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THE EFFECT OF EDUCATION PATH AND NURSING SPECIALTY ON KNOWLEDGE AND ATTITUDE SURVEY REGARDING PAIN SCORES

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A Scholarly Project Submitted to the Graduate School in Partial Fulfillment of the Requirements for the Degree of Doctor of Nursing Practice

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An Abstract of the Scholarly Project by
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Pain is reported as the number one fear of patients, and has been shown to stop patients from seeking necessary medical treatment in a timely manner. Therefore, it is important that health care professionals be able to properly assess and treat pain. One area not previously studied is how degree path affects knowledge acquisition.

The purpose of this study is to determine the effect of structured education and clinical experience on general pain knowledge between traditional and non-traditional Bachelors of Science in Nursing students. Participants of this study include RN-BSN students and pre-licensure BSN students who have completed the Adult Medical-Surgical course. Participants completed a forty-five-question assessment including the Knowledge and Attitude Survey Regarding Pain. Also collected were degree path, years of nursing experience if applicable, and any specialty nursing experience.

Twenty-one responses were received with twenty completed submissions. One-half of submissions were BSN with the other half being RN-BSN. Competency is established with scores above 70%. Total scores for all groups indicate inadequate knowledge and negative attitude regarding pain (M=69.27%, SD=9.83). BSN cohort scores demonstrated inadequate knowledge and negative attitude (M=65.85%, SD=10.089). RN-BSN cohort scores were slightly higher and demonstrated competency and positive attitude but scores were not statistically significant (M=72.68, SD=8.741,

p=.123). The small sample size may affect generalizability. Major area of deficiency was pharmacology-based questions.

Implications for this study include evaluating current nursing curriculum to correct deficits in student knowledge acquisition. Lessons learned relate to how vast the current knowledge deficit is amongst nurses worldwide.

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Description of the Clinical Issue

Nurses play a critical role in the health and well-being of patients within all healthcare settings. According to the U.S. Bureau of Labor Statistics (2020), registered nurses are the largest collective of healthcare providers in the United States. Because of the sheer volume of nurses, compared to other healthcare professions in a hospital setting, nurses are the healthcare professionals that patients are most likely to interact with on a consistent basis. Nurses are also the healthcare professional most likely to perform an assessment and implement a treatment protocol directly with the patient.

This last statement is significant in that it identifies the importance of the nurse's knowledge and attitude in regards to performing their task. One key task for a nurse is to reduce or limit the fear of a patient under their care. By limiting this fear, the nurse is placing the patient in a relaxed state and improving their chances of achieving a positive outcome. In order to properly address the fears of a patient, it is necessary to understand the most common fears reported by patients. When patients are probed about their biggest fears regarding healthcare, and procedures in general, the number one reported fear is pain (Ruhaiyem et al., 2016).

Pain is a universally feared experience that can lead patients to foregoing critical care at a time when it would be most beneficial. How does this fear of pain relate to

nursing? Throughout the wide array of literature discussing pain, it is well documented that the most important healthcare member in the successful treatment of a patient's pain is a nurse (Wang et al., 2017).

The nurse is often the healthcare provider who is responsible for assessing the patient's pain, reporting the findings to upper-level providers, and the health care provider administering the prescribed treatments. Because of this, it is imperative that nurses know how to perform a pain assessment. The issue that appears to affect most of the nursing community is that the majority of nurses studied do not possess sufficient knowledge or the necessary positive attitude to accurately and proficiently conduct a pain assessment (Ge et al., 2013). Without the proper knowledge and a positive attitude, nurses are unlikely to empathize with their patient. This can lead to under-recognition of pain severity and a failure to act quickly or to sufficiently meet the patient's care needs.

Significance

This unfortunate situation is a major issue throughout most of healthcare in that it potentially subjects the patient to sub-standard care. This stems from the inadequate training that most nurses undergo regarding pain assessments. The lack of education is a significant problem in that the very nurses tasked with managing a patient's pain are not sure how to properly recognize it in the first place (Adams et al., 2020). This lack of formal training poses the risk of under-treatment or failure to treat, and as a result places the patient at risk for delayed recovery. Proper and continuing education regarding pain assessment is the only way to ensure that nurses are trained to a level to sufficiently provide pain assessments (Adams et al., 2020).

While continuing education is the best-known way to provide the proper knowledge needed, most nurses around the world do not receive the adequate training to properly recognize pain. While this is often taken for granted, a universal truth is that proper management cannot occur without proper assessment. Furthermore, proper assessment cannot occur without proper education and training. These things are not mutually exclusive, but are instead linked in both requirement and necessity.

The issue is not only associated with developing countries, but is instead found to be both a first world and third world issue. Studies conducted in the United States, Europe, Africa, the Middle East, and Asia identified that the issue of undereducation and poor recognition of pain have further resulted in suboptimal care (Al-Quliti & Alamri, 2015; Bloch, 2016; Adams et al.,2020). The extent of these studies conclude that the issue also isn't only associated with a particular gender, ethnicity, or country of origin (Al-Quliti & Alamri, 2015). This makes it a global issue which affects the patient, healthcare, and society as a whole.

Specific Aims and Purpose

There are two specific aims for this scholarly project. The first is to determine if there is a deficit in the nursing knowledge and attitude regarding pain within nurses earning their Bachelor of Science in Nursing (BSN) degree in the four-state area. The second aim is to determine the impact of education and clinical experience provided during a set time has any bearing upon any perceived deficits that may exist. Knowledge is gained through increased education and experience, but currently there are few studies found within the literature that show at what rate education and experience increases knowledge. By identifying if a difference exists, it will allow BSN nursing degree

educators to evaluate their curriculum to determine the most effective way to instill nursing assessment knowledge.

As previously mentioned, the number one fear of patients in a hospitalization or pre-operative setting is pain. Proper pain management can only be provided once an accurate pain assessment has been performed, and effectiveness of interventions can only be established through accurate reassessment. Research shows that a substantial portion of nurses are not properly educated on pain or pain assessments (Bloch, 2016). The purpose of this study is to use the Knowledge and Attitudes Survey Regarding Pain (KASRP) tool to determine quantitatively if nurses pursuing either a pre-licensure or transitional Bachelor of Science in Nursing degree from a four-state area nursing school possess a knowledge deficit regarding pain and if program curriculum exposure produces any effect on said deficit.

