult to forgo pain-relieving analgesics.

In a study of 359 nurses McCaffery and Ferrell (1991) examined the link between patient age and its influence on participants' decision-making regarding pain management issues. The researchers found that although the nurses were more likely to believe an older adult's rating of pain, this did not increase the likelihood of increasing the opioid analgesic dosing.

Nurses must possess an adequate knowledge base of pain management strategies in the older adult if they are to provide quality care. In a study investigating acute postoperative pain management in the older adult, Brockopp, Warden, Colclough, & Brockopp (1993) found that nurses do not possess an adequate understanding of pharmacologic pain management. Likewise, in a qualitative study in the United Kingdom, nurses used structured interviews with 190 older adults who received home visits and who reported pain lasting longer than 6 weeks (Walker, 1994). In addition to the patient interviews, the nurses completed questionnaires designed to elicit information about their general attitudes and beliefs about pain management. The findings suggest that although the participants valued the nurses' encouragement, willingness to listen, and their instructions, the nurses themselves were unsure what to do when medical therapy failed. In addition the nurses had difficulty identifying what was involved in supportive pain management care.

In a qualitative study of 24 nurses in the United Kingdom, the researchers utilized semi-structured interviews regarding pain management. In this study Gibbs (1995) compared nurses working in privately owned nursing homes and nurses working in National Health Service (NHS) "care of the elderly" wards. Based upon the results, the researcher concluded that the NHS nurses who have increased access to support and education in pain management and palliative care were able to offer more pain relieving strategies that the private home nurses were. This was a small study but points to the notion that continuing professional education can translate into improved knowledge base and improved patient care.

Yates, Dewar, and Fentiman (1995) investigated the attitudes regarding pain and pain management of older adults living in long-term residential care settings. This qualitative study utilized small focus groups to identify those attitudes. The findings imply that those older adults living in long-term residential care settings may be resigned to having pain and believe little can be done to relieve it.

Similarly, a descriptive study examining the attitudes and knowledge of pain management among well older persons was conducted in the southeastern United States (Brockopp, Warden, Colclough, & Brockopp, 1996). Questionnaires were submitted to 62 rural and 63 urban well older persons age 65 and older. This study supported the idea that there was not only a lack of accurate knowledge about pain management but that there were also negative attitudes related to pain management.

Closs (1996) surveyed 208 hospital nurses in the United Kingdom regarding pain and pain control in patients 70 years of age and older. Although the nurses' knowledge of pain assessment and their awareness of chronic pain in this population

was good, their knowledge of pharmacologic pain management was inadequate. Among the misconceptions the nurses had was a belief in an inflated risk of narcotic induced respiratory depression. Surprisingly, an additional finding was that nurses from acute care surgical units tended to have a better knowledge of pain management in older persons than did those nurses caring for older persons primarily. More recently, Sloman, Ahern, Wright, and Brown (2001) found that nurses' knowledge of pain management in the older adult continues to remain deficient.

In a descriptive study designed to identify attitudes regarding pain management practices of nurses working with older adult residents, 27 nurses employed in 10 facilities in the Midwest completed a questionnaire (Mrozek & Werner, 2001). The nurses reported assessing particular aspects of pain 75% of the time. Furthermore, they reported familiarity with non-pharmacologic pain management interventions. On the other hand, they advised residents to try these interventions only an average of 38% of the time.

Kemper (2002) studied pain management of older adults after discharge from outpatient surgery and found that older adults were not adequately medicating themselves post-operatively. Their reported pain intensity levels were consistently high; even when told to do so, they were reluctant to call the physician if their pain remained high; and their most often non-pharmacologic remedy for pain was to remain still.

Nurses' views regarding specific patient groups can influence their willingness to engage meaningfully in patients' pain management. Of particular concern is the reluctance to expend time and energy managing pain in the older adult

(Brockopp, Ryan, & Warden, 2003). There is the assumption that pain is a natural expectation of growing older and that older adults do not experience chronic pain and acute pain simultaneously. Some additional reasons identified for the reluctance to aggressively treat pain in the older adult include: patients could not clearly articulate their pain; nurses did not think they could trust the accuracy of the patient's self-report of pain; and the belief that the older adult used pain complaints as a means of getting attention. In this study, the increased age of the patient, as opposed to the pain experience of the patient, was of paramount importance to the nurse's response.

An observational study to assess the quality of medical care provided to vulnerable older adults with persistent pain found that of 372 randomly selected community dwelling participants, fewer than 40% had been assessed for pain in the previous two years (Chodosh et al., 2004). Eleven quality indicators for chronic pain demonstrated that pain management in vulnerable older adults remains inadequate.

In a survey of eight urban hospitals, Sauaia et al. (2005) sought to identify pain management strategies that predicted patient satisfaction. Three hundred twenty-two postoperative patients 65 years and older were evaluated for pain management satisfaction in the first 24 hours post-operatively. The findings suggest that pain in older adults experiencing surgery remains under-managed. Sixty-two percent of the patients reported severe post-operative pain even though 87% reported satisfaction with treatment. This finding is similar to those in other studies that found a paradoxical relationship between patient satisfaction with pain management and actual reduction in pain intensity. This suggests that patient satisfaction is not a valid quality assurance outcome of successful pain management.

Further, these researchers suggested that the patients under-reported pain in an effort to please caregivers. To combat this, the evaluators were not involved in delivery of care and the surveys were anonymous. These patients reported greater pain intensity in the survey than the level of pain documented by staff in the medical record for the same time period. The researchers further suggest that pre-operative pain management education is an important factor in patient satisfaction. In addition they found that the older the patient's age, the less satisfied the patient was with pain management.

Treating chronic pain is frustrating both to the health care provider and the recipient. Too often patients are advised that they must "learn to live with it." Nurses must begin to look for ways to overcome these barriers to sufficient pain management. One way this can be accomplished is through education.

In a study of a nurse-led cognitive-behavior treatment program for chronic pain management, the researchers found that as a result of the program the patients' self-reports indicated improved ability to manage pain, functionality, and ability to cope (Wells-Federman, Arnstein, & Caudill, 2002). There was no follow-up to determine long-term effects of the behavioral program.

Older patients admitted to the hospital for surgical procedures will often experience alterations in cognition following the procedure. This alteration interferes with their ability to make their pain needs known. In a study published in the *Journal of the American Geriatric Society*, researchers interviewed 97 nursing home residents regarding their pain experiences (Ferrell, Ferrell, & Osterweil, 1990). The results showed that although 71 % had at least one complaint of pain, only 15 % of those

with an identified pain complaint had received any pain medication within the previous 24 hours.

In a study published in 1995, Ferrell, Ferrell, and Rivera examined the pain experienced by cognitively impaired patients in skilled nursing homes. Two hundred seventeen subjects (mean age 84.9) randomly sampled from 10 nursing homes were interviewed for the prevalence of pain complaints, causation, and pain management strategies. Most subjects were dependent in all activities of daily living (ADLs) and demonstrated considerable cognitive impairment as determined by the Folstein Mini-Mental State exam. Researchers found that 62 % reported pain complaints. The study found that pain was not consistently documented in the patient chart and that pain management strategies were insufficient and often ineffective. In a study by Coyne, Smith, Stein, Hieser, and Hoover (1998) a chart review found a lack of consistency in pain assessment both within and across shifts as well as no correlation between the patient's report of pain intensity and the interventions employed.

A correlational study by Horgas and Tsai (1998) investigated the prescription and administration of analgesic medication in managing pain in cognitively impaired nursing home residents. The sample for this study included 339 nursing home residents from four nursing homes whose mean age was 87 years (range 66-104). The subjects were assessed for behaviors suggestive of pain using the Multidimensional Observation Scale for Elderly Subjects. In addition, chart review was employed to obtain demographic, medication, and diagnostic data. Multiple regression analysis holding the presence of painful conditions constant revealed that the more disoriented and withdrawn the resident, the less analgesic medication

prescribed by physicians and the less analgesic medication administered by nurses. This suggests that if the patient cannot adequately express pain, the pain will not be treated.

In a study comparing pain and its treatment in advanced dementia and cognitively intact patients with hip fracture, Morrison and Siu (2000) searched for differences in pain management between these two groups. They compared 59 cognitively intact older adult patients with hip fracture and 38 patients with hip fracture who were cognitively impaired with advanced dementia. The cognitively impaired patients only received one-third the amount of morphine sulfate equivalents as did the cognitively intact patients. The cognitively intact patients reported severe to very severe pain both pre- and post-operatively. In addition one-half the cognitively intact patients who experienced moderate to severe pain were prescribed inadequate analgesia. Furthermore, 83% of the cognitively intact and 76% of the cognitively impaired patients did not receive a standing order for analgesia. This leads one to believe that a majority of these older adult patients were under-treated and under-medicated. In addition, this does not support the clinical standard of around-the-clock dosing as opposed to *as needed* dosing for acute pain.

There is a preponderance of evidence to support the view that older adult patients, especially those who are cognitively impaired or who suffer from dementia, are receiving substandard pain management care. Often the excuse is that the patient did not complain of pain. Kovach, Noonan, Griffie, Muchka, and Weissman (2002) found in a study of 104 residents of long-term care facilities with end-stage dementia that the Assessment of Discomfort in Dementia (ADD) Protocol was effective in

helping health care providers assess and manage pain in those older adults who were not cognitively intact. This protocol identifies behaviors that, if not improved with basic nursing interventions, will direct further pain management interventions. In addition, pain management action may be initiated by coding on the Minimum Data Set (MDS), a federally mandated screening system for extended care facilities.

Herr (2002) outlined several steps to take when assessing pain in cognitively impaired older adults. The author indicated that cognitive impairment does not automatically negate the effectiveness of self-report by the patient. In fact many patients with mild to moderate impairment can reliably report their pain using a pain rating scale or by describing the pain. Therefore, determining the patient's ability to self-report was the first step. Secondly, behavioral observations should be used when self-report was not possible. Behaviors to be assessed included both verbal and non-verbal expressions: crying or moaning, frowning, grimacing, agitation, repetitive body movements, activity pattern changes, or mental status changes. Further, Herr advised assessment of the patient during activity if possible. These steps were congruent with the American Geriatric Society's *Panel on Persistent Pain in Older Person's Clinical Practice Guidelines* released in 2002 (American Geriatric Society, 2002).

There is wide variability in exhibiting pain behaviors among cognitively impaired patients. Herr (2002) refers to this as a patient's "pain signature" (p. 66). For example a patient may become very still and quiet when in pain while another patient may become restless and aggressive. One must become familiar with the "pain signature" of that particular patient. Although no behavioral tool designed to

assess pain in this population has been extensively validated and researched, Herr reports that the Checklist of Nonverbal Pain Indicators shows promise. The tool identifies six behaviors that the health care provider will observe when the patient is both at rest and during activity. These behaviors include: vocalizations, grimaces, bracing, rubbing, restlessness, and verbal complaints.

Herr (2002) further reports in the study between cognitively intact and cognitively impaired hospitalized patients with hip fractures that there were no differences in the observed pain-related behaviors and that the behaviors correlated with self-reports of pain. Additionally, more pain-related behaviors were observed during activity than when at rest.

In addition to cognitive impairment, ethnicity was among the barriers to adequate pain management that were reported Teno, Kabumoto, Wetle, Roy, and Mor (2004) report that nursing home residents who were African-American or more cognitively impaired were less likely to be reported as experiencing pain than were Caucasians or those with good cognitive performance as measured by the federally required MDS. The researchers speculated that cultural differences regarding pain might account for some of the discrepancy. Further it was unknown if those with cognitive impairment actually had less pain or whether it is just underreported. Other barriers to adequate pain management for residents in the nursing home or extended care facility included the nursing shortage, high staff turnover and the perception that this work was less glamorous than acute care nursing.

Herr et al. (2006) summarized the American Society for Pain Management Nursing's position statement *Pain Assessment in the Nonverbal Patient: Position Statement with Clinical Practice Recommendations.* These included:

1. Implement a hierarchy of pain assessment techniques
    a. Rely on self-report
    b. Search for potential causes of pain
    c. Observe patient behaviors
    d. Utilize surrogate reporting of pain and behavior/activity changes
    e. Attempt an analgesic trial
2. Establish a procedure for pain assessment
    a. Attempt self-report/identify behaviors to self-report
    b. Identify painful conditions/procedures
    c. Identify behaviors suggestive of pain
    d. Identify behaviors that surrogates may think indicate pain
    e. Attempt an analgesic trial
3. Use behavioral pain assessment instruments
4. Minimize reliance on physiologic indicators
5. Reassess and document (Herr et al., 2006)

In many cases the older adult who is hospitalized experiences an episode of confusion. This frequently occurs in the post-operative period. Fong, Sands, and Leung (2006) reviewed the literature related to intravenous and epidural administration of opioid analgesics on postoperative cognitive status in older adults.

They found that these conclusions are compatible with the American Geriatric Society's *Panel on Persistent Pain in Older Persons Clinical Practice Guidelines* released in 2002 (American Geriatric Society, 2002).

In a comparative study reported in the *Journal of Gerontological Nursing,* researchers compared practicing nurses' and senior nursing students' knowledge of pain management in older patients (Brockopp et al., 1993). As could be expected, the practicing nurses scored higher than the student nurses. However, the study found that both groups possessed a poor understanding of pain management. Particular areas of deficit were in knowledge of pharmacologic pain management, pain assessment in older adults, and nurses' attitudes toward pain management.

Litigation is increasingly becoming a manner in which individuals seek restitution when pain is not properly managed. A California jury found an internist guilty of elder abuse and reckless negligence by not providing adequate pain management for an 85-year-old man dying of lung cancer. The case alleged abuse for undertreatment of pain. The jury awarded $1.5 million to the man's family [later reduced by a judge to $250,000]. In addition to the physician, the family sued the hospital where the man was treated. In settling the case before trial, the hospital agreed to conduct educational programs in pain management for its staff (White, 2001).

The American Bar Association is concerned that inadequate management of pain may initiate similar lawsuits and as such is urging all state legislatures to review their laws and remove any barriers that would inhibit adequate pain management in patients. In the California case, the physician told jurors that he was unaware of new

pain management guidelines. The plaintiff's lawyers demonstrated that abundant resources were available regarding standards of care for pain management (White, 2001). The excuse that one "didn't know" is no longer sufficient. That is why continuing professional education is so necessary.

Adult Learning

Theories

Although definitions may vary, adult learners are most often defined by characteristics that relate to biological, legal, social, and psychological definitions (Knowles, 1990a, p. 57). Factors such as age, marital status, adult roles, and maturation level are further used to categorize and define the adult learner. Several adult learning theories have been hypothesized in an attempt to explain how adult learning differs from pre-adult learning. Most theories approach learning as a result of adult characteristics, past experiences, social roles, personal responsibilities, or changes in consciousness. Some of the most often cited theories of adult learning are *Andragogy* (Knowles, 1984), *Characteristics of Adults as Learners* (CAL) model (Cross, 1981), *Theory of Margin* (McClusky, 1979), *Proficiency Theory* (Knox, 1980), Jarvis' (1987) *Theory of Adult Learning in the Social Context*, Mezirow's *Perspective Transformation Theory* (2000), and Freire's *Conscientization Theory* (1973, 1993) (see Table 1).

Table 1.

Theories of Adult Learning

Theory	Proponent	Main Idea
Andragogy	Malcolm Knowles	Encompasses a set of assumptions regarding adult learners. Proposes that adult learners differ from pre-adult learners
Characteristics of Adults as Learners (CAL)	Patricia Cross	Identifies a set of personal characteristics and situational characteristics to differentiate between adult and pre-adult learners.
Theory of Margin	Howard McClusky	Recognizes that there is a margin or gap between the demands of living and the ability to meet those demands. The greater the margin, the more capacity for learning.
Proficiency Theory	Alan. B. Knox	Proposes that there is a discrepancy between the current level of proficiency and the desired level of proficiency that serves as a motivator of learning.
Theory of Adult Learning in the Social Context	Peter Jarvis	Focuses on the idea that an individual's inexperience in a particular situation is an impetus for change.
Perspective Transformation	Jack Mezirow	Suggests that a learner experiences a "disorienting dilemma" that transforms the learner and influences learning.
Conscientization	Paulo Freire	Proposes that social change is the goal of education and results from the learner becoming aware of factors shaping life and acting upon those factors.

Knowles' *Theory of Andragogy* and Cross's *CAL* model emphasize characteristics of adult learners. McClusky's *Theory of Margin*, Knox's *Proficiency Theory*, and Jarvis' *Theory of Adult Learning in the Social Context* emphasize life situation. Mezirow's *Perspective Transformation* and Freire's *Conscientization* emphasize changes in consciousness.

Characteristics of Adult Learners

Adult learners differ from pre-adult learners in a variety of ways. One of the best-known theories of adult learning, *Andragogy*, is closely identified with Malcolm Knowles, who is the individual most responsible for the popularization of the concept of andragogy. The term andragogy was first used by a German teacher, Alexander Kapp, in 1833 and became more widely accepted in America following its use in Knowles' article "Androgogy, not Pedagogy" published in *Adult Leadership* in April 1968 (Knowles, 1990a, p. 51).

Although there is disagreement among experts as to whether *Andragogy* is a true adult learning theory, most will agree that the tenets associated with *Andragogy* describe adults and how they best learn. Knowles defined *Andragogy* as "...the art and science of helping adults learn" (1980, p. 42). In his updated edition, Knowles (1990b) uses the andragogical model to explore the differences between adult and pre-adult learners without suggesting that they are mutually exclusive as he had in the original work from 1970. Although Knowles relates *Andragogy* to the adult learner and *Pedagogy* to the pre-adult learner, he indicates that this can be considered as a continuum. In addition, Knowles further indicates that some aspects of *Andragogy* might be used very effectively with pre-adult learners.

Knowles (1990a) defined a theory as "...a comprehensive, coherent, internally consistent system of ideas about a set of phenomena" (p. 5). Many experts in the field of adult education question the validity of calling andragogy a theory of adult learning (Merriam & Caffarella, 1991, pp. 248-251). Some argue that rather than a theory of adult learning, andragogy is either a set of assumptions about learning or it

is a model of teaching. Rachal (2002), in exploring *Andragogy* as a theory, discusses the idea that there is a great degree of variability among researchers as to the definition, components, and evaluation of *Andragogy*. Rachal (2002, p. 219) further defines andragogy as "...both a philosophy and a method of adult education in which the learner is perceived to be a mature, motivated, voluntary, and equal participant in a learning relationship with a facilitator whose role is to aid the learner in the achievement of his or her primarily self-determined learning objectives."

Merriam and Caffarella (1991, p. 250) assert that although technically *Andragogy* does not qualify as a theory of adult learning, it is an important first step in explaining adult learning. Merriam (2001) further examines the debate surrounding *Andragogy* as a theory of adult learning and notes that it has been identified as a theory of adult education, theory of adult learning, set of assumptions about adult learning, or a methodology of adult education. Because the opinion of some researchers relegates adult education to less than a science, some adult educators have tried to fit *Andragogy* into the mold of science. Merriam (2001) suggests that whether or not *Andragogy* is accepted as a theory, it has become so associated with adult education that it will continue to be studied to the betterment of adult learning.

Using an andragogical approach to learning, Knowles (1990a, 57-63) posits that (1) adults learn best when they feel they have a need to learn something or their readiness to learn is based upon perceived need; (2) learning is enhanced when adults move toward self-directed learning; (3) adults' past experiences are a valuable resource for learning; (4) learning is problem-centered (readiness to learn); and (5)

adults are primarily motivated by internal factors such as increased job satisfaction, recognition, or quality of life (orientation to learning).

With the focus on adults and how they learn, Knowles' (1990a) in *The Adult Learner: A Neglected Species* points out the lack of attention paid to the adult learner and adult learning principles. In this book, Knowles examines learning, learning theory, and its application to adults. He compares assumptions about human nature and behavior and how they relate to human resource development. He concludes that the theoretical framework for adult learning via human resources development is fluid and may use a variety of theorists, depending upon the needs of the learner and the organization. The andragogical model he espouses focuses on process as opposed to content. In this model the educator creates a learning environment that is comfortable; engages the learner in planning the learning activity; identifies the learning needs; develops program objectives based upon these needs; designs learning activities based upon the needs assessment; and evaluates the learning outcomes (Knowles, 1990a).

Educators may not operationalize all of Knowles' assumptions about adult learning or may pick and choose how they apply the theory in what Rachal (2002) terms "paradigm devolution." Rachal (2002) defines the term as one in which the application of the theory devolves over time into something that only resembles the original theory. In spite of this, many educators utilize principles of Knowles' theory of andragogy as they approach adult learning. Twycross (2002) identifies nursing students as adult learners and suggests that in nursing education, a pedagogical

approach may be necessary to introduce new concepts but that an andragogical approach should predominate.

Knowles (1990b) suggests that adults are distinguished by the need for self-direction and self-responsibility. Since knowledge is assumed to be derived from past experience, adults might be expected to benefit more from experiential learning activities such as case-study or problem-solving. These activities use previous experiences in developing solutions to learning problems. For program planning in the adult learning context to be effective, it must involve learners so that relevant content that is discovery oriented is designed.

Cross (1981) proposes the *Characteristics of Adults as Learners* (CAL) model as another way of understanding adult learning. Cross uses the variables of personal characteristics and situational characteristics to differentiate between adult and pre-adult learners. Personal characteristics involve components of physiology/aging, sociocultural/life phases, and psychological/developmental stages. Examples include such things as the adult assuming the adult role of marriage or career development that does not yet apply to the pre-adult learner. Situational characteristics involve components of part-time learning versus full-time learning and voluntary learning versus compulsory learning. Merriam and Caffarella (1991, p. 253) question the identification of CAL as a theory of adult learning because it centers on the characteristics of learning rather than the differences in how adults and pre-adults learn. Again, they also see an overlap in the characteristics that differentiate adult and pre-adult learners.

Life-Situation/Trigger Event

Many theories of adult learning have some aspect of a life-situation or trigger event that prompts the individual to overcome a perceived deficit (Jarvis, 1987; Knox, 1980). McClusky's *Theory of Margin* (1979) examines the relationship between "load" or the demands of living and the "power" or ability to meet those demands. The margin is what is left after one subtracts the demands of living from the ability to meet those demands. McClusky theorizes that the greater the margin, the more energy the adult has to devote to learning activities. Instructor-generated load in the form of attitude, behavior, task, and environment can lead to unnecessary loss of energy required to accomplish a learning activity. Merriam and Caffarella, (1991, p. 255) argue that this model concentrates on when learning is most likely to occur as opposed to how the adult actually learns.

Knox's *Proficiency Theory* (Knox, 1980) focuses on the idea that there is a discrepancy between the current and the preferred level of proficiency and this discrepancy provides motivation for learning. This idea coincides with the notion that a primary motivation for adult learning is job related: to learn a skill or to improve a skill. Understanding discrepancies between current and desired proficiencies is an integral component in developing strategies for increasing the adult learner's proficiency in a particular area of learning.

Jarvis' *Theory of Adult Learning in the Social Context* (1987) focuses on an individual's confrontation with a situation in which the learner has little experience. According to Jarvis, this experience is the impetus for change. Although his experience is in the British education system, it has implications for adult learning

worldwide. In *The Theory and Practice of Learning*, Jarvis, Holford and Griffin (1998) indicate student learning should be relevant to changing social realities. Merriam and Caffarella (1991) indicate that in Jarvis's theory, all experiences occur within a social situation and there are nine possible routes a person might undertake to achieve learning outcomes (pp. 256-259). These outcomes range from no learning at all to the higher levels of reflective practice and experimental learning.

Transformational Learning

Mezirow, Freire, and even Horton conceptualize adult learning as a change in consciousness. These theorists refer to the idea that adult learning is a process of identifying personal assumptions, values, and beliefs and then critically reflecting upon them. As a result, the learner is transformed into a new perspective of life and action. Adult learning, then is for personal change and transformation. In Mezirow's (2000) *Perspective Transformation Theory,* one experiences a "disorienting dilemma" that provides impetus for the learner to reassess assumptions, values, and beliefs and transform personal and/or social views. Freire espoused the theory of *Conscientization* as a process of becoming aware of factors that shape our lives, and of our capacity to transform that reality (Freire, 2000). It was Freire's contention that social change is the goal of education and always accompanies critical reflection. In Freire's view, education was not neutral but rather either liberating or oppressive. Freire further viewed education as either "banking" in which the learner receives deposits of knowledge, or "dialogical" in which the learner and facilitator co-communicate and consciousness is raised. Horton (1990), likewise, viewed the adult learning experience through the lens of social change. The experiences of the adult

were viewed as the content for learning and reflection was seen as the process for adult learning. Horton suggested that education never simply reaffirms the status quo, but challenges it so real change results.

Characteristics of Adult Education

One characteristic of adult education is its largely voluntary nature. This is one reason that some educators do not consider staff development true adult education. However, a seminal study by Johnstone and Rivera published in 1965 (as cited in Merriam & Caffarella, 1991, p. 64) investigated participation in learning activities among adults. These researchers found that adult learners were more likely to be engaged in learning activities that they found to be meaningful, practical, purposeful, and skill-oriented as opposed to academic-oriented. Therefore, adults are more likely to be motivated to participate in learning activities by their self-interest and perceived self-benefit. It seems then, that if it can be demonstrated to the learner that the continuing professional education program is beneficial, the adult learner can be expected to perform better and the results may be longer lasting.

Furthermore, the researchers found that vocational, home, and family life categories comprised 44 % of all formal courses that adult learners studied (Johnstone & Rivera as cited in Merriam & Caffarella, 1991, p. 64). In addition, Johnstone and Rivera (as cited in Merriam & Caffarella, 1991, p. 80) identified vocational goals as a major impetus for becoming involved in continuing education. Of the eight identified reasons for participation in adult education, vocational-related questions were frequently identified as reasons to participate. Questions that referred to "preparing for a new job or occupation (36%)" and "for the participant's

current job (32%)" (Johnstone & Rivera as cited in Merriam & Caffarella, 1991, p. 80) were areas that were ranked two and three in order of importance to the adult learners studied. Other reasons for participation in adult education included "other work or job-related reasons." This "landmark" study would seem to support the notion that staff development is a legitimate role for adult education.

Houle's pioneering study, *The Inquiring Mind*, published in 1961, identified a tri-pronged typology of motivational orientation for adult learners. Although only a small sample of 22 participants was studied, it is considered a ground-breaking study. The three categories of adult learners include goal-oriented learners, activity-oriented learners, and learning-oriented learners (Houle, 1961). The "goal-oriented" category of learners consists of learners who use the learning activity to achieve an identified goal. This category most closely relates to continuing professional education as an adult education learning activity. Adults pursue learning for a variety of reasons. One of the compelling reasons is to meet job expectations or improve job opportunities.

Finally, a composite, fully developed theory of adult learning does not currently exist. Each of the theories discussed above has its detractors and proponents. An amalgamation of the above theories is the most comprehensive way of examining adult learning. The adult educator must move among and between the theories and use what is appropriate for the time and situation.

Life-Long Learning

Tight (1996, p. 35) views life-long learning as a developmental process available throughout life and not confined to the early years. However, Tight believes

that there is no standard model for life-long learning. Generally when the learning is undertaken by the organization, the activity is initiated and financed with organizational goals in mind. This type of learning is concerned with the development of the individual primarily in the capacity of an employee.

Merriam (2001, p. 111) points out that Knowles, Tough, and Houle were pioneers in the concept of self-directed learning and that learners develop the ability to direct their own learning. Secondly, transformational learning, as espoused by Mezirow, implies that during the transformational process the learner employs self-direction via critical reflection. Lastly, self-directed learning can promote emancipatory learning that leads to social change.

Illeris (2004) approaches life-long learning from a global perspective. An educator from Denmark, Illeris discusses the European Union and the World Bank's promotion of life-long learning as a way of advancing active citizenship, promoting employability, and creating a labor force to compete in the global economy. In looking at the societal implications of life-long learning, Illeris views the concept of competence as leading to the development of skills related to problem-solving.

Illeris (2004) further proposed that competence development includes the way an individual makes use of what is learned and the different possibilities for relating to and acting upon this knowledge. Illeris suggests that competence enhances the ability to problem-solve in new but similar situations and that life-long learning promotes this skill. Therefore, learning is more than just knowing, it is acting upon that knowing. In addition, Illeris advocates that today's job market and technology have many unforeseen and unpredictable situations or problems. In addition, Illeris

indicates that in general when questioned, participants in adult education programs in Denmark identify work-related reasons for participation. (Illeris, 2004, p. 134).

Introductory nursing programs must instill into their students the need and desire for life-long learning. Adults learn best when the educational offering is geared closely to their interests. In addition, experiential learning in which learners take from their own experiences and build upon them is the most effective method for transferring knowledge and application.

Continuing Professional Education

Continuing professional education is a process of life-long learning in practice. Learners should be encouraged to build upon what they know and to seek to acquire new knowledge and skills. Continuing professional education is one aspect of the process of life-long learning that all nurses must undertake from nursing school graduation until retirement in order to maintain current knowledge and skills for competent patient care. Experienced nurses are frustrated by continuing professional education programs that deliver theory-based discussions of rules but that do not go beyond basic information (Benner, 1984). A review of current nursing practice suggests that many nurses have not progressed from Benner's category of novice or advanced beginner in pain management to higher levels such as competent, proficient, or expert. Competent to expert nurses desire continuing professional education programs that take experiences with which they are familiar and challenges them to develop new ways of looking at the situation. This fits with andragogy's assumptions related to the learner's experiences.

Because most adults are gainfully employed during their adult years, the workplace is a significant arena for learning. This learning is often through continuing professional development, or the process by which health care professionals such as nurses keep current in knowledge and skills necessary to meet the needs of patients, meet institutional requirements, and maintain their own professional development. Continuing professional education then, is the vehicle used to meet the continuing professional development demands of competent practice. The application of principles of adult learning to continuing professional education may increase the effectiveness of the educational programs. These principles include a determination by the adult learner of a need to know a particular thing. Secondly, utilization of the reservoir of experiences helps shape the learning experience. Thirdly, self-direction in the form of personal and professional responsibility for development is an essential component of adult learning.

Daley (2002) identified four characteristics that relate to how professionals process and implement new knowledge. These were: allegiance to the profession; nature of professional work; variations in organizational culture; and level of independence and autonomy. It was Daley's contention that with an understanding of these characteristics, the adult educator can better develop a program of continuing professional education.

Using nurses as an example, Daley (2002) indicated that these professionals' interaction with colleagues increased their allegiance to the profession. For instance, nurses often bring back new ideas from continuing professional education programs and share it with colleagues and managers, in part because they are comfortable in

bringing new ideas to their professional community. Daley (2002) further described the nature of professional work as that dedication to and involvement with the profession. Nurses often seek continuing professional education to learn how to better provide care to a specific type of patient.

In examining the variations of organizational culture, Daley (2002) commented that nursing was frequently in a differentiated culture in which the "politics of the organizational culture shapes learning and the use of information in professional practice" (p. 84). For example, if the knowledge the nurse gains from a continuing professional education program was unlikely to be used because of political or financial considerations, then the nurse simply ignored the information.

The level of independence and autonomy that Daley (2002) associated with nursing practice was contingent upon the bureaucratic structure of the health care system. In this instance, the nurse attempts to find creative ways to circumvent the organizational structure.

In light of these four characteristics that influence professional learning, Daley (2002, pp. 86-87) advocated that continuing professional education providers base their educational offerings on actual professional practice situations; encourage sharing, networking, and collegiality to further professional identity development; and develop continuing professional education programs that assist the professional in utilizing the new knowledge in the practice setting.

Furthermore, the principles of andragogical instruction have implications for designing continuing professional education programs. The environment, presentation, and content are all important aspects of program planning. The adult

learner's experience is a key aspect to consider when planning continuing professional education. Knowles (1990a, p.141) suggested that the staff development educator must first identify the resources available in the organization that may be used in developing the staff. Next the educator must identify how best to use those resources in a systematic and continuous way. In the context of this study, continuing professional education then has to do with the development of knowledge and understanding of the concepts related to pain management.

The principles of andragogy have further implications for planning and designing continuing professional education. The learner needs to know the rationale for the education program and be able to relate the instruction to personal/professional experiences. The educational offering should be problem-centered instead of content-centered. Staff development educators should view themselves as facilitators rather than teachers. Strategies such as case-study vignettes, problem-solving exercises, role-playing, nursing rounds, and simulations (including computer-assisted-instruction) are process-oriented methods of instruction that fit the andragogical model.

In his classic work, *The Meaning of Adult Education*, Eduard Lindeman (1926, pp. 8-9) addressed the concept of how adults learn. Lindeman proposed the idea that learner-centered programs in adult education should focus on situations familiar to the learner rather than be governed by subject matter or established curriculum. Furthermore, Lindeman identified the learner's experiences as being of paramount value in developing learner programs (pp.9-10). Lindeman also proposed that adult education programs should focus on the student's needs and interests.

As mentioned previously, some adult educators do not accept human resource development as adult education. Nadler (1970, pp. 40-41, 60) differentiates between training and education by focusing training on improved job performance and education on improved overall employee competence. Glaser (1962) discriminates between training and education by focusing training on meeting specific objectives and education meeting broader objectives.

On the other hand, there are adult educators who see human resource development as a component of adult education. Houle and Knowles are well-known adult educators who recognized that educational design for learning situations included continuing professional education. Houle (1972, p. 44) presented major categories of educational design situations. For institutions Houle described program design occurring when a new institution is designed; an institution designs a new activity in a new format; an institution designs a new activity in an established format; or two or more institutions design an activity that will enhance their combined programs of service. Knowles (1990B, p. 69) describes the character of innovative organizations as flexible, people centered, trusting, and supportive. These organizations will be more successful in maintaining an up-to-date workforce.

Rather than punishing staff for errors, the errors can actually be an opportunity for learning, personal development and collaboration. In *The Adult Learner* (1990a p. 57-61), Knowles discusses the concepts of andragogy that apply to continuing professional education. As stated earlier, these are the following: first, adults need to feel a compulsion or desire to learn; secondly, they have a self-concept of personal responsibility for learning; thirdly, experience plays a vital role

in the adult learning experience; fourthly, adult learners must be at a point where they are ready to learn; and lastly, adults are problem-centered in their orientation to learning. Learning must be relevant. In other words, the learning must be valued in helping the learner solve problems or develop a needed skill.

In health care, mandatory continuing professional education's purpose is to ensure safe practice. However, attendance, not learning, is often the end result. The United States and Canada have required mandatory continuing professional education for physicians for over 30 years. Europe is just now beginning to explore this concept. Internationally the medical community is shifting their focus on continuing professional education and development away from amassing credit hours toward a process of self-evaluation and reflection and documenting learning and how it is applied (Bignall, 1998; Donen, 1998; du Boulay, 2000; Headrick, Wilcock, & Batalden, 1998: Peck, McCall, McLaren, & Rotem, 2000).

Although some states require a certain number of continuing education units for renewal of nursing licenses, most states rely on professional self-regulation. The state of Mississippi does not require mandatory continuing education for license renewal. Conversely, the Board of Trustees, Institutions of Higher Learning (BTIHL), the governing body for schools of nursing in Mississippi, requires a minimum 10 contact hours of continuing professional education each year for nursing faculty. The requirement must be met for continued state accreditation of each nursing program.

Nurses in the United Kingdom are mandated to engage in five days of continuing professional development every three years (Twycross, 2002). Mandatory

continuing professional education programs, however, do not guarantee professional development. Additionally, attendance at continuing professional education programs alone does not necessarily translate into gaining knowledge. The nurse may choose the continuing professional education program based upon cost, location, and/or ease of attendance rather than the potential influence on improved practice. It is finally, the responsibility of the health care professional to seek out and participate in continuing professional development that will improve nursing practice.