Theoretical Framework

There are several nursing theories which deal with the importance of pain management. For this study, Kolcaba's comfort theory was chosen (Merkel, 2007). In this theory, the needs of the patient are to be addressed with the ultimate goal of providing relief where possible, easing pain when not possible to relieve, and helping the patient transcend what pain cannot be eliminated. While this theory does provide an excellent framework for providing multiple types of comfort care (pain management), it initially requires that the nurse be able to recognize what pain looks like in the first place.

To further understand how the theory can guide this study, it is important to understand the theory itself. There are currently six major assumptions identified within the theory of comfort: (a) Human beings have holistic responses to complex stimuli, (b)

Comfort is a desirable holistic outcome that is germane to the discipline of nursing, (c) Comfort is a basic human need which persons strive to meet or have met, (d) Enhanced comfort strengthens patients to engage in health-seeking behaviors, (e) Patients who are empowered to actively engage in health seeking behaviors are satisfied with their health care, and (f) Institutional integrity is based on a value system oriented to the recipients of care (Dowd, 2017).

There are also three theoretical statements or assertions identified within the theory: (a) Comfort interventions, when effective, result in increased comfort for recipients compared to pre-intervention baseline, (b) Increased comfort results in increased engagement in health-seeking behaviors, and (c) Increased engagement in health-seeking behaviors results in increased quality of care (Dowd, 2017). The first theoretical statement provides that when comfort interventions are effective, they can provide a positive outcome. Regarding pain management, without proper assessment a nurse would not be able to provide the comfort interventions needed by the patient. Nor would they further be able to adequately assess whether the interventions had any impact on the patient's state. Having proper pain knowledge is crucial to providing appropriate comfort measures. In this sense, it is important to establish if nurses have been properly trained and educated regarding pain so that deficits can be identified and addressed accordingly.

Found within Kolcaba’s theoretical umbrella are several specific types or nursing care. A key type of nursing care listed within the theory, technical care, consists of helping the patient to maintain homeostasis. This is done through the monitoring and management of pain. It also includes preventing complications. This is often done

through considering the patient's physical, psychospiritual, environmental, and sociocultural context. Each of which will require the nurse to be able to view the patient, assess what their needs and discomforts are, recognize signs of pain that patient's may not fully verbalize, and provide adequate therapy as needed (Merkel, 2007).

Project Questions

As the deficit regarding the pain knowledge and attitude have never been formally studied within the four-state area, this presents an opportunity to evaluate the quality of both nurses and nursing education within this area. Previous studies have reviewed differing factors that can affect the attainment and retention of knowledge regarding this topic. Several major studies have reviewed if work experience played any role in influencing the knowledge gap. In these studies, work experience played no part (Ge et al., 2013).

It is often thought that cultural differences can influence the way we obtain and use information. Previous studies concluded that most nurses are no more knowledgeable about pain when treating members of their own culture than they are when treating members of a different culture (Bloch, 2016). One major study was conducted to determine if the degree earned by a nurse had any impact upon their level of pain knowledge or attitude. In this study, degree level played little role (Al-Quliti & Alamri, 2015).

As can be seen above, many of the educational and demographic factors have been evaluated to determine their effects. While it is surprising to see that most of these factors do not have any appreciable impact on the knowledge gap, they are by no means the only ways that knowledge is influenced. Within this study, we sought to determine if

two conditions exist within the four-state area that may have an impact upon a nurse's knowledge level and attitude regarding pain. The two questions to addressed were:

1. How do the KASRP scores of pre-licensure BSN students in their senior year who have completed the Adult Medical Surgical course compare to the KASRP scores of RN-BSN students?
2. How does specialty nursing experience impact the KASRP scores of RN-BSN nursing students.?

Based on previous studies, it is thought that degree level may not play a significant role in a nurse's overall pain knowledge level (Ge et al., 2013). Nor does it seem to have any appreciable impact upon the nurse's overall attitude regarding pain. What is not widely studied is the impact a particular degree path can have on a nurse's ability to accumulate or retain knowledge or how that may impact the development of their attitude as it relates to pain. The BSN degree pathways were chosen for analysis for two reasons.

The first reason is that at least eighty-percent of nurses must have a BSN degree as a requirement for a facility to achieve Magnet status (ANA, n.d.; Pinto, 2020). As such, it places BSN graduates as a metric by which quality healthcare is both measured and expected. Secondly, the BSN degree is the first nursing degree which can be achieved through two separate pathways. Students can either obtain a traditional pre-licensure BSN degree or they can obtain a pre-licensure ADN and then attend a post-licensure RN-BSN bridge program. With two differing pathways available to achieve the same overall goal, this study seeks to determine if one pathway provides better knowledge exposure and attitude development than the other.

With the push by the nursing community to increase the number of nurses who have earned a bachelor's degree, many registered nurses are going back to school to complete this process. These individuals are generally following a non-traditional path as they re-enter academia. The nurses entering these programs already possess a nursing license and have patient care experience outside of an academic setting. Due to the practice experience and the fact that the enrollees already possess a nursing license, program requirements in many institutions differ slightly for non-traditional students compared to traditional students.

The second question referenced whether previous specialty nursing experience has any impact on the knowledge and attitude scores of non-traditional nursing students. This can include but is not limited to care such as intensive care unit (ICU), emergency department (ER), post-anesthesia care (PACU), oncology, critical care, and obstetrics (OB) nursing. It was noted earlier that the majority of nurses studied globally lack proficiency with pain knowledge and attitudes, but also noted by these studies indicate that different areas and nursing specialties do register different average overall scores on the KASRP (Adams et al., 2020; Al-Quliti and Alamri, 2015; Bloch, 2016; Ge et al., 2013).