Donen (1998) indicates that an estimated 20% to 50% of primary care physicians are unaware of or are not implementing updated clinical practice guidelines. Furthermore, Donen posits that several studies suggest that updated practice knowledge progressively decreases after 10 years of practice. A comparable study among nurses yielded similar findings. These results imply that maintaining currency through continuing professional education is an essential component of the role of health care professional.

There is an increased focus on the results of nursing practice in the form of the health outcomes of individuals and populations. Updates of clinical knowledge are important. Nurses confront increasing accountability and liability for the outcomes of their work. Improved outcomes following continuing professional education are only sustained with repeated reinforcement. This may explain why hit or miss single offerings are not effective in transfer of learning in the long term. A comprehensive, on-going plan of education may be the most effective approach.

Donen (1998) recommends that the health care professional maintain a continuing professional development portfolio that documents the learning process,

an evaluation and educational plan, and the educational outcome. The value of this method is that it encourages reflection.

Typical motivational factors for engaging in a learning activity include such things as licensing requirements, job expectations, clinical competence, and institutional requirements. Most nurses have a personal desire to learn and to provide the best possible care for their patients. This then, is a primary impetus for them to engage in continuing professional education

If learning is a change in behavior as a result of experience, then the knowledge gained by intellect needs to be translated into sound clinical nursing practice. Twycross (2002) suggests that the literature supports the idea that continuing professional education can positively impact nurses' knowledge of pain management and behavior but that a change in practice takes time. Studies, therefore, need to measure changes over a time period of 6-12 months and not just immediately pre- and post-intervention. Furthermore, the Hawthorne effect may be involved in changes in practice, especially when the nurses are aware that their pain management practices are being observed (Twycross, 2002).

One time educational interventions aimed at improving nurses' knowledge and attitudes regarding pain management have been effective in the short term, but largely ineffective over time. If these single educational interventions were producing long-term results, then the continued assessment of nurses' knowledge would, in time, show improvement in knowledge scores. Since 2001 when JCAHO established pain management accreditation standards, most institutions have placed an emphasis on improving pain management in their patients. Some strategies include

monthly flyers relating to pain management issues and/or a pain management team and/or repeated continuing professional education programs. The question then, is will the emphasis on pain management as a result of the JCAHO requirements result in changes in nurses' knowledge of pain management in general, and nurse's knowledge of pain management of the older adult in particular?

Transfer of Learning

Adult educators are responsible for facilitating the transfer of learning or knowledge in a variety of human resource development settings. Transfer of learning has been associated with various terminology; transfer of knowledge and transfer of training are just two additional terms. Whatever the terminology used, the idea is that learners are able to take what they have learned in one context and are able to transfer that learning into other situations. An overarching purpose of education has been the ability to take what has been learned initially and apply it in different contexts. Transfer of learning enables the learner to critically think and make judgments beyond the primary learning.

Holton's model of learning transfer hypothesizes that human resource development outcomes are reflected at three levels—learning, individual performance, and organizational performance (Kirwan & Birchall, 2006, p. 255). Although this model was first utilized as a model for learning transfer evaluation, it has become the conceptual basis for Horton's Learning Transfer System Inventory which evaluates the trainee, training design, and work environment in relation to effect on transfer of learning. Motivation to learn is identified as essential to learning and therefore, essential to transfer.

Program planners devise transfer of learning plans to assist learners to apply in meaningful ways what they have learned. Assisting people to make changes in behavior has been considered the basis for transfer of learning. According to Caffarella (2002) five components serve as the basis for transfer of learning plans: context, program ideas and needs, program objectives, instructional plans, and program evaluation (p. 207).

In a review of the literature, Caffarella (2002) summarized the key influencing factors related to transfer of learning. These factors include program participants and their experiences and backgrounds; program design and execution; program content; changes required to apply learning; organizational context which includes the organizational attitude toward change and the value placed on learning and development; and community and societal forces. These influencing factors can either promote or inhibit the transfer of learning process (Caffarella, 2002, p. 211).

When planning for an educational or training program, Caffarella (2002) proposes that transfer strategies should be included at the beginning of planning for the program, throughout the program, and then after the program. Caffarella further suggests that after the program, strategies to promote transfer of learning include follow-up with the learner. These follow-up strategies may include such things as feedback and coaching, refresher courses, or mentoring (p. 215). Although follow-up strategies are the least likely to be utilized, they may yield great benefit in terms of transfer. In addition, learning styles may influence which strategies are most effective for the specific learner. Further, the availability of resources, what needs to be transferred, and the context all must be considered in the planning phase. Caffarella

points out individual transfer techniques targeting individuals include such things as mentoring, portfolios, and coaching. Those techniques targeting groups include transfer teams, support groups, and follow-up sessions. Lastly, techniques that may assist either individuals or groups include networking, reflection and technological strategies such as chat rooms.

In a study of 112 nurse mangers in Ireland, Kirwan and Birchall (2006) evaluated four separate but similar management continuing education programs delivered by the same provider in relation to transfer of learning. The continuing education occurred over 12 days during a six month period. The participants were surveyed using Holton's model of transfer of learning. There was a 64% return rate on the surveys.

Using *Horton's Learning Transfer System Inventory*, Kirwan and Birchall (2006) evaluated readiness to learn, motivation to transfer, supervisor support, perceived content validity, and feedback and coaching. The findings suggested that motivation to transfer was central to transfer of learning (e.g., "I get excited when I think about trying to use my new learning in my job" [Kirwan & Birchall, 2006, p. 259]). Based upon their findings, Kirwan and Birchall proposed that transfer of learning can best be facilitated by having a learner who is ready to learn, is motivated to learn, and is motivated to apply that learning. In addition, they found that a high level of self-efficacy or confidence in the learner's ability to apply the learning in practice was essential. Factors in the work environment that enhanced transfer of learning included the amount of support from peers and supervisors, the amount of positive feedback and coaching received, and organizational support. Barriers to

transfer of learning were identified as resistance to change and manager sanctions. These were likely related to an unsupportive work climate.

Frequently, educators assume that because the content has been presented, the material has been learned. This presupposition that transfer of learning occurs automatically is erroneous. Benander and Lightner (2005) in a study of the literature found that transfer of learning is rare. They contend that there are four primary reasons why transfer of learning does not occur. They believe that students (a) did not learn the material in the first place; (b) did not understand the connections between the material and the application; (c) are unable to use the material in meaningful ways that are similar but are under different circumstances; or (d) the instruction itself was faulty (p. 199).

As a result of this interest in transfer of learning, Benander and Lightner (2005) joined with other members of a multidisciplinary faculty learning community devoted to the study and application of transfer of learning. One outgrowth of this group was the identification of strategies to promote transfer of learning. The use of reflective writings by learners in the context of an academic course permitted the faculty to share their expectations of transfer of learning and to assist the learners in forming habits of using knowledge in new and different ways. The learning community identified recommendations to teach for transfer. These were:

1. Provide explicit expectations of how the facilitators expect transfer to occur, e.g., how the material from an anatomy and physiology class could be used in an adult health nursing class. Further the facilitator

should stress to the learners to apply what they are learning and not rely on memorization and repeating of facts from a lecture.

2. Advise the learner to take courses in sequence and to follow the program of study that groups similar courses at the same time. A curriculum is generally designed to build upon previous courses.
3. Distinguish between "need to know" and "nice to know" in course design and focus on what the learner needs to take with them at the completion of the course.
4. Model transfer behavior. Guest lecturers from other courses or discipline could be invited to speak on a topic that has interrelatedness. Additionally, faculty could use class discussions to refer to topics in other disciplines or current event that would promote transfer.
5. Assist in the development of metacognitive skills. Helping students to focus on reflecting and monitoring their own progress helps them identify how they learn best.
6. Provide learners varied opportunities to practice what they learn. Testing, presentations, and writing assignments are all varied strategies for accomplishing the goal of transfer. (Benander & Lightner, 2005)

Transfer of learning as a theoretical construct has both proponents and detractors. Lobato (2006) in a review of the literature examined the concept of transfer and the lack of agreement as to what constitutes transfer of learning, how it occurs, and to what extent it occurs. Lobato analyzed three attitudes about transfer of learning:

1) Transfer of learning is poorly formulated. This rejects the notion that new learning is based upon previous learning.

2) Transfer of learning is an accurate construct but its relationship to abstraction, knowledge, and context are not understood.

3) Learning and transfer are the same and therefore transfer needs no separate study (p. 432).

Lobato (2006) reviewed the classical transfer perspective and several alternative approaches to transfer of learning. In the classical perspective, Lobato indicated that transfer is based upon the degree to which original learning and transfer situations share identical elements. Alternative approaches share the perspective of dynamism in that transfer is active in multiple dimensions and requires a dynamic process. For example, rather than relying on the application of old knowledge to solve new problems, soliciting help from colleagues, seeking additional learning resources, and obtaining feedback can help one learn new information. Further, Lobato reported that exposure to multiple situations and comparing problem-solving solutions is another approach to transfer.

The National Research Council indicated that abstract representation of information can promote transfer of learning (Lobato, 2006, p. 441). Lobato suggested that other theorists speculate that rather than abstraction, transfer occurs through obtaining and coordinating specific knowledge for a specific situation. Process causality which is the effect of a socially situated phenomenon, social framing which is the effect of framing a learning situation to demonstrate intercontextuality between them, and discernment of differences in which transfer

occurs when the learner is able to discern the differences in training in different situations are all alternative mechanisms for transfer that are being explored.

Ottoson (1997b) explored multiple assessment approaches in evaluating transfer of learning in community education programs. Ottoson's review of the literature revealed five categories of approaches to assessing transfer of learning. According to Ottoson, transfer of training (background of social sciences) relates to the successful process of applying what is learned in one situation to another situation without alteration in the application. Knowledge utilization (background of social sciences) is theorized to use the process of critical thinking in making judgments. The learners have transferred learning when they are enlightened and can make critical judgments. Ottoson (1997b) referred to application as "the artistry of practice" (p. 91). Transfer has occurred when the learner demonstrates the ability to take knowledge and apply ideas and principles within a framework. Diffusion relates to innovation over time of a skill, an idea, or new technology that becomes pervasive. Over time computer expertise has become more pervasive among the general population. An implementation approach to assessing transfer looks at education that translates into policy. Therefore, implementation considers how ideas can be transmitted via educational programs, can influence practice and can result in public policy.

Ottoson (1997b) concluded that each of these approaches has value and that the processes that take place over time share commonalities. Because of this, educators would benefit from using a variety of assessment approaches rather than using just one or the one with which they are most comfortable.

Ottoson (1997a) conducted a study that explored evaluation of transfer of learning following an adult education program. There were originally 35 multidisciplinary participants who attended a five-day training institute. *The Application Process* framework was the theoretical basis chosen to evaluate transfer. The initial evaluation following the program revealed a high level of satisfaction with the program, increased understanding, and self-reports of participants' plans to apply what they had learned. Twenty-seven participants responded to questionnaires administered three months after the program. Although the findings from the questionnaires suggested that little application had occurred, written comments from the participants suggested otherwise. Telephone interviews were then conducted four months after the program. Ottoson found that what was facilitating for some participants was considered a barrier or a negative by others. For example, one participant found the information to be of a high level and enlightening while another participant found it to be common knowledge. Ottoson concluded that although an educator cannot tailor every offering to every participant, helping them plan for transfer may result in change.

Summary

The research of the last 30 years has demonstrated the inadequacy of pain management in the older adult. Although guidelines exist to guide in managing pain of the older adult, health care providers are either unaware or lack the proper understanding of the guidelines. Some studies have identified flaws in patient education regarding appropriate expectations for pain management. The cognitively impaired patient is often under-medicated, wrongly medicated, and/or under-assessed.

Psychotropic drugs are often substituted for pain medication in this population of patients. Other studies have highlighted deficits in documentation of pain, assessment of pain, treatment of pain, and myths regarding pain in older adults. Health care providers' attitudes toward pain in the older adult may be influenced by myths, leading to under-treatment. Finally, the preponderance of studies indicates that pain management in the older adult is insufficient.

Pain management knowledge regarding pain assessment, pharmacologic and non-pharmacologic treatment is deficient in nurses. Pharmacologic understanding is especially problematic. Patients' knowledge of what to expect in regards to proper pain management is likewise deficient. Further, patients may want to please their caregiver and not accurately report their pain level. Additional contributing factors relate to inadequate instruction in pain management during basic nursing programs and inadequate coverage of pain management in textbooks. A further barrier reported relates to time management issues interfering with proper pain management.

Although not universally accepted as adult education, continuing professional education is a major reason that adults seek educational opportunities. Utilizing principles of adult education can enhance continuing professional education programs' effectiveness. Institutions must provide sufficient human, financial, and technical resources to meet the continuing professional development pain management needs of nurses. Lastly, having accurate knowledge and informed attitudes are essential for competent clinical practice. The concept of life-long learning needs to be instilled in nursing students in their beginning programs of study as a way of remaining competent in their practice. Continuing professional

education programs are one of the means to intervene to correct deficits and inaccuracies and contribute to improved clinical practice.

There is not complete agreement on what constitutes transfer of learning or even that it occurs in a frequent manner, yet it is the goal of educators. For continuing professional education to have long-term effects on behavior and be cost-effective for the institution, transfer of learning techniques need to be included when planning, designing, and implementing continuing professional education.

CHAPTER III

METHODOLOGY

Introduction

This chapter provides a discussion of the methodological procedures and the manner in which the researcher conducted the study of nurses' knowledge of pain management and nurses' knowledge about pain and older adults. Specifically, this chapter identifies the population that was studied, the methodology that was used in data collection and analysis, and the reliability and validation of the instruments that were used for data collection.

Institutional Setting

This study took place at two regional medical centers and six extended care facilities located in a southern state. The hospitals were acute care institutions with patients across the life cycle and with a bed capacity in excess of two hundred. The extended care facilities were long-term care institutions that primarily treated older adults.

Subjects

The subjects for this study were licensed nurses of different educational preparation working on adult medical-surgical nursing units in acute care facilities (ACFs) and licensed nurses of different educational preparation working in extended care facilities (ECFs) in a southern state during 2008. Data related to continuing education programs were obtained from the staff in the education departments and the Director of Nursing at the ECFs.

This researcher obtained 118 subjects from acute care facilities and 78 subjects from long-term care facilities. The assistance of the Directors of Nursing and Directors of the Education Departments of each acute care institution and the Directors of Nursing of each long-term care institution were enlisted in obtaining permission to go to the units to collect the data. In addition, the corporate nurse for one group of ECFs was contacted for corporate permission. The Board of Directors for the corporation granted permission to use their facilities. Potential subjects were offered refreshments to gain their willingness to participate. In addition, the staff in the education department was questioned regarding continuing professional education programs in the previous six months that related to pain management.

Subjects in the ACFs were limited to nurses working on adult medical-surgical nursing units. Those subjects working in the pediatric and maternal units of the ACFs were excluded. Nurse administrators from all facilities were excluded from taking the knowledge questionnaire. Subjects were selected utilizing a convenience sample.

Design of the Study

A non-experimental, descriptive-comparative approach was used to investigate differences in knowledge of pain assessment, pharmacologic pain management interventions, non-pharmacologic pain management interventions, and knowledge about older persons among licensed nurses from ACFs and ECFs in a southern state. The descriptive-comparative design was chosen since this was non-experimental research and no attempt was made to change or control behavior or

conditions. Further, this design permitted the comparison of two groups that occurred naturally.

Human Subjects

The researcher obtained approval from the ACFs' research committees and the administration of the ECFs (Appendix A), nurse subjects, and The University of Southern Mississippi Human Subjects Protection Review Committee (Appendix B) to conduct the study of "Knowledge of Pain Management in Older Adults as a Content Area for Continuing Professional Education."

Data Collection

The subjects were administered a questionnaire consisting of Nurse Information Profile, selected questions from the Assessment and Non-pharmacologic Pain Management portion of the "Knowledge of Pain Management" questionnaire developed by Coyne et al. (1999), selected questions from the "Pain Knowledge and Attitude Survey" developed by McCaffrey (McCaffrey & Pasero, 1999), and the researcher-developed "Knowledge of Pain Management in the Older Adult" questionnaire. The Directors of Education at two ACFs and one ECF, as well as the Directors of Nursing at five ECF were interviewed using the Education Department Profile.

The following steps were used in the data collection process:

1. The researcher met with the administrators at both the ACFs and the ECFs to discuss the study and obtain written permission to carry out this research in 2008.

2. The researcher met with the Director of the Education Department at the ACFs and the Director of Nursing at the ECFs to set up dates and times for the administration of the instrument.
3. Staff were notified of the impending research study by the Directors of Nursing at the ECFs, the nurse managers at the ACFs, and by contact with the researcher. Prior to collecting data in the acute care institutions, the researcher met with nurse managers and patient care coordinators to determine the best schedule for collecting data. In two ECF cases, the researcher attended the nurses' staff meetings to present the information about the study.
4. On the assigned date and prior to administration of the questionnaire, the researcher introduced herself and explained the purpose of the study and the length of time the process would take and the method in which confidentiality would be maintained.
5. The researcher provided refreshments to the attendees.
6. Prior to administration of the questionnaire, the researcher offered attendees the opportunity to participate or withdraw without penalty. Both verbal and written assurances of confidentiality of participants were given.
7. The researcher provided an oral and written presentation of prepared instructions provided to the subjects and provided an opportunity for questions.
8. Participants were then instructed to begin.

9. The questionnaire was administered to the participants by means of reusable booklets and separate answer sheets.
10. The researcher distributed all questionnaires and collected all materials by having the subjects place the questionnaires in a sealed box with a slot in the end.
11. The researcher made appointments with and interviewed the Directors of Education and staff educators at two ACFs and two ECFs, as well as the Directors of Nursing at five of the six ECFs using the Education Department Profile.

Instruments

Initially, the researcher sought experts in gerontological nursing and/or pain management to verify the validity of the researcher developed instrument. Then prior to beginning the actual study, the researcher implemented a pilot study on the researcher-developed instrument. The pain management questionnaire and Education Department Profile were administered to 14 bachelor-prepared nurses in the Master of Science in Nursing program at a university in south Mississippi. Twelve students chose to participate in the pilot study. Revisions were made to both instruments to make them clearer, easier to read, and more consistent throughout. Suggestions included removing all caps in the category section of the demographics segment; removing the stem for questions 16 through 19; removing the source of questions for each section in the questionnaire; and removing instructions for the True/False section. Further suggestions to the Education Department Profile were implemented

to make the questions and spaces congruent. Revisions were made to both documents prior to administration in the actual study.