This is important as it can help educators account for differences in clinical experience that may provide some form of advantage over others and can help drive education innovation. Even though nursing programs are required to include pain content in their curriculum in order to be accredited, some variations among nursing programs may occur. By understanding what impact the variations in clinical experience present,

educators can review program specifics to identify any changes that may lead to better pain knowledge and attitude scores.

Definition of Key Terms

In order to achieve a full understanding of a study, it is vitally important to fully understand the definitions of key terms found throughout the work. The following list contains the definitions as they were utilized for this particular study. They include:

- **Attitude**: the way a person views something or tends to behave towards it, often in an evaluative way (Dictionary.com, 2021).
- **BSN**: or Bachelor of Science in Nursing is the baccalaureate level nursing degree that can be earned either through a pre-licensure baccalaureate program or transitional RN-BSN program (Maddocks, 2021)
- **BSN-student**: someone who earns a traditional BSN degree without first earning their Associate Degree in Nursing (ADN)
- **Degree path**: a specific program outline that designates the requirements an individual must satisfy to earn a specific degree
- **KASRP**: the Knowledge and Attitude Survey Regarding Pain is a validated tool utilized to identify pain knowledge and attitude scores and to indicate proficiency with identifying and managing pain (Adams et al., 2020)
- **Nurse**: a licensed health-care professional who practices independently or is supervised by a physician, surgeon, or dentist and

who is skilled in promoting and maintaining health (Merriam-Webster, 2021).

- **Pain**: a personal and unpleasant sensory or emotional experience associated with, or resembling that associated with, actual or potential tissue damage (International Association for the Study of Pain, 2020).
- **Pain knowledge**: a learned understanding regarding what pain is, how it is identified, and what treatment or coping options are available (Adams et al., 2020).
- **Patient**: an individual awaiting or under medical care and treatment (Merriam-Webster, 2021)
- **Pharmacology**: "the study of how medicines work and how they affect our bodies" (British Pharmacological Society, n.d.).
- **Proficient**: well advanced in an art, occupation, or branch of knowledge

  (Merriam-Webster, 2021).
- **RN**: someone who has completed the necessary educational and licensing requirements to be a registered nurse
- **RN-BSN**: a transitional degree used by a licensed Registered Nurses who already possesses an Associate's Degree in Nursing to earn a BSN (Maddocks, 2021).
- **Specialty nursing experience**: nursing experience outside traditional Medical-Surgical general nursing care

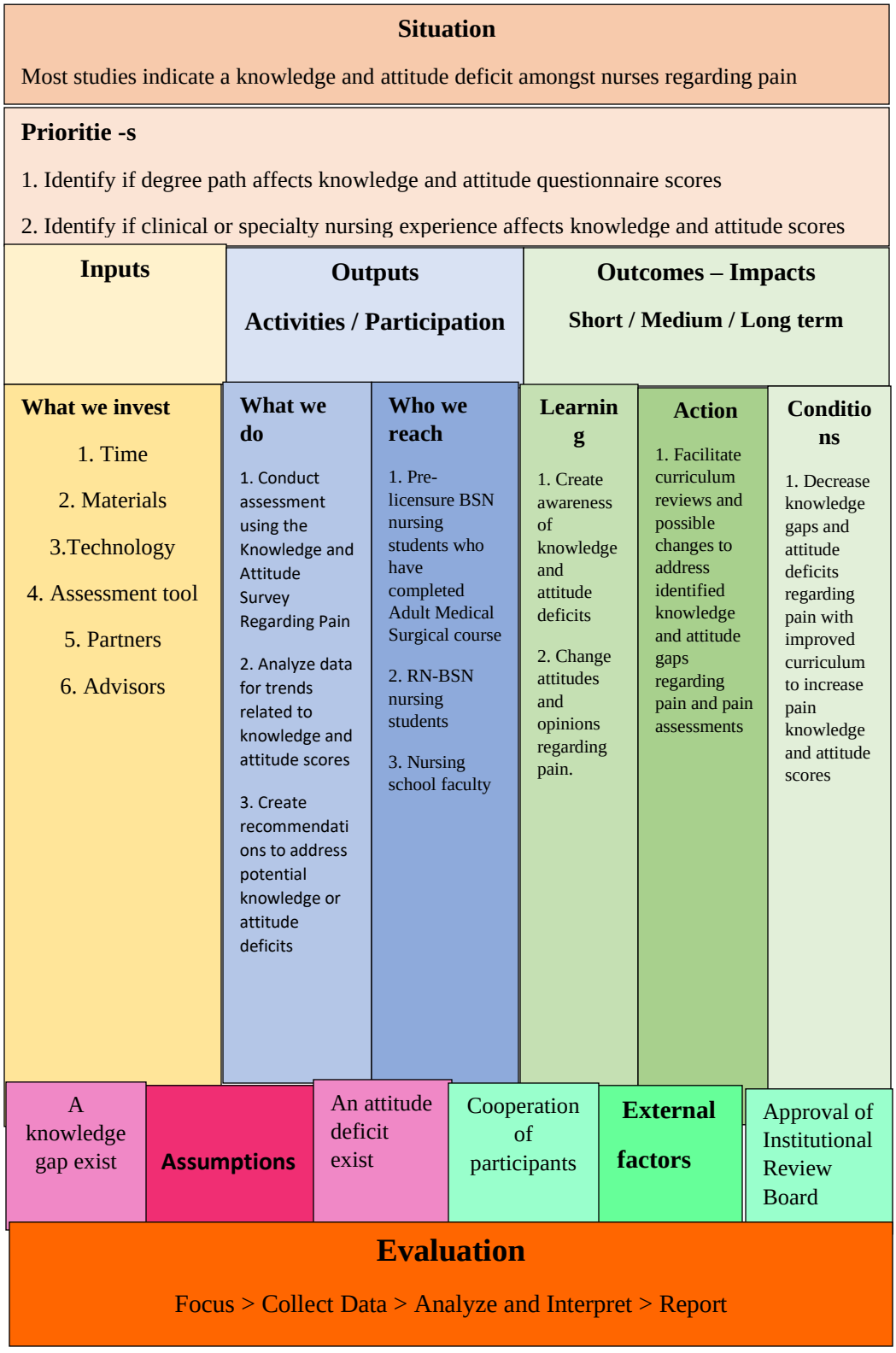
Logic Model

In a study, a logic model is utilized to provide a sort of road map that can be used by both researchers and readers to understand the relationship between certain variables. It can also be utilized to provide a guide for what the situation being studied is, what materials were utilized to evaluate the condition being researched, and what overall goals the researcher hopes to achieve. Although there is not any particular standard way of presenting a logic model, they are usually provided in graphic form as visually this formatting is the easiest to follow.