Instruments used in the study included the following questionnaires:

1. Nurse Information Profile. Items measuring demographic and background data such as age, licensure, employment status, nursing unit, educational background, knowledge of clinical practice guidelines for pain management, and self-identified perceptions of competency in pain management were included in this researcher-developed instrument (See Appendix C). No validity or reliability studies are deemed necessary, because the demographic data are of a factual nature.
2. Selected questions from "The Knowledge of Pain Management Questionnaire" with answers and references developed by Coyne et al. (See Appendix D) and without answers and references (See Appendix E).
3. Selected questions from "The Knowledge and Attitudes Regarding Pain Survey" with answers and references developed by Ferrell and McCaffrey (See Appendix F) and without answers and references (See Appendix G).
4. "Knowledge of Pain Management in the Older Adult Questionnaire" with answers and references developed by the researcher (See Appendix H) and without answers and references (See Appendix I).

5. "Education Department Profile" developed by the researcher (See Appendix J).

6. Answer Sheet (See Appendix K).

Development of "Knowledge of Pain Management" Questionnaire

This study used nineteen questions from the instrument "Knowledge of Pain Management" questionnaire developed by Coyne et al. (1999). The assessment and non-pharmacologic questions were utilized. In developing this questionnaire, Coyne et al. based the items on AHCPR 1992 national clinical practice guidelines for the management of acute pain in operative or medical procedures and following trauma. Although the AHCPR 1992 guidelines are no longer considered current, the questionnaire developed by Coyne et al. remains congruent with current guidelines.

The instrument examined the nurse's knowledge of pain assessment and pharmacologic and non-pharmacologic pain management strategies. It was first used among 232 medical and surgical nurses from three community-based acute-care hospitals in southern Mississippi. Section I contained demographic questions designed to elicit information related to subjects' age, unit, and level of nursing education. Section II contained a 50-item instrument composed of true-false and multiple-choice questions. The instrument was sub-divided into three segments: questions 1-10 measure nurses' knowledge of pain assessment; questions 11-40 measure nurses' knowledge of pharmacologic pain management interventions; and questions 41-50 measure nurses' knowledge of non-pharmacologic pain management interventions. The instrument was pilot-tested prior to its first use (Coyne et al.,

1999). Coyne et al. indicated that the instrument could be completed in 20-30 minutes.

Content validity. In 1992 AHCPR issued Clinical Practice Guidelines for Clinicians, an abbreviated guideline, and a patient pamphlet. Over 570 research studies provided the basis for formulating these practice guidelines. Coyne et al. (1999) used these professional standards for clinical practice in developing the instrument to measure nurses' knowledge of pain assessment and pain management. Each item was cross-referenced with the AHCPR Clinical Practice Guidelines for Clinicians (1992) for supporting rationale for the question.

Reliability of the Instrument. Using subjects from a West Virginia hospital in the fall of 2000, the researcher completed a reliability study of the instrument "Knowledge of Pain Management" questionnaire developed by Coyne et al. (1999). The study evaluated the test-retest reliability of a paper and pencil pain assessment and pain management knowledge quiz, using true-false and multiple-choice questions. Reliability of the instrument was determined using the test-retest method two weeks apart. Sixty-five nurses completed both Test A and Test B of the "Knowledge of Pain Management" questionnaire. The nurses in the study were responsible for patients on nine adult medical-surgical units, including an adult ICU-CCU and emergency department, in an acute care public hospital in West Virginia. The sampling method was non-probability convenience sampling. The design for the study was non-experimental and the approach was descriptive.

Item difficulty revealed agreement of .7 or better on the questions of the 50-item instrument with the exception of six questions. With the subscales, questions 1-

10 were identified as assessment questions, and the agreement was good except for one question. The second subscale, questions 11-40, was identified as pharmacological management, and the agreement was poor. It was speculated that the nurses were motivated to look up the answers to the pharmacological questions between the two testing periods. The third subscale, questions 41-50, was identified as non-pharmacological management, and the agreement was good. This was the basis for using the assessment and non-pharmacologic subscales only.

Pearson's product-moment correlation coefficients were computed to assess overall and componential stability between test-retest scores. Overall reliability for the instrument was moderate at a correlation of .52 ($p < .05$). For individual subscales, test-retest correlations were highest for assessment at a correlation of .591, second was non-pharmacological management at .445 and lowest for pharmacological management at .358.

Development of Pain Knowledge and Attitude Survey

This survey was developed by McCaffrey and used in numerous workshops. McCaffery indicated that this instrument was designed to provide nurses with "... self-evaluation of knowledge about pain management and to provide educators with information to help them set education priorities (McCaffery & Robinson, 2002, p. 36). The survey instrument was revised and placed in the January issue of *Nursing 2002*. A total of 3,282 participants submitted answers to the survey (McCaffery & Robinson, 2002). The tool was revised in the summer of 2005 "... and tested in pain education courses in fall 2005--spring 2006 to conduct psychometric analysis on the

updated version (McCaffery, M., personal communication, summer 2006)". Both hard copy and electronic versions were utilized.

Content Validity. In the 2002 version of the instrument McCaffery & Robinson identified the rationale for each question and its answer on the survey. The original survey was based on information from the American Pain Society, *AHCPR Guidelines on Pain: Nursing Implications* (audioprogram), works by Hamilton and Edgar, and McCaffrey and Ferrell. The only changes in the survey related to items eight and nine. Both revised questions were aimed at similar knowledge (eight—effects of opioids and nine—update Tylenol #3 to more commonly used Vicodin). The rationales identified in the revised version were based on publications of accepted authorities in the field of pain management: the American Pain Society, Ernst, McCaffery and Ferrell, McCaffery and Pasero, and Wilkie. McCaffery and Robinson (2002, p. 42) report that the most missed questions (8, 9, 11, 12, 13, and 15) were all related to pharmacology and addiction. These findings are similar to those of Coyne et al. (1998) from the "Knowledge of Pain Management" instrument. In McCaffery and Robinson's (2002) study only 3.9% of the participants answered all 15 questions correctly. In the 2005 revision, the developers indicated that content validity was established by a review of pain experts and that the content for the questions were derived from the American Pain Society and the World Health organization. A limitation of the 2002 study was that since this was a mailed-in survey, the participants had access to reference materials. In spite of this, only 42.2% of the participants scored 80 or higher (considered a passing score).

The researchers report that the 2005 revision established construct validity by comparing various nurses across levels of educational preparation and experience. The tool demonstrated discrimination between nurses' levels of expertise.

Reliability of the Instrument. "Test-retest reliability was established (r>.80) by repeat testing in a continuing education class of staff nurses (N = 60). The 2005 version was tested in 625 nurses attending pain conferences in the U.S. The overall coefficient alpha was .85 reflecting very good internal consistency. The item difficulty was .73, reflecting proportion of subjects answering correctly, which indicates that the test is relatively easy (McCaffery, M., personal communication, summer 2006).

Development of Knowledge of Pain Management in the Older Adult Questionnaire

This questionnaire was developed as a way to ascertain nurses' pain management knowledge in the more narrow area of how it relates to the older adult. The researcher was unable to locate an instrument that specifically tested this information. The literature review demonstrated that the experts in the field of pain management and geriatric care had identified specific knowledge areas that pertain to pain management in the older adult. The researcher used this information in developing the instrument "Knowledge of Pain Management in the Older Adult Questionnaire."

Content Validity. This questionnaire was based upon the work of Pasero, Reed, and McCaffery (1999) published in *Pain: Clinical Manual* (McCaffrey & Pasero, 1999, pp.675-676) and clinical practice standards for managing pain in older

persons developed by the American Geriatric Society and the University of Iowa Gerontological Nursing Interventions Center.

Seven questions (1, 2, 4, 7, 8, 10, 12) were derived from identified misconceptions of pain management in the elderly (Pasero, Reed, & McCaffery, 1999). These misconceptions were based on information published in studies by Butler and Gastel (1980), Harkins and Price (1992), Harkins and Price (1993), and Harkins, et al. (1994) (as cited in McCaffrey & Pasero, 1999). In addition, the work of Pasero, Reed, and McCaffery (1999) supported the development of questions 5, 11, and 14. The Acute Pain Management Clinical Practice Guideline developed by the University of Iowa Gerontological Nursing Interventions Center (1999) was the basis for questions 2, 3, 6, 9, 10, and 13. The clinical practice guideline, The Management of Chronic Pain in Older Persons, developed by the American Geriatrics Society, was the basis for questions 11 and 14. These two groups, The University of Iowa Gerontological Nursing Interventions Center and the American Geriatrics Society, are composed of experts in the field of pain management. Furthermore, this researcher submitted the questionnaire to four experts in pain management and gerontology for content validity. Changes were made in the questionnaire based upon the experts' advice.

One expert, Margo McCaffery, is a nationally recognized expert in pain management. McCaffrey developed the "Pain Knowledge and Attitude Survey" used in this study. Drs. Reinert and Coyne are pain management experts who have published works in the area of pain management. In addition, both are developers of

the "Knowledge of Pain Management" questionnaire used in this study. Lastly, Dr. Brock is an expert in care of the older adult.

There was a pilot study to determine readability of the instrument following permission being granted by the institutions' human subjects review board. Twelve registered nurses enrolled in a master of science in nursing graduate program at a university in southern state chose to participate.

Suggestions were implemented to make the questionnaire clearer, easier to read, and more consistent throughout.

Reliability of the Instrument. Reliability of the instrument has not been established.

Education Department Profile

A ten-question survey of education department staff was developed in order to determine the institutions' curricula for pain management and any continuing professional education programs related to pain management that were offered in the past six months. Additionally, questions were developed regarding the staff educators' use of adult learning principles and transfer of knowledge in learners. Open-ended questions were asked and more than one person was interviewed at several health care facilities.

The Education Department Profile was administered to 12 bachelor-prepared nurses in the Master of Science in Nursing program at a university in south Mississippi. Suggestions were implemented to make the questions and spaces congruent.

Analysis of Data. The researcher determined if differences existed between licensed acute care nurses' and licensed extended care nurses' pain management knowledge and age, years of experience, educational preparation, and full-time/part-time practice, as well as the nurses' perceptions of their competencies in pain management and the older adult. In addition, the researcher determined the institutions' patterns of pain management education. Secondly, the researcher compared the findings of the study to determine if differences existed between licensed acute care nurses' and licensed extended care nurses' pain assessment knowledge, knowledge of pharmacologic pain management interventions, and non-pharmacologic pain management interventions. Finally, the researcher determined if differences existed between licensed acute care nurses' and licensed extended care nurses' knowledge regarding older persons.

All processing of data was conducted on a personal computer using the Microsoft Excel spreadsheet software program and transferred to SPSS for Windows software package. The instrument data from the Assessment and Non-pharmacologic Pain Management portion of the "Knowledge of Pain Management" questionnaire (Coyne et al., 1999), the "Pain Knowledge and Attitude Survey" (McCaffrey & Pasero, 1999), and the researcher-developed "Knowledge of Pain Management in the Older Adult" questionnaire were measured at the interval level. The data were analyzed using a t test for independent samples. The .05 level of significance was used as the rejection level for all hypotheses. The sample met the assumptions of the t test:

1. The sample means from the population were normally distributed.

2. The dependent variable was measured at the interval level.
3. There was equal variance in the two samples since they were the same subjects.
4. There was independence of all observation within each sample (Burns & Grove, 1997, p. 463).

Variables

Data were collected by asking the directors of the health care facilities' education departments if the institution had provided pain management continuing professional education offerings to the nursing staff over the past six months to ascertain the degree of recent preparation in pain management. In addition, information regarding the pain management curriculum at each facility and how it was communicated to staff at the facility was sought. Data related to the staff's previous formal education courses were obtained. Data regarding application of adult learning principles, the extent to which learners had input into developing continuing professional education programs, and transfer of knowledge were obtained.

Quantitative data were collected using the *Nurse Information Profile*, selected questions from *The Knowledge of Pain Management Questionnaire*, selected questions from *The Knowledge and Attitudes Regarding Pain Survey*, and *The Knowledge of Pain Management in the Older Adult Questionnaire*. The dependent variables are the knowledge of pain assessment, knowledge of non-pharmacologic pain management, the knowledge of pharmacologic pain management and the knowledge of pain management in the older adult.

Summary

This research provides the basis for planning continuing professional education programs for licensed nurses in the area of pain management in the older adult. Further, it provided information to determine whether the JCAHO standards that have been implemented since 2001 are being effective in changing knowledge levels of pain management among licensed nurses.

CHAPTER IV

ANALYSIS OF DATA

Introduction

This study investigated the differences between licensed acute care nurses and licensed extended care nurses in their knowledge of pain management in older adults. It sampled 118 nurses working on acute care floors in two hospitals in a southern state and 78 nurses working in six extended care facilities (ECF) in a southern state. In the case of the ECF, the nurses were tested on all three eight-hour shifts over a period of one to three days for each of the six facilities. The nurses in the acute care facilities (ACFs) were tested on two twelve-hour shifts over a period of three days each. The data collection occurred over a nine-week period. In addition, the persons responsible for planning continuing education for the nurses at each of the eight facilities were interviewed. In the case of the ECF, the Director of Nursing was the responsible person for four of the six facilities. Two facilities employed a designated nurse who was responsible for education along with the Director of Nursing. In the case of the hospitals, the researcher interviewed the Director of Education and or staff in the Education Department.

Demographic Data

Table 2 examined the comparisons of the subjects by gender and age.

Table 2.

Type of Facility by Gender and Age of Subjects

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Gender						
Females	102	86.4	68	87.2	170	86.7
Males	16	13.6	10	12.8	26	13.3
Total	118	100.0	78	100.0	196	100.0
Age						
20-30 yrs	35	29.7	22	28.2	57	29.1
31-41 yrs	23	19.5	19	24.4	42	21.4
42-52 yrs	37	31.4	21	26.9	58	29.6
53-63 yrs	22	18.6	11	14.1	33	16.8
64 + yrs	1	0.8	5	6.4	6	3.1
Total	118	100.0	78	100.0	196	100.0

In reviewing Table 2, it is interesting to note that the two groups of nurses were similar in both percentages of age and gender. In regards to gender, the percentages were nearly identical with females being the overwhelming gender. The two groups were similar in age distribution with the 20-30 year age group being the

most similar according to the percent of the whole and the 64 + group being the least similar. The greatest number of nurses for both groups were in the 20-30 and 42-52 age groups. As would be expected, the lowest percentage of nurses was in the 64 + age group. Although only a difference of four nurses, the ECF nurses were more likely to be 64 years and older.

Table 3 examined the comparisons of the subjects by licensure, educational preparation, and years employed as a nurse.

Table 3.

Type of Facility by Licensure, Education Preparation and Years Employed of Subjects

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Licensure						
LPN	15	12.7	55	70.5	70	35.7
RN	103	87.3	23	29.5	126	64.3
Total	118	100.0	78	100.0	196	100.0

Table 3 (continued).

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Education Preparation						
LPN	27	22.9	54	69.2	81	41.3
RN AD	57	48.3	17	21.8	74	37.8
Diploma	2	1.7	0	0.0	2	1.0
BSN	31	26.3	7	9.0	38	19.4
MSN	1	0.8	0	0.0	1	0.5
Total	118	100.0	78	100.0	196	100.0
Years Employed						
0-5 yrs	34	28.8	29	37.2	63	32.1
6-10 yrs	26	22.0	17	21.8	43	21.9
11-15 yrs	15	12.7	10	12.8	25	12.8
16-20 yrs	24	20.3	11	14.1	35	17.9
21 + yrs	19	16.1	11	14.1	30	15.3
Total	118	100.0	78	100.0	196	100.0

In Table 3 it is worthy to note that acute care nurses were overwhelmingly licensed as Registered Nurses (RNs) while ECF nurses were predominantly licensed as Licensed Practical Nurses (LPNs).

Likewise there were considerable differences between the two groups regarding educational preparation. The ECF nurses were predominantly prepared at the LPN level, while the ACF nurses were predominantly prepared at the RN associate degree level. Additionally there were two diploma-prepared nurses and one MSN-prepared nurse among the ACF nurses and none among the ECF nurses.

Years employed as a nurse similarly yielded differences between ACF nurses and ECF nurses with the greatest disparity being between those nurses with the least work experience (see Table 3). Years 6-15 were almost identical for both groups. The nurses with the least experience were the groups with the highest employment percentages in both groups (ACF nurses = 28.8 % of the total number of nurses in ACFs and ECF nurses = 37.2% of the total number of nurses in ECFs).

Table 4 considered the employment status of the nurses.

Table 4.

Type of Facility by Employment Status of Subjects

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Employment						
Full-time	112	94.9	69	88.5	181	92.3
Part-time	6	5.1	8	10.3	14	7.1
Total	118	100.0	78	100.0	196	100.0

In evaluating Table 4, it is interesting to note that the two groups of nurses were similar in both percentages of full-time and part-time employment with the ECF nurses having a slightly higher percentage of part-time employment.

Table 5 examined the nurses' knowledge of the existence of pain management clinical practice guidelines, whether the nurses had reviewed them within the past 12 months and whether the nurses knew how to access either a hard copy or electronic copy of the guidelines.

Table 5.

Type of Facility by Degree of Familiarity of the Subjects with Clinical Practice Guidelines for Pain Management

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Familiar With Guidelines						
Yes	105	89.0	64	83.1	169	86.7
No	13	11.0	13	16.9	26	13.3
Total	118	100.0	77	100.0	195	100.0
Reviewed in past 12 months						
Yes	67	57.3	38	48.7	105	53.8
No	50	42.7	40	51.3	90	46.2
Total	117	100.0	78	100.0	195	100.0
Can Locate a Hard Copy						
Yes	76	65.0	40	51.3	116	59.5
No	41	35.0	38	48.7	79	40.5
Total	117	100.0	78	100.0	195	100.0

Table 5 (continued)

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Can Locate an Electronic Copy						
Yes	67	56.8	26	33.3	93	47.4
No	51	43.2	52	66.7	103	52.6
Total	118	100.0	78	100.0	196	100.0

Table 5 assessed the nurses' familiarity with and ability to access the pain management clinical practice guidelines. Both groups indicated that they were familiar with the clinical practice guidelines with the acute care nurses indicating a greater familiarity. The ACF nurses reported 89% familiarity with the guidelines as compared to only 83% familiarity with the guidelines among ECF nurses. One nurse in the ECFs chose not to answer the question. Both groups were similar in having read a copy of the clinical practice guidelines in the past 12 months. Approximately one-half of the ECF nurses and slightly more than one-half of the ACF nurses had read a copy. More acute care nurses knew both where to locate a hard copy of the guidelines and how to access an electronic copy than did the ECF nurses. It is worth noting that only one-third of the ECF nurses knew how to access an electronic copy.

Table 6 assessed whether the nurses had attended a continuing education program within the last six months that related to either pain management or the older

adult. It also examined whether the nurses had input into developing and accomplishing objectives for continuing education programs and whether they had input into developing programs for continuing education.

Table 6.

Type of Facility by the Continuing Professional Education of the Subjects

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
CE Pain Program 6 months						
Yes	26	22.0	14	17.9	40	20.4
No	92	78.0	64	82.1	156	79.6
Total	118	100.0	78	100.0	196	100.0
CE Older Adult Program 6 months						
Yes	29	24.6	48	61.5	77	39.3
No	89	75.4	30	38.5	119	60.7
Total	118	100.0	78	100.0	196	100.0

Table 6 (continued)

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Assist in Development and Accomplishment of Objectives						
Yes	31	26.3	27	34.6	58	29.6
No	87	73.7	51	65.4	138	70.4
Total	118	100.0	78	100.0	196	100.0
Assist in Development of CE Program						
Yes	26	22.0	27	34.6	53	27.0
No	92	78.0	92	78.0	143	73.0
Total	118	100.0	78	100.0	196	100.0

In Table 6 the findings are similar for both groups of nurses in all areas with the exception of attending a continuing educational program for older adults. Only one-fourth (24.6%) of the ACF nurses had attended a continuing education program for older adults in the past six months while almost two-thirds (61.5%) of ECF nurses had attended one. A large majority of both groups (78% ACF nurses and 82.1% ECF nurses) had not attended a continuing education program related to pain management in the past six months. It is interesting to note that neither group felt that they had

much input into either developing and accomplishing objectives or into developing programs for continuing education.

Table 7 identified the nurses' perceptions of their competency in pain assessment, pharmacological management of pain, non-pharmacological management of pain, and their ability to manage pain in the older adult.

Table 7.

Type of Facility by Nurses' Perceptions of Competency in Knowledge of Pain Assessment, Pharmacologic Pain Management, Non-Pharmacologic Pain Management, and Ability to Manage Pain in the Older Adult

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Assess						
No competency	00	0.0	00	0.0	00	0.0
Some competency	3	2.5	5	6.4	8	4.1
Mod competency	40	33.9	42	53.8	82	41.8
Above average competency	65	55.1	30	38.5	95	48.5
Expert competency	10	8.5	1	1.3	11	5.6
Total	118	100.0	78	100.0	196	100.0

Table 7 (continued)

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Pharm						
No competency	00	0.0	1	1.3	1	0.5
Some competency	6	5.1	11	14.1	17	8.7
Mod competency	55	46.6	42	53.8	97	49.5
Above average competency	51	43.2	23	29.5	74	37.8
Expert competency	6	5.1	1	1.3	7	3.6
Total	118	100.0	78	100.0	196	100.0
Non-Pharm						
No competency	00	0.0	1	1.3	1	0.5
Some competency	19	16.1	15	19.2	34	17.3
Mod competency	63	53.4	40	51.3	103	52.6
Above average competency	31	26.3	21	26.9	52	26.5
Expert competency	5	4.2	1	1.3	6	3.1
Total	118	100.0	78	100.0	196	100.0

Table 7. (continued)

	Facility					
	Acute Care		Extended Care		Total	
	Count	%	Count	%	Count	%
Older Adults						
No competency	00	0.0	00	0.0	00	0.0
Some competency	7	5.9	5	6.4	12	6.1
Mod competency	61	51.7	42	53.8	103	52.6
Above average competency	47	39.8	30	38.5	77	39.3
Expert competency	3	2.5	1	1.3	4	2.0
Total	118	100.0	78	100.0	196	100.0

In Table 7 100% of the ACF nurses and the ECF nurses rated themselves as some competency in knowledge of pain assessment and knowledge of pain management in the older adult. One ECF nurse rated the nurse's knowledge in pharmacologic and non-pharmacologic pain management as having no competency. Over one-half (55.1%) of the ACF nurses perceived their competency to be above average in the area of pain assessment while over one-half (53.8%) of the ECF nurses perceived their competency to be only moderate or average. In evaluating their perception of their competency in pharmacological pain management both ACF nurses (46.6%) and ECF nurses (53.8%) most often rated their competency to be moderate or average. It is interesting to note that almost as many ACF nurses perceived their competency in pharmacological pain management to be above

average (43.2%). Both groups were similar in their perceptions of their competency in non-pharmacological pain management. Over one-half of both groups of nurses perceived their competency to be moderate or average in the area of non-pharmacological pain management (ACF nurses = 53.4% and ECF nurses = 51.3%). Both groups' perceptions of the ability to manage pain in the older adult were similar across the board.

Test of Hypotheses

This study investigated four hypotheses. The findings are presented for each hypothesis. Information on means and standard deviations of the pain management scores is given in Table 7. It is interesting to note that the mean scores appear higher in all categories for acute care nurses as opposed to extended care nurses. Of particular interest is the rejection of the hypothesis related to the difference in the knowledge of non-pharmacological pain management scores between acute care and extended care nurses.

A multivariate F was run for the entire data set. A multivariate F compared acute care nurses to ECF nurses was $F(4,191) = 9.87$, $p<.001$, eta squared = 0.171. Therefore, there was a significant difference in one or more of the hypotheses.

Individual hypotheses were then tested.

Hypothesis $_1$

H_1 stated that there would be a significant difference in the knowledge of pain assessment scores between acute care nurses and extended care nurses. This hypothesis was accepted. $F(1, 194) = 9.03$, $p = .003$, eta sq. = .04. Acute care nurses demonstrated greater knowledge of pain assessment than did extended care nurses.

Hypothesis 2

H_2 stated that there would be a significant difference in the knowledge of pharmacological pain management scores between acute care nurses and extended care nurses. This hypothesis was accepted. $F(1,194) = 8.05$, $p = .005$, eta sq. = .040. Acute care nurses demonstrated greater knowledge of pharmacological pain management than did extended care nurses.

Hypothesis 3

H_3 stated that there would be a significant difference in the knowledge of non-pharmacological pain management scores between acute care nurses and extended care nurses. This hypothesis was not accepted. There was no significant difference on non-pharmacological pain management scores between acute care nurses and extended care nurses. $F(1,194) = 3.72$, $p = 0.55$, eta sq. = .019 There was no greater knowledge of non-pharmacological pain management between acute care nurses and extended care nurses.

Hypothesis 4

H_4 stated that there would be a significant difference in the knowledge of pharmacological and non-pharmacological pain management in the older adult scores between acute care nurses and extended care nurses. This hypothesis was accepted. $F(1,194) = 25.47$, $p < .001$, eta sq. = .116 Acute care nurses demonstrated greater knowledge of pharmacological pain management and non-pharmacological pain management in the older adult than did extended care nurses.

Education Department Profile

The Directors of Nursing at five of the ECFs and the staff educators at two ECFs were interviewed using the questions from the *Education Department Profile*. In addition the Director of Education and one additional staff educator were interviewed at one of the acute care facilities. Two staff educators were interviewed at the other acute care facility. Ten questions were asked of each of the nurses that were responsible for staff development in their respective institutions in order to determine the institutions' curricula for pain management and any continuing professional education programs related to pain management that were offered in the past six months. Furthermore, staff development personnel were questioned regarding their use of adult learning principles and transfer of knowledge in learners.

Of the eight facilities investigated, three of the educators at the ECFs reported that their institutions offered a standard curriculum for pain management for the staff while two reported that they did not. The educators at the two ACFs recounted that they offered a standard curriculum for pain management.

When asked about a standard curriculum for pain management, staff educators at five of the eight facilities responded yes. But when asked about that curriculum, the response was very meager. It ranged from teaching about the various pain scales at the ECF with no evaluation of the nurses' knowledge or skills to a more in-depth curriculum with a follow-up test and skills check-offs at the ACFs. Initial introduction to pain scales upon hiring with periodic in-service was the predominant response for ECFs. Two of the ECFs employ full-time staff educators. At one of these facilities, although no standard curriculum was identified, the educator reported the

provision of pain management handouts, one-on-one instruction, in-service offerings, and monthly staff meetings to assist the staff in development of pain management knowledge. In addition, this staff educator reported bringing in professionals from other institutions, such as hospice, who discussed pain management. At another ECF the Director of Nursing indicated that there was a weekly pain meeting with all department heads. At this time the group would discuss whether patients were exhibiting signs and symptoms of pain that were not being controlled. In addition, several educators at the ECFs indicated that the quality assurance nurses helped to identify deficits in documentation of pain management practices.

The ACF staff educators indicated that the institution provided an orientation to pain management upon hiring that included the various pain scales with the introduction of a pain scale for the non-verbal patient, a review of medications that were used for pain management, documentation on the Medication Administration Record (MAR), and assessment of the patient in pain. Further, the largest health care facility surveyed reported a pain management campaign in 2007. This institution has a pain management committee that meets quarterly and that is charged with ensuring pain management compliance with standards of practice in pain management. The ICU at this institution is currently piloting the use of a non-verbal pain scale for those patients who are not cognitively intact.

When asked whether the institution had offered a continuing professional education program related to pain management in the past six months, the educators at three ECFs reported a program while three reported none. The educators at one of the ACFs reported no program within the six months while the educators at the other

facility reported one program related to medication reconciliation that included pharmacology of pain medications.

One educator at one ECF reported taking a formal education course at a seminar at a nearby city. The associate degree prepared RN educators at the four remaining ECFs reported taking no formal education classes. The educators at both acute care facilities reported formal education courses. Two educators at one ACF indicated courses taken at the state Medical Center while in their master of science in nursing program while the educators at the other facility described taking education courses in a post-master's nursing class and a gerontology certificate.

When the educators at the ECF were asked if they applied adult learning principles in their educational offerings, educators at three ECFs replied "yes" and educators at three others replied "no". When they were asked to describe how they apply those adult learning principles they had difficulty articulating their understanding of principles of adult learning. Two educators commented that they paired certified nursing assistants (CNAs) with nurses. One educator indicated the implementation of the CNA career ladder program. One educator who was BSN prepared indicated that she taught them what they wanted to know.

The ACFs' educators all reported using adult learning principles. They identified the following as adult learning principles that they utilized:

1. Value the learner
2. Teach according to the learner's level and knowledge
3. The learner is responsible for participation
4. The learner evaluates the class

5. Even though there is some structure, the learner can direct the class

6. The ELearning system gets the learner more involved

When asked to what extent learners have input into developing programs for continuing education, all replied that the staff can self-identify and let the educator know about areas that the nurses feel the need for continuing education. In addition all reported that occasionally staff can request to attend an off-site continuing professional education program. One ECF educator stated that the staff tells the education department what education they need or supervisors indicate deficits they find and request information.

All the educators in the acute care facilities maintain that all in-service offerings ask for recommendations for future learning. They affirm that ideas for continuing education can come from individual nurses or, in the case of one facility, the Nurse Practice Committee. Also one acute care facility conducts an annual needs assessment of their nursing staff.

In promoting transfer of learning, one educator at an ECF reported using visual examples such as props, or residents for demonstration. She also indicated that she employed techniques that were directed at a variety of learning styles. She further indicated that she followed-up with those who "didn't quite understand". She stated she used follow-up questions and answers on the unit. She reported monitoring for the need for re-education. Lastly, she utilized actual resident scenarios and requested the staff problem solve the answer.

Another ECF educator mentioned using questions and answers to ascertain comprehension. She reported utilizing the quality assurance nurse for monitoring,

and she followed up when deficits were identified. One Director of Nursing reported that providing further continuing professional education improved knowledge transfer. Another ECF Director of Nursing reported that the facility no longer had a staff educator but that the facility provided a monthly in-service program on various topics to enhance knowledge transfer. Lastly, a Director of Nursing and a staff development nurse indicated that during department head meetings staff development was addressed. She reported that the department heads then discussed how best to implement any program. Chart audits and quality assurance for each nursing unit were also identified as ways to ensure knowledge transfer.

The educators in both acute care facilities mentioned follow up skills check-off demonstrations as one way of enhancing transfer of knowledge. Other methods they reported using included matching a learner with a seasoned preceptor on the unit, following up personally with learners in the clinical area, and presenting the learner with clinical case scenarios and asking for feedback based upon the scenario.

The overall result is that neither ACF nurses nor ECF nurses are doing a particularly effective job of reinforcing pain management concepts. There is no consistent curriculum that is recognized and implemented across the board regardless of setting. It does not seem to be from lack of desire but rather from lack of time and resources, full-time staff educators, and the educational preparation of the staff development educators.

The nurses perceived themselves as having little input into the development and attainment of learning objectives and continuing education programs. On the other hand, the staff developers at the health care institutions reposted that staff have

input into both development and selection of continuing education programs. This dichotomy in perception indicates that there may be need for improvement in this area.

The concepts of adult learning principles and transfer of learning were not generally understood. Some staff educators reported attempting to use transfer of learning techniques intuitively even though they were not familiar with the concept. Transfer of learning techniques are not always used to ensure that the knowledge is inculcated, retained, and applied elsewhere.

Ancillary Findings

The ancillary findings are as interesting to note as are the direct findings of this study. Table 8 identified the means and standard deviations of the four variables: knowledge of pain assessment, knowledge of pharmacologic pain management, knowledge of non-pharmacologic pain management, and knowledge of pain management in the older adult.

Table 8

Means and Standard Deviations of Knowledge of Pain Assessment and Management Variables

	Facility					
	Acute Care (n =118)		Extended Care (n =78)		Total (n =196)	
Variables	Mean	SD	Mean	SD	Mean	SD
Pain Assessment (0-9 questions)	6.41	1.32	5.77	1.64	6.15	1.48
Pharmacologic Management (0-8 questions)	4.77	1.22	4.28	1.13	4.58	1.20
Non-Pharm Management (0-10 questions)	8.14	1.26	7.76	1.47	7.99	1.36
Pain Manage Older Adult (0-14 questions)	11.77	1.4	10.64	1.69	11.32	1.63

In Table 8 it is noted that the mean scores are based on nine questions for knowledge of pain assessment, eight questions for knowledge of pharmacologic pain management, 10 questions for knowledge of non-pharmacologic pain management, and 14 questions for knowledge of pain management in the older adult. The mean score of correct answers in each of the four areas cannot be directly compared because there were a different number of questions in each area.

It is noteworthy that Table 8 demonstrates that the lowest mean score for both the ACF nurses and the ECF nurses was in the knowledge of pharmacologic pain management section. A multivariate F was run. Extended care nurses $F(3,75) = 41.93$, $p < .001$ Extended care nurses scored highest in the knowledge of non-pharmacological management of pain followed closely by knowledge of pain management in the older adult. Their next highest score was in their knowledge of pain assessment with knowledge of pharmacological pain management their lowest score.

Acute care nurses $F(3,115) = 78.64$, $p < .001$ The acute care nurses scored highest in their knowledge of pain management in the older adult. Their next highest score was in the knowledge of non-pharmacological pain management followed by knowledge of pain assessment scores. Lastly, their knowledge of pharmacological pain management was their lowest score as was the case with the extended care nurses.

Table 9 examined the percentage correct means and standard deviations of the acute care nurses and the extended care nurses scores on Knowledge of Pain Assessment, Knowledge of Pharmacological Pain Management, Non-Pharmacological Pain Management, and Knowledge of Pain Management in the Older Adult.

Table 9

Percentage Means and Standard Deviations of Knowledge of pain Assessment and Pain Management Variables

	Facility					
	Acute Care (n =118)		Extended Care (n =78)		Total (n =196)	
Variables	Mean	SD	Mean	SD	Mean	SD
Pain Assessment	71.19	14.69	64.10	18.17	68.37	16.49
Pharmacologic Management	59.64	15.19	53.53	14.09	57.21	15.03
Non-Pharm Management	81.36	12.6	77.56	14.7	79.85	13.57
Pain Manage Older Adult	84.08	10.16	76.01	12.07	80.87	11.63

It was found in Table 9 that only two percentage means (ACF nurses' Knowledge of Pain Management in the Older Adult—84.08% and ACF nurses' Knowledge of Non-Pharmacologic Pain Management—81.36%) exceeded the 80% threshold that Ferrell and McCaffrey (2005) used in *The Knowledge and Attitudes Regarding Pain Survey* to determine a satisfactory score. All other mean percentage scores for both groups in this study fell below that threshold indicating an insufficient knowledge.

Due to the fact that ACFs had higher numbers of RNs and ECFs had a higher number of LPNs, the researcher examined setting and licensure to further explain the

differences. A two-way MANOVA was performed with the resulting data found in Table 10. This Table examined the differences in the pain assessment and management scores by the type of facility and the licensure of the subjects.

Table 10.

Difference by Type of Facility and Licensure of Subjects

	RN				LPN			
	ACF		ECF		ACF		ECF	
Variables	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pain Assessment	6.49	61.35	6.00	1.78	5.87	.99	5.67	1.58
Pharmacologic Management	4.84	1.08	4.61	.84	4.33	1.91	4.15	1.21
Non-Pharmacologic Management	8.32	1.14	8.17	1.27	6.87	1.36	7.58	1.52
Pain Management In Older Adult	11.90	1.31	11.13	1.32	10.87	1.85	10.44	1.79

In reviewing the data it became apparent that the ACF nurses were primarily RNs and the ECF nurses were primarily LPNs. Therefore, Table 10 would suggest that any difference in knowledge levels might be attributed to the educational preparation and licensure of the nurses rather than the type of facility in which they practiced nursing. Registered nurses, regardless of the setting, scored higher than did LPNs.