For the logic model utilized in this study, the situation box will be utilized to identify the overall practice problem driving the need for such research. The priorities box contains the two research questions previously listed above. The inputs box consisted of the resources needed to complete the study in such a way as to provide a coherent response. The activities column in the outputs box consisted of the activities performed in order to address the issue. The participation column identifies what groups of people cooperation was solicited from in order to conduct this scholarly project. The outcomes box identifies the short, mid, and long-term goals of this scholarly project. Assumptions and external factors are identified as what is already present and what outside forces were managed in order for the study to be successfully conducted. The graphic is presented on the next page.

Figure 1.

Logic Model



Summary

Throughout the literature, there is a glaring knowledge gap amongst the global nursing community when it comes to pain knowledge. There is also a wide attitude deficit amongst the majority of nurses regarding pain. Much of this is due to nurses not being properly prepared to assess, identify, or treat pain. We know that there are a variety of ways in which a person accumulates knowledge, but current practices are not sufficient enough to prepare the average nurse to address a patient's pain in an appropriate fashion. In order to improve the accumulation and retention of knowledge it is important to do three things.

First, one needs to identify if there is a knowledge and attitude deficit within a particular nursing community. Next, one needs to ascertain the severity of any deficits which may be present by comparing study results of one nursing community against similarly collected results from different nursing communities to establish the full extent of the issue. Finally, identifying factors which may have a positive or negative impact on the way in which people obtain and retain knowledge is vital to creating both curriculum and learning environments which are conducive to increasing the quantity and quality of learning while closing any knowledge gaps which may be present.

Chapter II

Literature Review

Pain or at least the thought of pain is an all-consuming fear amongst the majority of patients who enter a hospital for treatment. In fact, it is listed as the number one fear of surveyed patients (Ruhaiyem et al., 2016). Amongst the nursing and medical community, there are differing definitions of pain based upon one's area or specialty. For the purpose of this review, the following definition will be used: "an unpleasant emotional or sensory experience associated with actual or potential damage to the tissues" (Adams et al., 2020, para.1).

Pain is a commonly feared experience that can lead a patient to delaying critical care when it would do the most good. A commonly held question is how this fear relates to nursing and nursing care. Throughout the available literature discussing pain, it is noted that nurses are the most important healthcare member in the successful treatment of a patient's pain (Wang et al., 2017). This is because the nurse is the healthcare provider who has the most frequent bedside contact with the patient and is generally responsible for implementing their care.

A sizeable issue, however, is the lack of adequate training for nurses regarding pain. The absence of education is a problem since the nurses managing a patient's pain cannot properly recognize the appearance of pain. This lack of formal training presents

the risk of under-treatment or failure to treat, and as a result places the patient at risk for delayed recovery. Appropriate and continuing education on pain is the best way to safeguard that nurses are trained sufficiently (Adams et al., 2020).

Though continuing education is the preferred method of delivering knowledge, the majority of nurses do not possess sufficient knowledge to identify pain. The issue is not limited to developing countries, but can be found in both first world and third world areas. Studies have been conducted around the world, identifying the issue of undereducation and reduced recognition of pain which result in suboptimal care. These studies conclude that the issue is transgender, transcultural, and transnational in its reach and effect (Adams et al., 2020; Al-Quiliti & Alamri, 2015; Bloch, 2016; Ge et al., 2013).

Numerous types of pain management methods are available to nurses to reduce the incidence and severity of patient pain. Most do require some technical knowledge in order to administer with the focus on preventing or recognizing pain promptly. For this to occur, it should be noted that proper treatment/management requires proper assessment. Proper assessment cannot occur without proper education.

Purpose

The purpose of this review is to conclude if the education used to achieve a nursing degree has an impact upon the nurses' ability to assess pain. The first goal of the study would be assessing nursing pain knowledge in the four-state area. The second goal would be to determine at what educational stage is pain assessment most likely to be improved by education. The third goal is to find ways to improve educational curriculum to improve the understanding of pain assessments by nursing students.

This will mean reviewing the available literature to evaluate two key variables. The first variable is a nurse's level of education. This will be crucial in determining if the level of academic experience has an impact. The second variable would be program type. For example, a nurse may earn a traditional bachelor's of science in nursing (BSN), or they may proceed through the transitional RN-BSN course. As each path has varying clinical requirements, one variable to consider would be if the path differences impact pain assessment knowledge.

Literature Synthesis

Within nursing, an emphasis has been placed upon both knowledge generation and research. This has resulted in some areas receiving substantial attention while others are under researched. The topic of evaluating pain assessment skills amongst the nursing staff is one that has been approached in the past with an adequate amount of information available to draw some inferences. Found within the literature are topics relating to four areas of nursing education deficit that should be addressed in order to produce a nursing profession that is adequately equipped to meet the growing challenges of patient pain management.

Pain Assessment

Pain Assessment Globally

The first conclusion is that the issue is not limited to a particular country. Studies conducted by Adams et al (2020) in Ghana, Ge et al (2013) in China, Bloch (2016) in the United States, and Al-Quiliti and Alamri (2015) in Saudi Arabia show the majority of nurses do not possess adequate pain assessment knowledge. All of the studies above utilized a similar version of the Knowledge and Attitudes Survey Regarding Pain

(KASRP) tool to assess participants. In spite of their location, each study determined that the majority of nursing staff possess inadequate and insufficient knowledge of pain.