The one area in which there was a difference based upon setting was the mean score for pain management in the older adult for both RNs and LPNs in ACFs. The mean score for RNs and LPNs in ACFs was greater than the mean score for both RNs and LPNs in ECFs. ACF nurses mean 11.77 (1.42) > ECF nurse 10.64 (1.69) ($p < .033$) for pain management in the older adult.

Licensure made a significant difference in nurses' knowledge of pharmacologic pain management ($p = .028$), knowledge of non-pharmacologic pain management ($p < .001$), and knowledge of pain management in the older adult ($p = .002$). Thus the RN is more knowledgeable regarding pharmacologic pain management, non-pharmacological pain management, and pain management in the older adult than is the LPN, regardless of setting. Although the RNs scored higher than the LPNs in knowledge of pharmacologic pain management, the mean scores for ACF RNs was 4.84 and for ECF RNs was 4.61. This was based upon eight questions. Both groups of RNs scored slightly over 50% but not more than 60% on the instrument. The RNs scored higher than the LPNs in knowledge of pain assessment but not significantly ($p = .08$).

Summary

This study investigated the differences in knowledge of pain management in older adults when examining licensed acute care nurses and extended care nurses. It sampled 118 acute care nurses working in two hospitals in Mississippi and 78 extended care nurses working in six extended care facilities (ECF) in Mississippi.

There was a significant difference in three of the four hypotheses. There was a significant difference in the knowledge of pain assessment scores between acute care nurses and extended care nurses. There was a significant difference in the knowledge of pharmacological pain management scores between acute care nurses and extended care nurses. There was no significant difference in the knowledge of non-pharmacological pain management scores between acute care nurses and extended care nurses. There was a significant difference in the knowledge of pharmacological and non-pharmacological pain management in the older adult scores between acute care nurses and extended care nurses. Registered nurses were more knowledgeable regarding pain assessment and management than were LPNs, regardless of setting.

CHAPTER V

DISCUSSION

The purpose of this research study was to investigate nurses' knowledge of pain management in the older adult as a content area for continuing professional education. This study examined two groups of licensed nurses, those working in ACFs and those working in ECFs. It provided data regarding the current knowledge base of nursing staff in these two settings in regard to pain management in general and knowledge of the older adult specifically. In addition it provided data to make recommendations for future continuing professional education in pain management. The findings indicate that although there has been some progress in nurses' knowledge of pain management, there is still much to be done.

Findings

The findings of this study were as follows:

1. The majority of nurses in both ACFs and ECFs were female.
2. The highest percentage of both licensed ACF nurses and licensed ECF nurses were in the 20-30 years and the 42-52 years age ranges.
3. The lowest percentage of nurses in both groups was in the 64 + age range with a greater percentage of extended care nurses in the 64 + age range.
4. The majority of registered nurses (RNs) worked in ACFs (87.3%) while the majority of licensed practical nurses (LPNs) worked in ECFs (70.5%).
5. Though the total numbers were small, the greatest percentage of

licensed ACF nurses were educationally prepared at the RN associate degree level (n= 118, ADN = 48.3%) followed by the RN bachelor of science (BSN) prepared nurse (n = 118, BSN = 26.3%).

6. The majority of licensed ECF nurses were educationally prepared at the LPN level (n = 78, LPN = 69.2%).
7. The highest percentage of both groups of nurses had 0-5 years experience as nurses.
8. Both groups were largely employed full-time.
9. Both groups of nurses self-reported that they were familiar with the clinical practice guidelines for pain management.
10. Licensed ACF nurses (57.3%) self-reported reading the clinical practice guidelines for pain management in the past 12 months while licensed ECF nurses (48.7%) self-reported that they had not read them.
11. Sixty-five percent of ACF nurses and 51.3% of ECF nurses self-reported that they knew where to locate a hard copy of the clinical practice guidelines for pain management.
12. Licensed ACF nurses (56.8%) self-reported that they knew where to access an electronic copy of the clinical practice guidelines for pain management but only one-third of the licensed ECF nurses (33.3%) reported the ability to access an electronic copy.
13. Only 22% of licensed ACF nurses and 17.9% of licensed ECF nurses had attended a pain management educational offering in the past six months.

14. A majority of the licensed ECF nurses (61.5%) had attended an educational offering related to care of the older adult in the past six months. Only one-fourth of the licensed ACF nurses (24.5%) had done so.

15. A majority of both groups of nurses (ACF nurses = 73.7%; ECF nurses = 65.4%) indicated that they did not have input into developing objectives and accomplishing objectives for continuing education programs.

16. Seventy-eight percent of both groups of nurses indicated that they did not have input into developing programs for continuing education programs.

17. The majority of licensed ACF nurses (55.1%) self-identified themselves as possessing above average competency in pain assessment, while the majority of licensed ECF nurses (53.8%) self-identified themselves as possessing moderate or average competency in pain assessment.

18. ACF nurses self-identified themselves as possessing moderate or average competency in pharmacological pain management (46.6%) followed by 43.2% who self-identified themselves as possessing above average competency in pharmacological pain management.

19. ECF nurses (53.8%) self-identified themselves as possessing moderate competency in pharmacological pain management.

20. The majority of both groups of nurses (acute care nurse = 53.4%;

extended care nurses = 51.3%) self-identified themselves as possessing moderate or average competency in non-pharmacological pain management.

21. The majority of both groups of nurses (ACF nurse = 51.7%; ECF nurses = 53.8%) self-identified themselves as possessing moderate or average competency in their ability to manage pain in the older adult.
22. Licensed ACF nurses in general had higher mean scores in all four areas of knowledge of pain management than did the licensed ECF nurses.
23. Licensed ACF nurses demonstrated a significantly greater knowledge of pain assessment than did the licensed ECF nurses.
24. Licensed ACF nurses demonstrated a significantly greater knowledge of pharmacological pain management than did licensed ECF nurses.
25. There was no significant difference in knowledge of non-pharmacological pain management between ACF nurses and ECF nurses.
26. As an ancillary finding, licensed ACF nurses demonstrated a significantly greater knowledge of pharmacological and non-pharmacological pain management in the older adult than did the licensed ECF nurses.
27. As a further ancillary finding, licensure was a better determinant of scores than was setting with RNs demonstrating greater knowledge of pain assessment and management than did LPNs regardless of setting.

28. Educators at the two ACFs reported offering standard curricula for pain management while the educators at only one-half of the ECFs reported standard curricula.
29. The educators at the ACFs have all taken formal education courses while only one educator at an ECF had taken a formal education course.
30. The educators at the ACFs understood many of the principles of adult learning and could articulate them. But the educators at the ECFs were unable to articulate how adult learning principles were used.
31. Educators at both the ACFs and the ECFs were not familiar with the term transfer of learning.

Conclusions

Though the total number of nurses in this study was small (n = 196), some general inferences may be made based upon the findings. Using the 80% score identified by Ferrell and McCaffrey (2005) as being the minimum score for a passing pain management knowledge score, this study found that the nurses in both ACF and ECF did not possess the minimum standard of knowledge regarding pain assessment or pharmacologic pain management. ACF nurses possessed the minimum standard of knowledge regarding non-pharmacologic pain management and pain management in the older adult. However, in examining the percentage scores of non-pharmacologic pain management and pain management in the older adult for the ACF nurses the scores were at the lower end respectively (81.36% and 84.08%). The ECF nurses did not meet the 80% benchmark in any of the four categories. The ancillary findings

support the notion that rather than the setting of acute care versus extended care, the educational preparation level of the nurses (RN vs LPN) was the deciding factor in knowledge scores. There is ample evidence that no matter the licensure or setting of nurses, continuing professional education is needed by all nurses.

Both groups of nurses, ACF nurse and ECF nurses, were similar in both percentages of age and gender. As was expected, the majority of nurses in both ACFs and ECFs were females. This coincides with what has been seen on both the state level and nationally. Traditionally, the nursing profession has been composed primarily of females. In addition, in this study the highest percentage of both licensed ACF and licensed ECF nurses according to age were in the 42-52 age range. This may relate to a nursing shortage with too few students choosing nursing as a profession and/or too few nurse educators to accommodate more students. Further, the percentage of nurses in the upper age ranges for both groups began to decline as nurses most likely approached retirement.

The majority of registered nurses (RN) worked in ACFs while the majority of licensed practical nurses (LPN) worked in ECFs. In addition, the greatest percentage of acute care nurses was educationally prepared at the RN associate degree (ADN) level followed by the RN BSN preparation level. The licensed ECF nurses were primarily prepared at the LPN level. The ACF nurses were overwhelmingly licensed as Registered Nurses (RNs) while ECF nurses were predominately licensed as Licensed Practical Nurses (LPNs). These findings compare to those found in data compiled for publication in the *Mississippi State Department of Health's FY 2008 State Health Plan* (Hoover, 2007).

Based upon the findings of this study, rather than the practice setting, the educational preparation level of the nurses may have been the reason for the difference in scores. The ancillary findings in Table 10 revealed that no matter which setting, the RNs scored higher than the LPNs did. One would expect and hope that the increased educational preparation would translate into increased knowledge scores. These findings support that conclusion.

The acuity level of the patients in hospitals generally exceeds that of the patients in the ECFs. The LPNs composed the highest percentage of nurses in ECFs. There was often one RN and two LPNs in a small facility on day shift with two LPNs staffing a night shift and a RN on call. This was important to recognize because the difference in educational level and knowledge level between a RN and a LPN was considerable. A LPN program is completed in one year and an associate degree RN program can be completed in a minimum of two years. However, a large number of ADN students take three years or more to complete. A bachelor's prepared nurse in general completes the program in four or more years. Therefore, at the outset, the ACFs have more highly qualified staff.

When examining the years employed in nursing, both groups' highest percentages of nurses also had the least experience. The percentage then decreased over time in both groups. This may be related to burn-out and/or nurses leaving the profession. There was a spike in percentages at the 16-20 years mark for acute care nurses. This may be related to the nurses approaching retirement age and desiring to remain and retain retirement benefits.

Both groups were similar in both percentages of full-time and part-time employment. Most nurses chose to work full-time. This may be related to commitment to the profession, need for full-time benefits, or the economic condition of the state at the time of the study.

Both groups indicated overwhelmingly that they were familiar with the clinical practice guidelines for pain management. Only the licensed ACF nurses, however, reported that they had read them in the past 12 months. While both groups indicated that they knew where to access a hard copy of the guidelines, knowing where to access an electronic copy of the guidelines was problematic for the ECF nurses. The ECF nurses may be less technologically savvy. What is interesting to note is that both licensed ACF nurses' and licensed ECF nurses' Knowledge of Pain Assessment scores and Knowledge of Pharmacological Pain Management scores did not reflect a familiarity with the standards of care identified in the guidelines.

The majority of both groups of nurses had not attended a pain management educational offering in the past six months. One wonders if the scores would have been higher if the nurses had been regularly attending pain management seminars, continuing professional education, or just regularly accessing the clinical practice guidelines for pain management as a form of self-study.

A majority of the licensed ECF nurses had attended an educational offering related to the care of the older adult in the past six months while very few ACF nurses had done so. As an ancillary finding the ACF nurses scored highest on the section related to the older adult yet they had not attended continuing education in that area in the recent past. One would think that the licensed ECF nurses would score highest in

this area because of the CPE and the fact that their primary patient clientele are older adults.

The state in which this study was conducted does not mandate continuing professional education for nurses to maintain licensure. Many nurses find the need to seek continuing processional education within themselves. However, unless the nurse takes the responsibility to seek continuing professional education or the institution takes the responsibility to provide continuing professional education there is no urgency to expend the time and finances to engage in this learning activity. Regardless of the nurses' licensure status, the public expects to receive reasonable nursing care in the areas of pain assessment and management. This is a mandate for continuing professional education for nurses.

The staff educators at all eight facilities indicated that the nurses had input into developing and accomplishing objectives, as well as, developing programs for continuing professional education. Yet, when queried, the actual nurses in both groups felt that they had relatively little input into any of these activities.

The curricula identified by the educators at the ACFs demonstrated consistent and systematic curricula with additional approaches such as a year-long pain management campaign and a pain management committee. The curricula identified by the educators at the ECFs were at best hit or miss and at worst non-existent. The educators at the ACFs had a better understanding of adult learning principles. This may partially account for the higher scores of the ACF nurses. Although the term transfer of learning was not familiar to the educators at any of the facilities, when it was explained, educators at both ACFs and ECFs explained several strategies that

they used to promote transfer of learning.

When asked to evaluate their competency in pain assessment, pharmacological pain management, non-pharmacological pain management, and pain management of the older adult, the two groups primarily self-identified as being of average competency or above average competency. Their knowledge scores in these areas do not reflect their perceptions. These findings are similar to those of McCaffery and Robinson (2002) in their survey of 3,088 RNs and LPNs.

In evaluating competency in knowledge of pain assessment, the majority of ACF nurses self-identified themselves as possessing above average competency in pain assessment, while the majority of ECF nurses self-identified themselves as possessing moderate or average competency in pain assessment. The ACF nurses possessed a significantly higher level of knowledge of pain assessment than did the extended care nurses. However, the scores on the Knowledge of Pain Assessment subgroup support a lower competency than both groups of nurses identified. The scores on the subgroup were troublesome because of the emphasis placed on pain assessment by JCAHO since 2001. In spite of the identification of *pain as the fifth vital sign*, there is still much to be done in assuring adequate knowledge of pain assessment.

In evaluating competency in knowledge of pharmacological management of pain, the majority of licensed ACF nurses self-identified themselves as possessing moderate or average competency in pharmacological pain management. Although the licensed ACF nurses possessed a significantly higher level of knowledge of pharmacological management of pain than did the ECF nurses, the scores for both

groups were lowest in Knowledge of Pharmacological Pain Management. The scores on the Knowledge of Pharmacological Pain Management subgroup support a lower competency than both groups of nurses identified.

Many schools of nursing have integrated their pharmacology content into the curricula. Schools of nursing for LPN and ADN RN students primarily integrate both assessment and pharmacology throughout the curricula. This may lead to fragmentation as well as content areas not being covered consistently. In most BSN programs assessment and pharmacology are taken as separate courses. Some schools teach pharmacology from a chemical composition standpoint rather than focusing on actions of the drugs and nursing implications. Some schools teach one three-hour course and assume that students have what they need to be competent clinicians. In addition there are new drugs coming to the market on a daily basis making competency difficult for nurses who attempt to keep abreast of the current drugs.

The majority of both groups of nurses self-identified themselves as possessing moderate or average competency in non-pharmacological pain management. There was no significant difference between the two groups of nurses in terms of knowledge of non-pharmacological pain management. The scores on the Knowledge of Non-Pharmacological Pain Management subgroup supported the nurses' identified competency. Non-pharmacological nursing actions have been foundational to all levels of nursing education. The basics have not changed a great deal over time. This may explain why this was average competency level for both groups.

The majority of both groups of nurses self-identified themselves as possessing moderate or average competency in their ability to manage pain in the older adult.

The licensed ACF nurses possessed a significantly higher level of knowledge of pharmacological and non-pharmacological pain management in the older adult than did the licensed ECF nurses.

Licensed ACF nurses in general had a greater knowledge of pain management in all four areas than did the licensed ECF nurses. This is troublesome because the majority of older adults, the primary care recipients of the licensed ECF nurses, experience pain frequently. The prevalence of pain in those over age 60 years of age in the general population is two times greater than those under age 60 (ACHPR, 1992a, p. 57), hence the licensed ECF nurses are dealing with this problem on a daily basis, yet they are least prepared to do so.

JCAHO implemented changes in January 2001 in the way healthcare organizations regard pain and how practitioners assess, document, and manage pain. Some institutions have pain management committees that are responsible for monitoring trends in pain management and disseminating the information to the staff. Some nursing units have a monthly pain alert, some ECFs have monthly staff meetings that as a component of the meeting the staff focuses on pain management for the residents. So with all this emphasis on pain management, why are the scores not better? Transfer of learning techniques to assist the nurses in actually learning and applying the information might be the answer. Adult learning principles applied in a systematic manner may also contribute to the adult learner nurses becoming invested in pain management.

Based upon this study, the researcher has concluded that there are aspects of several adult learning theories that have implications for CPE but Knowles' (1990A)

assumptions about adult learning provide the most coherent basis for planning CPE programs. For example, nurses will learn best about pain assessment and pain management in the older adult when they recognize and embrace the need to learn. Educators then need to make the case for the nurses so that they perceive the need to increase their knowledge in this area of nursing care. In addition, educators need to provide opportunities for learning about pain assessment and management that move the nurses toward more self-directed learning. This would involve more utilization of self-directed strategies as well as incorporation of various learning styles when planning educational programs.

Furthermore, utilizing the nurses' past experiences in planning CPE programs can be a valuable resource for learning. Case studies that involve situations similar to those situations the nurses have experienced can be helpful in motivating the nurses to engage in this learning activity.

Nurses in general desire to provide the best possible nursing care for their patients. When confronted with the problem of acute and chronic pain in older adults, by and large, the nurses are ready to learn what is necessary to provide appropriate care for their patients. Educators must provide the nurses with the information that would lead them to recognize the serious problem of poorly managed pain.

Lastly, with internal factors often driving the desire to learn, educators need to look at ways to tap into this motivation. Job recognition for not only participating and completing the CPE program but also for evidence of improved patient outcomes on either a personal level or a nursing unit level may be one strategy utilized.