The above studies were conducted using multiple study types and arrived at similar conclusions. These study types included exploratory studies, descriptive cross-sectional studies, and a before-and-after study among others. The wide diversity of methods being utilized helps to rule out potential for methodological bias.

Ge et al. (2013) were also able to demonstrate that even in developed countries, educational issues were still prevalent. In reading the study, it should be observed that the nurses who participated ranging from basic entry-level nurses to senior nurses consistently scored below the satisfactory level to indicate adequate knowledge on the KASRP tool. These nurse ranks would be equivalent to the ADN-RN, BSN-RN, MSN-RN and RN-PhD level nurses found within the United States. Furthermore, the nurses involved within this particular study were from various parts of the country of China, indicating that in this country at least, differing educational curriculum does not have an obvious impact (Ge et al., 2013). More work would need to be done to confirm this though.

Lack of Nursing Knowledge Regarding Pain Assessment

In understanding the issue of a knowledge deficit, it becomes important to first understand the perception of an education deficit. Santos et al. (2019) conducted a study of 169 nursing students from an educational institution in Brazil. The study noted that 68% of students did not feel they had received adequate education involving pain or pain assessments with children. Furthermore, 62% of study participants noted that they had never used a pain assessment scale (Santos et al., 2019). The study noted that in this

institution, pain education is included as an ancillary topic when addressing other nursing areas. This lack of focus, despite pain being considered the fifth vital sign, could provide some indication within nursing education as to why students are so inadequately prepared.

Similarly, in Nigeria, Onianwa et al (2017) showed that nurses at the University College Hospital- Ibadan had a significant pre-educational knowledge deficit in terms of general pain knowledge when compared to a post-educational follow-up assessment. Here 486 nurses were evaluated in a pretest/post-test interventional study to determine if additional pain education could make an appreciable difference in nursing knowledge scores. The study authors noted a significant increase in nursing knowledge test scores of 4.0228 +/- 0.04380 on the post-test when compared to 2.6307 +/- 0.04551 on the pretest. This is noted as a statistically significant increase and relates to the importance of providing additional education to nurses to improve knowledge and abilities.

In comparing health systems in the United States and developing nations such as Ghana, it would be expected that nurses from the developed country would score higher on the KASRP tool. However, this did not appear to be the case. Adams et al. (2020) in Ghana found that the majority of nurses ranging from entry-level to an advanced practice level struggled with pain assessments based on KASRP score. Similar results are noted by Bloch (2016) on her study of Hispanic nurses in the United States. They noted that most nurses, even in a higher socioeconomic status level country such as the U.S., still struggled to record an adequate score on the KASRP tool (Bloch, 2016). When viewing these two studies, it’s clear that the socioeconomic status of the country has no significant effect on the preparedness or ability of the majority of its nursing workforce to achieve a

competent score on the KASRP tool. Both of the studies utilized a description cross-sectional design to produce very similar results.

The study conducted by Bloch (2016) also notes some interesting points that were not expected. While culture to a minor extent can play a part in how pain is viewed, it does not play a significant role in how it is assessed. The study in question reviewed if Hispanic nurses were hindered by the traditionally cultural stoicism that is often associated with members of a Hispanic population regarding pain assessments (Bloch, 2016).

The first conclusion from this study was that nurses were no more likely to properly assess pain from an individual who shared a similar cultural value versus a patient who did not (Bloch, 2016). The second conclusion is that nurses who have been assimilated into a culture are no more likely to correctly assess pain than a nurse who has not. The third conclusion was that even though sharing a cultural connection with the patient did not make it more likely that the nurse would correctly assess the patient, they were slightly more likely to correctly treat the patient (Bloch, 2016).

Another common theme found within these studies is not only the lack of knowledge nurses possess regarding pain assessments but also the general attitude nurses have toward pain. Most of the studies indicate nurses do not have a positive attitude towards performing pain assessments or relating to pain in general. Ge et al. (2013), with their study in China, found that only 27.7% of participants possessed a positive view of a pain assessment. While there are no current available studies to conclude why attitude scores toward both pain as a general health condition or pain assessments specifically are so low, based upon the evidence there are a few reasons that might be induced.

Efficacy of Different Types of Pain Measurements

The first reason to be considered is that a pain assessment must include analysis of multiple environmental and physical cues. One study noted that pain assessments take time, and in the busy world of modern healthcare, time is often a luxury that most can't afford. Because of this, assessments are often sub-standard or eliminated entirely. Another reason could be related to nurses being unfamiliar with the variety of pain assessments available.

The most commonly utilized forms of pain assessment are the Numerical Rating Scale (NRS) in verbal adult patients or the Wong-Baker Faces scale for pediatric patients (Blackburn et al., 2018). Despite being the most widely utilized scales, they do possess some major limitations. Merely rating pain on a scale from 0-10 does not accurately describe the various degrees often associated with pain. Any healthcare provider who has asked a patient to rate their pain on a 0-10 scale has often found themselves within a lengthy conversation regarding how difficult it is to rate pain numerically.

Studies by Blackburn et al. (2018), and Poulsen et al. (2016) show that it is important to utilize and continuously develop pain assessment methods to meet the needs of patients. Blackburn et al. (2018) studied the utilization of the Defense and Veterans Pain Rating Scale (DVPRS) regarding patients with known cancer pain. It was found that providers who utilized the DVPRS rather than the standard NRS pain scale were better able to identify and treat a patient's pain sooner (Blackburn et al., 2018). This in turn improved patient satisfaction and outcomes. The connection with the nursing researcher's assessment knowledge being a critical component can be recognized in the fact that the DVPRS was not originally developed for use as an oncology pain assessment tool.

Because the nursing staff at the oncology center had adequate knowledge of their patient's needs and what would be required to properly evaluate those needs, they were able to utilize a different type of pain evaluation system which produced better results for their patients.

A study conducted by Poulsen et al. (2016) concluded that there were very few pain assessment scales in current practice to adequately assess patients who have an acquired brain injury. Because the authors of the study possessed knowledge in pain assessment, they were able to create a system that utilized various non-verbal cues in an attempt to create a pain scale which would allow them to assess patients of questionable consciousness. This new pain assessment scale creates a more systematic and repeatable method for pain assessment that does not require pre-emptive knowledge regarding the patient.

One point not found within a specific study, but generally noted throughout the literature is the differences in pain assessment research among specific nursing specialties. When reviewing many of the available studies, most of the newly created or modified pain assessment forms are coming from nursing specialties found within either oncology, pain management, emergency, or intensive care (Blackburn et al., 2018). It does make sense that these particular nursing specialties would have a higher understanding of pain assessment in general. What is surprising is that most other nursing areas generate very few assessment innovations. This could lead one to wonder if a nurse's specialty or sub-specialty is a better predictor of pain assessment knowledge, rather than their actual level of academic education. If this is the case, then the emphasis of importance could be more on actual clinical experience. The implication would be that

more clinical practice or high-fidelity simulation training for nursing students should be integrated into the academic system.

Institutional Pain Protocols

The importance of having an institutional pain protocol cannot be overstated. A common theme found amongst those who participated within the study of Ge et al. (2013) in China was the absence of an institutional pain management protocol. Where there were no institutional pain protocols in place, nurses at those healthcare centers exhibited scores on the KASRP consistently below the adequate mark (2013). By contrast, a study conducted by Tomaszek and Debska (2018) compared facilities that were designated a "Hospital without Pain" versus those who weren't. This study ultimately showed that institutions with a strong pain care protocol had better patient outcomes regarding pain management and their staff consistently scored higher in tools such as the KASRP.

Study Comparisons

Strengths and Similarities

Most of the studies conducted were similar in nature. The majority of studies conducted that assessed nurse pain knowledge utilized a variation of the KASRP tool. Even though there were slight variations used, the overall consistency of tool formatting between studies allows for the easy comparison of data. This is very important as it can be used to see if differences exist between certain nursing levels, between different cultures, or even different countries and healthcare styles. Though an array of study methods were utilized, the most commonly used was the cross-sectional study. This

consistency aides in reducing the likely variances found within studies, as following a similar formatting allows for interpretation using a similar process.

The original studies, which involved the creation or modification of a pain assessment scale, used either a quantitative or mixed-methods study form. The study involving the utilization of the DVPRS was a mixed method study that utilized both a quantitative format to assess patient pain and a qualitative format to establish the provider's perspectives of utilizing the DVPRS for oncology pain (Blackburn et al., 2018). This makes it somewhat easier for a reviewer to separate out the issues of accuracy of assessment from ease-of-use perception.

Most of the studies were analyzed using an available form of the IBM SPSS statistical data analysis tool (Adams et al., 2020; Al-Quliti & Alamri, 2015; Bloch, 2016; Ge et al., 2013; Nguyen et al., 2021; Onianwa et al., 2017). This allows for researchers to input data, and through the utilization of statistical test such as the independent t-test found within most studies, or even the Kendall tau-b tool, researchers are able to quickly identify any relevant correlations. All studies utilized a standard confidence level of $p<=0.05$, which provides for a 95% confidence rating.

Weaknesses and Differences

There does exist some weaknesses within the studies that must be addressed. All were conducted at a single location or within a single healthcare system. This means that while the results may be descriptive of the area in which they were conducted, they may have reduced generalizability to the rest of the respective country.

Another weakness of note is the overall sizes of the studies reviewed. While the sample sizes used were correlated statistically, many of the participants were chosen

using convenience sampling (Adams et al., 2020; Al-Quliti & Alamri, 2015; Bloch, 2016; Ge et al., 2013; Nguyen et al., 2021; Onianwa et al., 2017). This means that while the overall number of participants is accurate, other demographic factors may not be adequately represented. The impact is that the data could be slightly skewed in one direction or another based upon deviations from true representation within the group. Furthermore, as most of the studies involved 100-200 nurses, which may seem like a large sample, the actual sample sizes used in these studies compared to the nursing population at large is rather small indeed. This potentially further limits generalizability of conclusions.

Knowledge Gaps

There are gaps noticed within the literature regarding pain assessment knowledge as noted earlier. While several studies did compare license type and overall degree, they did not compare if the path used to achieve this degree had any bearing upon pain assessment knowledge. Several studies did note work experience among collected demographics, but did not account for nursing specialties or its influence. They also did not openly compare nursing education from different institutions or between countries. Finally, there is a gap noted in the existing body of research regarding continuing education. Even though it has been documented that education improves knowledge, little research was found addressing the timing or how much education a nurse must undergo before improvements are noted on assessment tools.

Summary

As noted throughout the review, there is a clear and distinct lack of knowledge within the nursing community regarding pain knowledge and attitudes. When nurses are

properly educated, they are able to either create or modify existing systems to suit the needs of their patients and better identify and address a patient's pain. The literature shows that while this knowledge deficit extends across gender, culture, and country, it has by no means been fully studied. Questions still abound about the influence of education path, timing, and level on how a nurse learns. By identifying when a deficit exists, at what point in a nurse's educational experience they are most likely to benefit from focused education, and if degree program difference has any influence on education quality, nurse education institutions will be in a better position to combat this alarming trend within patient care.

Chapter III

Method/Plan

Project Design

The goal of this project is to determine if education and clinical experience influence a nursing student's level of pain knowledge and attitude. This particular scholarly project was a program evaluation with the goal of evaluating the general pain knowledge and pain assessment understanding of nurses within a non-traditional bachelor's nursing program. The intention was to identify if and how these programs better prepare a nurse to properly identify and assess pain in a patient.

The process of knowledge formation can be connected to the curriculum and constraints that a program must exist in. In the case of an associate degree program, the nursing school must be able to take a new nursing student and provide them with the appropriate knowledge to pass the NCLEX within a span of four semesters or roughly two years (Nursing License Map, 2022.). Such programs tend to focus on practical nursing knowledge and to be lighter on theoretical instruction. Nurses who then want to go on to earn a bachelor's degree from this point must pursue a non-traditional degree path with a transitional program known as an RN-BSN.