Even with all of these strategies in place, the CPE may not be effective over

time without the additional attention to transfer of learning. For both ACF nurses and ECF nurses a long-term curricular plan for imparting the pain assessment and management knowledge in the older adult must be in place. This plan must include frequent interaction with nurses about the concepts and interventions associated with pain management. Cognitive, affective, and psychomotor aspects must be included. Nurses must be given feedback and encouragement along the way. Benner (1984) indicates that expert nurses do not just occur overnight. They rely on education, experience, and that intuitive leap. Longevity alone does not ensure that transformation. If nurses are to become those experts in pain assessment and management in the older adult, CPE must include principles of adult learning and transfer of learning to accomplish the goal of expert nurse.

Limitations

- This study represented a small sample size.
- It was limited to licensed nurses working on adult medical-surgical nursing units in two ACFs and licensed nurses working in six ECFs. One ACF was a public hospital and one was a for-profit institution. Five of the ECFs were owned by a corporation and one ECF was privately owned.
- The design of the study was descriptive and not experimental. The generalizability of the results was limited by the design and the sample.
- This study was limited to a short period of time in the summer of 2008. It covered a period of nine weeks.

- There was no randomization of subjects in this study. It was a convenience sample of nurses who were working during the time the researcher visited the facilities.
- Some of the nurses were former students of the researcher and were eager to participate in the study as a means of assisting the researcher.
- Geographically the study was localized to one half of one state; however the subjects were reasonably representative of the area.
- The nurses were busy nurses and could not participate on a regular schedule. They came at the time most convenient for them and the researcher accommodated their schedule. The researcher revised the schedule of data collection based upon the staff's expressed needs. For example, in several ECFs instead of coming prior to the 3-11 shift at 2:30 PM as first suggested by the Directors of Nursing, the data collection was changed to 9:45 PM when the staff indicated that was a better time for them. On the 11-7 shift some staff were administered the questionnaire after midnight while others were administered the questionnaire at 5:30 AM. Although administration of the questionnaires was intrusive to the staff's work schedule, the researcher accommodated to the times the staff identified as least intrusive.
- At some ECFs when there are only two nurses to cover two wings on the 11-7 shift, the questionnaire was administered at the nursing station as requested by the nurses. For most of the ECFs the

researcher met each of three shifts two times over a two day span. For the ACFs the researcher met two shifts two times over a three-four day period. There was some overlap of shifts. Not all employed nurses were administered the questionnaire. Some nurses were on vacation and some were on their day off on the two-four days that the researcher administered the questionnaire at each institution. Some chose not to participate.

Staff, in large part, was cooperative and stated their interest in the study. Some staff indicated that the questionnaire had sparked their interest and they intended to look up some of the answers when they had time.

Although the researcher had the instruments reviewed by a number of experts prior to administration, the issue with addressing post-operative pain care did not resonate with ECF nurses. They rarely provide direct care for new post-operative patients. Future studies should change the questions related to post-operative issues to acute pain issues.

Recommendations for Policy and Practice

One recommendation for practice focuses on providing timely and regularly scheduled pain assessment and management continuing education to ACF and ECF nurses. Both groups of nurses did poorly on these scores. Although knowledge of pain assessment and management is addressed to varying degrees in the education department of ACFs, the scores still are lower than desired. Further, knowledge of pain assessment and management seems to be largely overlooked in continuing education for ECF nurses. There is an initial overview of pain assessment and

management upon employment but no consistent program to address this in an ongoing manner. One problem may be that the ECFs have fewer resources and hence less money to provide this type of ongoing education. They often do not have the funds to regularly send their employees to continuing education programs nor do they consistently have an education department with educators whose sole responsibility is to educate the staff.

One solution may involve faculty in schools of nursing. These faculty members often are mandated by their institution's mission statement to provide service to the community and the profession. Faculty need to be encouraged to offer their services in providing expertise to both the ACF and ECF nursing population.

In addition, a systematic organized plan for imparting pain assessment and management knowledge must be standard for all health care facilities. A separate curriculum for both ACFs and ECFs is neither necessary nor desirable. Curricula that address both acute and chronic pain assessment and management, as well as pain management in the cognitively-impaired patient, needs to be developed and implemented in both ACFs and ECFs.

Use of adult learning principles in planning CPE is supported by the findings of this study. Staff Educators need CPE themselves on what is involved in adult learning and how to incorporate those principles into the CPE that they provide. In addition, the concept of transfer of learning should be the underpinning of any curriculum that is developed. Benner (1984) proposes that nurses move from novice to expert with clinical experience and that the application of transfer of learning from theory to practice is an essential component of that transfer of knowledge. Assisting

nurses to inculcate the knowledge of pain assessment and management and then transfer it to the work environment over time is the desirable end result of the staff educator.

Schools of nursing devote insufficient numbers of hours to pain management education. Because transfer of learning is so important to achieving positive patient outcomes related to pain management, schools of nursing need to increase both the time spent in pain management education and follow-up throughout the curriculum.

Organizations such as the American Society of Pain Management Nurses need to adopt a mandate to assist schools of nursing in increasing pain management strategies in the curricula. Nurses scored higher on Knowledge of Pain Management in the Older Adult and Knowledge of Non-Pharmacological Pain Management. In fact both groups scored highest in these areas; therefore, future CPE programs should address all aspects of pain management but should primarily focus on assisting the nurse in understanding pharmacological pain management with emphasis also on pain assessment.

More emphasis on pharmacology in schools of nursing may help this knowledge deficit to be improved. A multi-prong approach with schools of nursing having pharmacology integrated with focused pharmacology courses throughout the curricula is a beginning. Additionally, because LPNs and ADNs do not usually take separate assessment or pharmacology courses in their primary programs and the majority of nurses in both ACFs and ECFs are either LPNs or RN ADNs, these nurses begin their careers with a knowledge deficit in these areas. Health care institutions also must provide ongoing education in the areas of pain assessment and

pharmacology.

The nurses and administration of all facilities identified this research as a benefit and stated their interest in the results. This researcher has been asked by one extended care corporation to provide a continuing professional education program to their nurses following completion of the study. The findings from this study will be used to formulate the program. The emphasis will be on pharmacologic pain management, followed by pain assessment and pain management in the older adult with less emphasis on non-pharmacological pain management. It is hoped that an ongoing relationship with ECFs will be developed and follow-up programs will be offered. In addition, measures to test and evaluate knowledge of pain management to ensure retention and transfer of learning will be discussed with the corporate nursing staff.

Recommendations for Future Research

This study should be replicated elsewhere in both similar and differing populations. Revisions to the post-operative questions should be made prior to administration. Further, the findings of the individual questions in this study from the Coyne et al. (1999) study should be compared to the original study for differences in knowledge.

Although this study did not compare nurses' knowledge of pain assessment and pain management in the older adult using the variables of age or experience in nursing, it would be interesting to investigate whether the LPN with more experience scored higher than did the RN with less experience. A future study should compare

both licensure and experience in determining which is more significant in terms of nurses' knowledge of pain assessment and pain management in the older adult.

An outgrowth of this research should be a study that measures the effects of targeted transfer of learning techniques versus traditional continuing professional education programs on nurses' knowledge of pain management in the older adult and clinical patient outcomes. Other studies should focus on the presentation of an educational offering on pain management in the older adult and the measurement of retention of knowledge one month post-program and follow up at six month intervals.

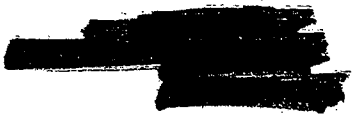
Another study could focus on transfer learning strategies such as the use of pain management case scenarios (Benner, 1984) for nurse managers to use quarterly in their staff meetings to reinforce concepts regarding pain management. Future studies should focus on the effectiveness of knowledge retention and application. A maintenance curve of learning (Baldwin & Ford, 1988) which represents the changes that occur in the transfer of learning over time may need to be assessed for the learner. The effect of continuing education programs on patient outcomes as measured by chart audit and or patient survey post hospitalization in acute care settings and by chart audit and patient survey/family survey when possible during confinement in extended care facilities would yield valuable information.

Studies to evaluate the effectiveness of a standard curriculum for acute and chronic pain assessment and management in the older adult need to be conducted in both ACFs and ECFs. Differences and similarities in knowledge level and retention following use of this curriculum should be evaluated.

The pre-licensure educational process should also be studied. It would be helpful to test the pain management knowledge of students at various points in the educational process and one year post graduation. There are implications for nursing school curricula to increase the content on pain management in general, as well as, content focused on the older adult. There must be more emphases on pain management knowledge in schools of nursing in order to adequately prepare clinicians to assess and manage pain successfully,

Future studies should address the use of various learning strategies based upon adult learning principles for pain management knowledge in both schools of nursing and the practice setting. One study could investigate the use of technology in delivering current pain management information. Case study and simulation methodology versus traditional class room presentations could be tested in schools of nursing to determine efficacy, transfer of learning, and retention over time. The findings could be used to formulate better ways of delivering pain management content to undergraduate nursing students. In addition this testing could be replicated in staff development departments for hospitals and extended care facilities.

APPENDIX A



February 12, 2008

William Carey University
Hattiesburg Campus
498 Tuscan Avenue, Box
Hattiesburg, MS 39401

Re: Wanda C. Dubuisson, RN, MN

Dear Institutional Review Board Committee Members,

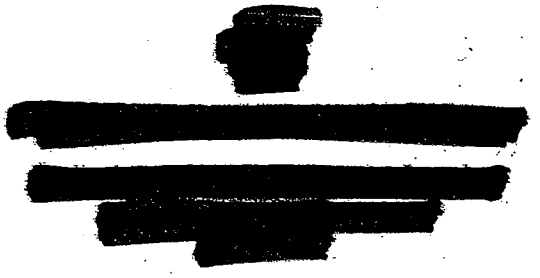
Wanda Dubuisson has approval to collect data for her dissertation, *Knowledge of Pain Management in Older Adults as a Content Area for Continuing Professional Education for Licensed Nurses,* [redacted] She will be conducting a survey of nurses' knowledge of pain management among medical-surgical nurses on adult units.

Sincerely,

[redacted]

Interim Chief Nursing Officer

[redacted]



February 21, 2008

University of Southern Mississippi
Institutional Review Board
118 College Drive #5147
Hattiesburg, MS 39406-0001

Dear Institutional Review Board Committee Members:

Wanda Dubuisson has approval to collect data for her dissertation, *Knowledge of Pain Management in Older Adults as a Content Area for Continuing Professional Education for Licensed Nurses*, at [redacted]. She will be conducting a survey of nurses' knowledge of pain management among medical-surgical nurses on adult units. If you have any questions or need more information, please call my office at 601-288-4390.

Sincerely,

[redacted]

Vice President of
Clinical Operations

"24 Hour Nursing Care for the Aged and Sick"
[redacted]

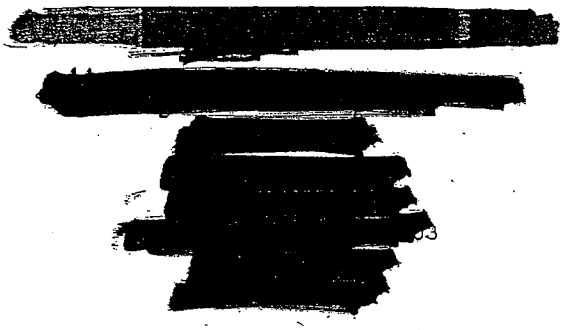
March 4, 2008

Dear Institutional Review Board Committee Members,

Wanda Dubuisson has approval to collect data for her dissertation, *Knowledge of Pain Management in Older Adults as a Content Area for Continuing Professional Education for Licensed Nurses,* at [redacted]. She will be conducting a survey of nurses' knowledge of pain management among medical-surgical nurses on adult units.

Sincerely,

[redacted], RN DON

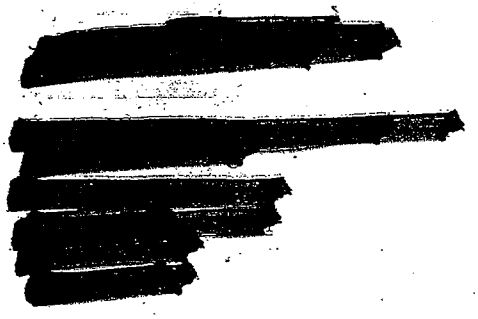


March 10, 2008

Dear Institutional Review Board Committee Members,

Wanda Dubuisson has approval to collect data for her dissertation, *Knowledge Of* Pain *Management in older adults as a Content Area for Continuing Professional Education for Licensed Nurses,* at [redacted] he will be conducting a survey of nurses' knowledge of pain management among medical-surgical nurses on adult units.

Sincerely,



APPENDIX B

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **27111202**
PROJECT TITLE: **Knowledge of Pain Management in Older Adults as a Content Area for Continuing Professional Education for Licensed Nurses**
PROPOSED PROJECT DATES: **12/01/07 to 05/01/08**
PROJECT TYPE: **Dissertation or Thesis**
PRINCIPAL INVESTIGATORS: **Wanda Dubuisson, RN, MN**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Adult Education**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **03/24/08 to 03/23/09**

HUMAN SUBJECTS REVIEW FORM
UNIVERSITY OF SOUTHERN MISSISSIPPI
(SUBMIT THIS FORM IN DUPLICATE)

Protocol # 271/202
(office use only)

Name Wanda Dubuisson, RN, MN Phone 601-544-6187
601-466-5688

E-Mail Address wanda.Dubuisson@wmcarey.edu

Mailing Address 1180 J. B. Horne Road, Hattiesburg, MS 39401
(address to receive information regarding this application)

College/Division Education and Psychology Dept Adult Education
Department Box # 5154 Phone 601-266-4621
Proposed Project Dates: From December 1, 2007 To May 1, 2008
(specific month, day and year of the beginning and ending dates of full project, not just data collection)

Title 1) KNOWLEDGE OF PAIN MANAGEMENT IN OLDER ADULTS AS A CONTENT AREA FOR CONTINUING PROFESSIONAL EDUCATION FOR LICENSED NURSES

Funding Agencies or Research Sponsors N/A
Grant Number (when applicable)

___ New Project

X Dissertation or Thesis

___ Renewal or Continuation: Protocol #

___ Change in Previously Approved Project: Protocol #

Wanda C. Dubuisson
Principal Investigator Date 11/08/07

W. Lee Fine
Advisor Date 11/8/07

Marylynn Parker
Department Chair Date 11-8-07

RECOMMENDATION OF HSPRC MEMBER

___ Category I, Exempt under Subpart A, Section 46.101 ( ) ( ), 45CFR46.
(Indicate subparagraph numbers)

X Category II, Expedited Review, Subpart A, Section 46.110 and Subparagraph ( ).

___ Category III, Full Committee Review. The applicant has been requested to provide the Office of Research and Sponsored Programs (ORSP) with twelve (12) additional copies of the applications.

HSPRC College Division Member Date

APPENDIX C

INFORMATION ABOUT

THE KNOWLEDGE OF PAIN MANAGEMENT IN OLDER ADULTS STUDY

The purpose of this study is to examine the difference in pain management knowledge and attitudes toward older persons among licensed nurses working in acute care facilities in south Mississippi and licensed nurses working in extended care facilities in south Mississippi.

- The "Nurse Information Profile", "Knowledge of Pain Management" and "Pain Knowledge and Attitudes Survey" will take approximately 15-20 minutes to complete.
- The "Knowledge of Pain in the Older Adult Questionnaire" will take approximately 10-15 minutes to complete.
- The "Education Department Profile" for HRD staff only

Completion of these questionnaires will be construed as your willingness and consent to participate in the study.

No bio-psycho-social benefits or risks to you have been associated with the study. Knowledge gained from the study will contribute to the advancement of adult education and nursing science. Your confidentiality, privacy, and anonymity will be assured in the following manner: 1) no participant will be identified by name in any report or publication associated with this study, 2) individual results will not be shared with staff, supervisors or administrators at your health care agency, and 3) questionnaires will be destroyed at the end of the study.

This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001 at 601-266-6820. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Any questions about the research should be directed to Wanda C. Dubuisson at (601) 544-6187 and Dr. W. L. Pierce, Chair at (601) 266-4224.