In a pre-licensure bachelor's program, a new nursing student has roughly a four-year period in which to acquire knowledge appropriate for passing the NCLEX while also meeting the general education requirement for a bachelor's degree (Labouré College of Healthcare, 2021). This is twice the time span to prepare for the same test as an associate prepared nurse. As such, these programs allow for the inclusion of nursing theory education to be included in the program curriculum. One goal of the project was to establish whether or not this inclusion of theoretical training, with or without the presence of clinical experience, had an impact as it is an overriding distinction between these two programs.

In order to accomplish this, the project consisted of an evaluation of general nursing and assessment knowledge, as well as a general attitude rating, amongst participants of both program types. This was accomplished using the Knowledge and Attitude Survey Regarding Pain or KASRP tool, which will be identified more in-depth later in this chapter. The assessment tool would be converted to an electronic format and distributed to participants to complete at their own pace.

In addition to collecting data on pain knowledge, there was also a portion of the tool devoted to collecting relevant demographic data. This allowed for further advanced analysis based on sub-dividing a cohort into further demographic groups as appropriate. The goal was to determine if there are any significant factors that might contribute to or deter from pain knowledge.

Sample/Target Population

The first step in identifying the target population is to identify the area that these participants will be drawn from. The overall target population will consist of nursing

students from the four-states area. The reason for including such a broad target description has to do with the wide coverage area that the test site covers.

A school, such as the Irene Ransom Bradley School of Nursing (IRBSON) at Pittsburg State University, has a coverage area consisting of much of Eastern and Southeastern Kansas (Irene Ransom Bradley School of Nursing, 2021). In addition to this, the school also has a significant population from both Southwest Missouri, and Northeast Oklahoma. This covers a wide range of what is considered to be the four-state area and is consistent with the targeted population.

Another area of importance is that IRBSON also offers transitional courses for students who seek to pursue their BSN but already have an ADN and an RN nursing license. While both the BSN and RN-BSN programs are conducted at the same school of nursing, the focus of each program is slightly different. Since RN-BSN students already have an RN license, they will have completed the assessment training associated within an ADN program and will be focusing primarily on nursing theory and leadership. This is in contrast from traditional BSN students who follow a program where theory and leadership training are incorporated into the program. As previously discussed in chapter one, a major question is if the structure of education associated with the RN-BSN degree path produces any appreciable effect on scores compared

Inclusion/Exclusion Criteria

For this study, the inclusion criterion was enrollment in either the pre-licensure BSN or RN-BSN nursing programs at the Irene Ransom Bradley School of Nursing at

Pittsburg State University. Those not enrolled in a nursing program at Irene Ransom Bradley School of Nursing were excluded.

Further inclusion criteria for this study were students who were in the senior year of the pre-licensure BSN program and have completed the Adult Medical Surgical course, or who were enrolled in the RN-BSN program. Participants also needed to be 18 years old or above, able to legally provide consent, and able to read and understand English. Students who did not meet the inclusion criteria were excluded from the study.

Protection of Human Subjects

Contained within the project study were no direct health or psychological interventions conducted on participants. As a result, the risk of physical and psychological harm to study participants is greatly reduced. Also, participation in the study was not be linked in any way to a participant's overall standing within their respective nursing programs. This greatly reduced any associated academic harm.

In terms of information collection, the greatest potential risk to a participant revolved around their privacy and the ability to be identified based on collected information. Though the associated assessment tool was performed electronically and submitted anonymously, some demographic information such as school location, possession of an RN license, and even specialty nursing experience could possibly allow for identification of the participant although this risk is minimal.

Some ways to help prevent this started by not collecting the participants name or date of birth. While it does not completely eliminate the possibility of identifying the participant, it does greatly reduce the odds of doing so. Since the survey was completed

as an electronic format, having this information stored on a secure password protected data storage device limited accessibility and the potential dissemination of information.

Another protection for human subjects considered was the ability to collect an informed consent from participants. According to the US Department of Health and Human Services (n.d.), informed consent occurs when a researcher discloses the information needed for a potential subject to understand the nature of the study and decide on their own if they want to participate (sect. 1). Since an electronic format was used, information related to the purpose of the study, what information was collected, and how it was stored were provided. In addition to this, how the information was reported, for how long the information will be stored, and under what conditions the information will be disposed of were also be included. Submission of the electronic form, whether in full or part, were understood to constitute the participant giving informed consent. Such a determination was also clearly spelled out on the consent page prior to starting the electronic form. A contact email was be provided as well for participants to contact the researcher with questions prior to beginning the assessment form.

Finally, it is important to note to the study subjects that participation is completely voluntary, and that their consent or refusal to complete the form could be withdrawn at any time prior to the submission of their form for review. Once forms are submitted however, the ability to withdraw their consent was impossible as the collected forms did not contain primary demographic data and complete identification of their specific form could not be made with any certainty. All of these things were explained to participants before they began the assessment data collection tool.

Instruments

The instrument chosen for this specific project consisted of a two-part assessment form. The first portion of the assessment tool consisted of the Knowledge and Attitude Survey Regarding Pain or KASRP tool. The instrument's validity has been established by comparing scores of nurses at various levels of expertise such as students, new graduates, oncology nurses, graduate students, and senior pain experts and has had overall validity established by a panel of pain experts (Nguyen et al., 2021.). Test-retest reliability was $r>0.8$ (Nguyen et al., 2018). According to the instrument's creators, the study of the "content of the tool is derived from current standards of pain management such as the American Pain Society, the World Health Organization, and the National Comprehensive Cancer Network Pain Guidelines" (Ferrell & McCaffery, n.d.). The instrument includes the assessment of knowledge and attitude through the use of questions that review knowledge in such a way that answering may be impacted by the attitude of the test taker. An example provided by the instrument creator is that a question about the incidence of addiction may be influenced by both knowledge of and/or personal opinion or attitude toward addiction (Ferrell & McCaffery, n.d.).