If you have any questions related to the study, please feel free to call or write to:

Wanda C. Dubuisson RN, MN
Doctoral Candidate
Adult Education Department
The University of Southern Mississippi
Hattiesburg, Mississippi 39406
(601) 544-6187
Dr. W. L. Pierce, Chair of Committee
(601) 266-4224

Please keep this top sheet for your records

THE KNOWLEDGE OF PAIN MANAGEMENT IN OLDER ADULTS QUESTIONNAIRE

HEALTH CARE FACILITY: _____

NURSE INFORMATION PROFILE

Directions: **Place the number of the most appropriate response in each category on the answer sheet provided**

CATEGORY	RESPONSE
1. Age	• 20 - 30 years of age _____ (1) • 31 - 41 years of age _____ (2) • 42 - 52 years of age _____ (3) • 53 - 63 years of age _____ (4) • 64 + years of age _____ (5)
2. Gender	• Female _____ (1) • Male _____ (2)
3. Nursing Licensure	• Licensed as an LPN _____ (1) • Licensed as a RN _____ (2)
4. Employment Status	• Full-time employment _____ (1) • Part-time employment _____ (2)
5. Primary Unit	• _____
6. Years in Nursing	• 0-5 years _____(1) • 6-10 years _____ (2) • 11-15 years _____ (3) • 16-20 years _____ (4) • 21 or more years _____ (5)
7. Nursing Education	☐ **highest level of nursing education achieved:** • LPN: Practical Nursing _____(1) • RN: AD or ADN _____(2) • RN: Diploma _____(3) • RN: BSN _____(4) • RN: MSN or MS _____ (5) • RN: Doctoral Degree _____ (6)

8. Are you familiar with the clinical practice guidelines for pain management?	Yes ___ (1) No___ (2)
9. Have you read the clinical practice guidelines for pain management in the past 12 months?	Yes ___ (1) No___ (2)

10. Do you know where to locate a hard copy of the clinical practice guidelines for pain management?	Yes ___ (1) No___ (2)
11. Do you know where to access an electronic copy of the clinical practice guidelines for pain management?	Yes ___ (1) No___ (2)
12. Have you attended a pain management educational offering in the last 6 months?	Yes ___ (1) No___ (2)
13. Have you attended an educational offering related to care of the older adult in the last 6 months?	Yes____(1) No____(2)
14. Do you have input into developing objectives and accomplishing objectives for continuing education programs?	Yes____(1) No____(2)
15. Do you have input into developing programs for continuing education?	Yes____(1) No____(2)

For questions 16-19 please indicate the category that best describes your perception of your competency in:

16. Pain assessment.
    a. No competency
    b. Some competency
    c. Moderate competency
    d. Above average competency
    e. Expert competency

17. Pharmacologic pain management.
    a. No competency
    b. Some competency
    c. Moderate competency
    d. Above average competency
    e. Expert competency

18. Non-pharmacologic pain management.
    a. No competency
    b. Some competency
    c. Moderate competency
    d. Above average competency
    e. Expert competency

19. The ability to manage pain in older adults.
    a. No competency
    b. Some competency
    c. Moderate competency
    d. Above average competency
    e. Expert competency

APPENDIX D

KNOWLEDGE of PAIN MANAGEMENT QUESTIONNAIRE WITH REFERENCES AND ANSWERS

20. The most reliable indicator of the existence and intensity of acute pain is____. (ACHPR 1992, p. 11)
    a. The patient's vital signs
    b. The patient's self-report of pain*
    c. The patient's non-verbal manifestations of pain, i.e., facial grimacing and restlessness

21. Practice Guidelines at your hospital recommend the use of which type of pain assessment tool: (ACHPR 1992, p. 12)
    a. An adjective rating scale
    b. A visual analog scale
    c. A numerical rating scale*
    d. Other (please explain):

22. Pain assessment and documentation of results should occur _____ with postoperative adult patients. (ACHPR 1992, p. 12)
    a. At least every hour
    b. At least every 2 hours*
    c. At least every 4 hours

23. It is estimated that the prevalence of pain is ____ in those over age 60 than with those under 60. (ACHPR 1992, p. 57)
    a. The same as
    b. Two times greater*
    c. Three times greater

24. Less than 50% of surgical patients report experiencing adequate pain management during the postoperative period. (ACHPR 1992, p. 4)
    a. True*
    b. False

25. Once the patient has recovered from anesthesia, the mainstay of pain assessment should be the patient's self-report to assess pain perceptions and their cognitive response. (ACHPR 1992, p. 11)
    a. True*
    b. False

26. Relying on patients' or families' demands for analgesia on an "as needed" basis will produce intervals of inadequate pain control and worsen burdens of anxiety, loss of personal control, sleeplessness, and fatigue after surgery. (ACHPR 1992, p. 14)
    a. True*
    b. False

27. Stress hormones are released when postoperative pain occurs and promote the breakdown of body tissue, impair immune function, and increases in metabolic rate, blood clotting, water retention, and pulse rate, and trigger negative emotions. (ACHPR 1992, p. 3)
    a. True*
    b. False

28. A suitable interval for reassessing the effectiveness of analgesics is... (ACHPR 1992, p. 12)
    a. 30 minutes after parenteral drug therapy and 2 hours after oral analgesics have been administered
    b. 30 minutes after parenteral drug therapy and 1 hour after oral analgesics have been administered*

NONPHARMACOLOGIC MANAGEMENT OF PAIN

29. The clinical rationale for the combined use of cold and then heat packs is that cold packs facilitate the clearance of tissue toxins and accumulated fluids and heat packs decrease tissue injury response. (ACHPR 1992, p. 24)
    a. True
    b. False*

30. Documentation of effectiveness of nonpharmacologic pain interventions, such as turning, repositioning, and relaxation measures are unnecessary because they are expected and routine nursing strategies. (ACHPR 1992, p. 11)
    a. True
    b. False*

31. Research indicates that "easy listening" music and "personally preferred" music do not significantly decrease postoperative pain. (ACHPR 1992, p. 23)
    a. True
    b. False*

32. Research indicates that patients who are provided preoperatively with detailed descriptions of discomforts to be expected postoperatively, experience decreased pain, decreased analgesic use, and shorter hospital stays. (ACHPR 1992, p. 22)
    a. True*
    b. False

33. Preoperative patients should receive instruction regarding the importance of coughing, deep breathing, turning, and walking activities, along with suggestions on how to decrease physical discomforts from such activities. (ACHPR 1992, p. 22)
    a. True*
    b. False

34. Nonpharmacologic measures for pain control are divided into two (2) classifications, cognitive/behavioral (teaching, relaxation techniques, etc) and physical agents (hot/cold packs, TENS, position changes). (ACHPR 1992, p. 21-23)
    a. True*
    b. False

35. Nonpharmacologic approaches are intended to _____, not_____ pharmacologic measures. (ACHPR 1992, p. 22, 76)
    a. Increase; decrease
    b. Supplement; replace*

36. Brief jaw relaxation procedure is an effective measure to decrease pain and analgesic use. (ACHPR 1992, p. 23)
    a. True*
    b. False

37. Post-operative ambulation, exercise, and mobility are improved by around the clock pharmacologic pain control and nonpharmacologic interventions. (ACHPR1992, p. 22)
    a. True*
    b. False

38. The combination of relaxation techniques and pharmacologic measures increase self report of pain. (ACHPR 1992, p. 22)
    a. True
    b. False*

APPENDIX E

KNOWLEDGE OF PAIN MANAGEMENT QUESTIONNAIRE

20. The most reliable indicator of the existence and intensity of acute pain is____.
    a. The patient's vital signs
    b. The patient's self-report of pain
    c. The patient's non-verbal manifestations of pain, i.e., facial grimacing and restlessness

21. Practice Guidelines at your hospital recommend the use of which type of pain assessment tool:
    a. An adjective rating scale
    b. A visual analog scale
    e. A numerical rating scale
    f. Other (please explain):

22. Pain assessment and documentation of results should occur _____ with postoperative adult patients.
    a. At least every hour
    b. At least every 2 hours
    c. At least every 4 hours

23. It is estimated that the prevalence of pain is ____ in those over age 60 than with those under 60.
    a. The same as
    b. Two times greater
    c. Three times greater

24. Less than 50% of surgical patients report experiencing adequate pain management during the postoperative period.
    a. True
    b. False

25. Once the patient has recovered from anesthesia, the mainstay of pain assessment should be the patient's self-report to assess pain perceptions and their cognitive response.
    a. True
    b. False

26. Relying on patients' or families' demands for analgesia on an "as needed" basis will produce intervals of inadequate pain control and worsen burdens of anxiety, loss of personal control, sleeplessness, and fatigue after surgery.
    a. True
    b. False

27. Stress hormones are released when postoperative pain occurs and promote the breakdown of body tissue, impair immune function, and increases in metabolic rate, blood clotting, water retention, and pulse rate, and trigger negative emotions.
    a. True
    b. False

28. A suitable interval for reassessing the effectiveness of analgesics is...
    a. 30 minutes after parenteral drug therapy and 2 hours after oral analgesics have been administered
    b. 30 minutes after parenteral drug therapy and 1 hour after oral analgesics have been administered

NONPHARMACOLOGIC MANAGEMENT OF PAIN

29. The clinical rationale for the combined use of cold and then heat packs is that cold packs facilitate the clearance of tissue toxins and accumulated fluids and heat packs decrease tissue injury response.
    a. True
    b. False

30. Documentation of effectiveness of nonpharmacologic pain interventions, such as turning, repositioning, and relaxation measures are unnecessary because they are expected and routine nursing strategies.
    a. True
    b. False

31. Research indicates that "easy listening" music and "personally preferred" music do not significantly decrease postoperative pain.
    a. True
    b. False

32. Research indicates that patients who are provided preoperatively with detailed descriptions of discomforts to be expected postoperatively, experience decreased pain, decreased analgesic use, and shorter hospital stays.
    a. True
    b. False

33. Preoperative patients should receive instruction regarding the importance of coughing, deep breathing, turning, and walking activities, along with suggestions on how to decrease physical discomforts from such activities.
    a. True
    b. False

34. Nonpharmacologic measures for pain control are divided into two (2) classifications, cognitive/behavioral (teaching, relaxation techniques, etc) and physical agents (hot/cold packs, TENS, position changes).
    a. True
    c. False

35. Nonpharmacologic approaches are intended to _____, not_____ pharmacologic measures.
    a. Increase; decrease
    b. Supplement; replace

36. Brief jaw relaxation procedure is an effective measure to decrease pain and analgesic use.
    a. True
    b. False

37. Post-operative ambulation, exercise, and mobility are improved by around the clock pharmacologic pain control and nonpharmacologic interventions.
    a. True
    b. False

38. The combination of relaxation techniques and pharmacologic measures increase self report of pain.
    a. True
    c. False

APPENDIX F

PAIN KNOWLEDGE AND ATTITUDE SURVEY WITH REFERENCES AND ANSWERS

39. Meperidine (Demerol) IM is the drug of choice for prolonged pain.
(Pain Knowledge and Attitude Survey, McCaffery & Robinson, *Nursing 2002*, question #4)
a. True
b. False*

40. Analgesics for chronic pain are more effective when administered PRN rather than around-the-clock.
(Pain Knowledge and Attitude Survey, McCaffery & Robinson, *Nursing 2002*, question #5)
a. True
b. False*

41. The patient with pain should be encouraged to endure as much pain as possible before resorting to a pain relief measure.
(Pain Knowledge and Attitude Survey, McCaffery & Robinson, *Nursing 2002*, question #7; Knowledge and Attitudes Regarding Pain tool, Ferrell & McCaffery, (http://prc.coh.org), revised 2005, #13)
a. True
b. False*

42. Respiratory depression (less than seven breaths/minute for an adult) probably occurs in at least 10% of patients who receive one or more doses of an opioid for relief of severe pain.
(Pain Knowledge and Attitude Survey, McCaffery & Robinson, *Nursing 2002*, question #8; Knowledge and Attitudes Regarding Pain tool, Ferrell & McCaffery, (http://prc.coh.org), revised 2005, #6)
a. True
b. False*

43. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) is approximately equal to 5-10 mg of morphine PO or ½ the dose of Demerol (meperidine) 75 mg IM.
(Knowledge and Attitudes Regarding Pain tool, Ferrell & McCaffery, (http://prc.coh.org), revised 2005, #18)
a. True*
b. False

44. If a patient's pain is relieved by administration of a placebo, the pain is not real.
(Pain Knowledge and Attitude Survey, McCaffery & Robinson, *Nursing 2002*, question #10; Knowledge and Attitudes Regarding Pain tool, Ferrell & McCaffery, (http://prc.coh.org), revised 2005, #17)
a. True
b. False*

45. Beyond a certain dose, increases in the dose of an opioid (narcotic) analgesic, such as morphine, will not increase pain relief.
(Pain Knowledge and Attitude Survey, McCaffery & Robinson, *Nursing 2002*, question #11; Knowledge and Attitudes Regarding Pain tool, Ferrell & McCaffery, (http://prc.coh.org), revised 2005, #11)
a. True
b. False*

46. Research shows that promethezine HCl (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.
(Pain Knowledge and Attitude Survey, McCaffery & Robinson, *Nursing 2002*, question #12; Knowledge and Attitudes Regarding Pain tool, Ferrell & McCaffery, (http://prc.coh.org), revised 2005, #9)
a. True
b. False*

APPENDIX G

PAIN KNOWLEDGE AND ATTITUDE SURVEY

39. Meperidine (Demerol) IM is the drug of choice for prolonged pain.
    a. True
    b. False

40. Analgesics for chronic pain are more effective when administered PRN rather than around-the-clock.
    a. True
    b. False

41. The patient with pain should be encouraged to endure as much pain as possible before resorting to a pain relief measure.
    a. True
    b. False

42. Respiratory depression (less than seven breaths/minute for an adult) probably occurs in at least 10% of patients who receive one or more doses of an opioid for relief of severe pain.
    a. True
    b. False

43. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) is approximately equal to 5-10 mg of morphine PO or ½ the dose of Demerol (meperidine) 75 mg IM.
    a. True
    b. False

44. If a patient's pain is relieved by administration of a placebo, the pain is not real.
    a. True
    b. False

45. Beyond a certain dose, increases in the dose of an opioid (narcotic) analgesic, such as morphine, will not increase pain relief.
    a. True
    b. False

46. Research shows that promethezine HCl (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.
    a. True
    b. False

APPENDIX H

KNOWLEDGE OF PAIN MANAGEMENT IN THE OLDER ADULT WITH

REFERENCES AND ANSWERS

47. Pain is an expected outcome of growing old.
(Pasero, Reed, McCaffrey, 1999, p.675)
a. True
b. False*

48. The perception of pain decreases in the older adult.
(Pasero, Reed, McCaffrey, 1999, p.675)
(Iowa City [IA], 1999—Standard Pharmacologic Management Standard 1. a.)
a. True
b. False*

49. Many older adults may use terms such as ache or discomfort rather than the term pain in describing the pain experience.
(Iowa City [IA], 1999—Baseline Pain Assessment Standard 1.)
a. True*
b. False

50. If the older adult does not report pain, then the person is not in pain.
(Pasero, Reed, McCaffrey, 1999, p.675)
a. True
b. False*

51. Effective pain management is appropriate for all patients, including dying patients.
(Pasero, Reed, McCaffrey, 1999, p.691)
a. True*
b. False

52. Fear of addiction may keep many older adults from reporting pain
(Iowa City [IA], 1999—Baseline Pain Assessment Standard 4.a.)
a. True*
b. False

53. If an older adult does not appear to be in pain or is sleeping, then that person is not experiencing pain.
(Pasero, Reed, McCaffrey, 1999, p.675)
a. True
b. False*

54. Opioids are too dangerous to use in the older adult because of possible side effects.
(Pasero, Reed, McCaffrey, 1999, p.676)
a. True
b. False*

55. Meperidine (Demerol) may produce increased confusion levels in older adults.
(Iowa City [IA], 1999—Pharmacologic Management Standard 2.)
a. True*
b. False

56. Cognitively impaired patients experience diminished pain sensations.
(Pasero, Reed, McCaffrey, 1999, p.676)
(Iowa City [IA], 1999—Monitoring the Acute Pain Experience Standard 2. d.)
a. True
b. False*

57. Acetominophen is the first analgesic to use for mild to moderate musculoskeletal chronic pain in older adults.
(American Geriatric Society—Major Recommendation 4; Pasero, Reed, McCaffrey, 1999, p.689-690)
a. True*
b. False

58. Older adults complain of pain more as they age.
(Pasero, Reed, McCaffrey, 1999, p.676)
a. True
b. False*

59. Guided imagery is a form of distraction that may be used to manage pain in the cognitively-impaired older patient
(Iowa City [IA], 1999—Non-Pharmacologic Management Standard 5.)
a. True
b. False*

60. NSAIDs should be avoided in patients with abnormal renal function.
(American Geriatric Society—Pharmacologic treatments of Chronic Pain in Older Persons Recommendation V.d; Pasero, Reed, McCaffrey, 1999, pg. 689.)
a. True*
b. False

APPENDIX I

KNOWLEDGE OF PAIN MANAGEMENT IN THE OLDER ADULT WITH

REFERENCES AND ANSWERS

47. Pain is an expected outcome of growing old.
    c. True
    d. False

48. The perception of pain decreases in the older adult.
    c. True
    d. False

49. Many older adults may use terms such as ache or discomfort rather than the term pain in describing the pain experience.
    c. True
    d. False

50. If the older adult does not report pain, then the person is not in pain.
    c. True
    d. False

51. Effective pain management is appropriate for all patients, including dying patients.
    c. True
    d. False

52. Fear of addiction may keep many older adults from reporting pain
    c. True
    d. False

53. If an older adult does not appear to be in pain or is sleeping, then that person is not experiencing pain.
    c. True
    d. False

54. Opioids are too dangerous to use in the older adult because of possible side effects.
    c. True
    d. False

55. Meperidine (Demerol) may produce increased confusion levels in older adults.
    c. True
    d. False

56. Cognitively impaired patients experience diminished pain sensations.
    c. True
    d. False

57. Acetominophen is the first analgesic to use for mild to moderate musculoskeletal chronic pain in older adults.
    c. True
    d. False

58. Older adults complain of pain more as they age.
    c. True
    d. False

59. Guided imagery is a form of distraction that may be used to manage pain in the cognitively-impaired older patient
    c. True
    d. False

60. NSAIDs should be avoided in patients with abnormal renal function.
    c. True
    d. False

APPENDIX J

Questionnaire for Education Department of Institution:

***Health Care Facility*:** _____

EDUCATION DEPARTMENT PROFILE	
Directions:	**Place the number of the most appropriate response in each category on the answer sheet provided**
CATEGORY	
1. Does your institution offer a standard curriculum for pain management for your staff?	1) Yes 2) No
2. If so, what is involved?	
3. If not, how do you communicate pain management knowledge to your staff?	
4. Have you offered a continuing professional education program related to pain management to your staff in the past 6 months?	1) Yes 2) No
5. Have the members of the education department taken any formal education courses?	1) Yes 2) No
6. If so, when and where?	
7. Do you apply adult learning principles?	1) Yes 2) No
8. If so, how?	
9. To what extent do learners have input into developing programs for continuing education?	
10. What can you do to improve knowledge transfer in the learner?	

APPENDIX K

ANSWER SHEET FOR PAIN STUDY QUESTIONNAIRE

FACILITY: _____

NURSE INFORMATION PROFILE
Directions: Place the number of the most appropriate response in each category on the answer sheet provided

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____

PAIN ASSESSMENT
Knowledge of Pain Management Questionnaire

20. _____
21. _____ Other: _____
22. _____
23. _____

Place either A for True B for False

24. _____
25. _____
26. _____
27. _____
28. _____

NONPHARMACOLOGIC MANAGEMENT OF PAIN

29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____
38. _____

PHARMACOLOGIC MANAGEMENT
Pain Knowledge and Attitude Survey

39. _____
40. _____
41. _____
42. _____
43. _____
44. _____
45. _____
46. _____

KNOWLEDGE OF PAIN MANAGEMENT IN THE OLDER ADULT

47. _____
48. _____
49. _____
50. _____
51. _____
52. _____
53. _____
54. _____
55. _____
56. _____
57. _____
58. _____
59. _____
60. _____

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