The second portion of the assessment tool consists of a demographic information collection page. Demographics collected were secondary in nature and consist of things such as years of licensed nursing experience if any, if the participant had any specialty nursing experience, and what degree path they were pursuing.

Procedure

The procedure for implementing this project began by obtaining approval from the Institutional Review Board with Pittsburg State University. Next, an electronic survey

was created based on the assessment tool mentioned in the previous section using an electronic survey site such as Google Forms. Once this was completed, the following step was to collaborate with nursing instructors to disseminate the link to the assessment tool. This was primarily performed through a message sent via the schools online learning platform, Canvas.

Students were then provided a three-week window in which to complete the provided assessment tool information. This information was accessed on a twice weekly basis to input the data into the electronic statistical software used or upload to a direct access statistical processing tool. Further processing of this information is covered in the following section.

Treatment of Data

Once data was inputted, it was processed using relevant descriptive statistics to determine to mean and median scores for students of each degree path cohort. Further analysis was conducted to determine what percentage of students in each program scored above or below the proficiency marker and these were compared. Finally, the data was mined using independent t-test to determine if any influencing factors could be identified as associated with a higher or lower score. These were then reviewed by a consulting statistician to determine that all processes were performed correctly and to reduce researcher bias. Finally, the results were presented to the DNP scholarly project advisor for further review. Data will then be securely stored for a period of three years, in accordance with institution policy, before being destroyed.

Plan for Sustainability

While this may not fall under the traditional guise of a quality improvement project, there is potential to improve the quality of education provided to nurses in a way that will allow for repeat reviews by the institution if necessary. This consists of making copies of the assessment tools available to the director of the nursing school/programs. In addition, a composition of each program's individual results can be provided to the director to provide a starting comparison point.

By providing this information, it can afford the nursing school administration with the opportunity for program self-evaluation. The advantage to performing a periodic assessment score review would be to determine if assessment scores trend in any particular direction over time within the nursing programs. Through the assessing of trends, it can create the opportunity for evaluating changes that teachers make within the program curriculum regarding pain knowledge and help guide curriculum decisions that will ultimately create better and more prepared nurses.

Chapter IV

Evaluation of Results

The purpose of this project was to evaluate the general pain knowledge and overall attitude of nursing students as it relates to pain to determine if a level of competency exist. Specifically, the study sought to determine if nursing students of the Irene Ransom Bradley School of nursing who meet the inclusion rate as competent on the Knowledge and Attitude Survey Regarding Pain (KASRP); if there is a difference between traditional BSN and non-traditional RN-BSN students; and if specialty nursing experience or exposure has any impact upon KASRP scores.

Description of Sample

During the collection period, a total of twenty-one responses were received, however only twenty responses were complete. Ten participants reported belonging to the RN-BSN program; ten respondents reported belonging to the BSN program; one participant did not provide program information. The incomplete submission was separated during analysis because of the missing information.

The study was conducted in a cross-sectional style with data collection achieved using an anonymous online questionnaire with submission via Google forms. The collection period ran for 3-weeks from January 20, 2024 to February 9, 2024. The form was electronically submitted to the two study cohorts via electronic mail invitation. In

addition to completion of the KASRP, participants were asked to report which program they were pursuing, if they considered themselves as having specialty nursing experience and what experience they had, and how much overall nursing experience they possessed.

Description of Key Variables

This study has two key variables: the impact of the degree path of the participant on KASRP scores, and the impact of specialty nursing experience on KASRP test scores. to account for possible work experience variation in participants. The impact of degree path sought to identify if differences in KASRP scores existed between pre-licensure BSN and RN-BSN students. Evaluation of the impact of specialty nursing experience sought to establish if experience beyond general medical-surgical nursing had any effect on KASRP scores.

Analysis of Project Questions

For analysis, descriptive statistics were used to evaluate for possible trends in the data collected. Analysis was conducted with the help of a statistician using IBM's SPSS 27. Data was assessed for mean test score, percentage of participants from each test cohort, number of years of nursing experience, nursing specialty experience exposure, and frequency distribution of test scores. An independent t-test was also conducted to evaluate for statistical significance of any score difference to rule out the possibility of data being present solely by chance. Each question was also analyzed to determine the percentage of correct answers for each group.

Nursing Degree Pursued

Data analysis began by determining how the groups compared in terms of sample size between cohorts. As table 1 shows, the total submissions broke down evenly

between the two study groups. The total possible number of submissions is not fully known; however, it is estimated that twenty to thirty RN-BSN students were sent the invitation. This would equate to approximately thirty-three to fifty percent submission rate. In addition, it is estimated that approximately seventy to eighty BSN students received an electronic invitation to participate from IRBSON staff. This would equate to approximately a twelve to fourteen percent submission rate.

Table 1

Type of Nursing Degree that is being pursued.

		Frequency	Percent
	BSN	10	47.6
	RN-BSN	10	47.6
	Total	20	95.2
Missing	9	1	4.8
Total		21	100.0

Table 1 depicts the type of nursing degree being pursued by participants. In the case of this study, 10 students (47.6%) report pursuing a traditional BSN, while 10 students (47.6%) report pursuing a non-traditional RN-BSN course. 1 applicant (4.8%) did not provide information.

Years of Nursing Experience

Participants were asked to provide the number of years of nursing experience that they possessed if any. Possible categories for nursing experience consisted of none for students who were prelicensure, those with less than one-year of licensed nursing experience, one to five years of nursing experience, six to ten years of nursing experience, and more than ten years. As previously stated, one partial submission failed

to provide experience information. As such, that information will be noted as missing in the following table.

Table 2

How many years of nursing experience do you have?

		Frequency	Percent
Valid	None, I am prelicensure	11	52.4
	Less than a year	4	19.0
	1-5 years	2	9.5
	5-10 years	1	4.8
	more than 10 years	2	9.5
	Total	20	95.2
Missing	9	1	4.8
Total		21	100.0

Table 2 depicts the years of overall nursing experience recorded for the cohorts. In this case just over half of participants (52.4%) reported being prelicensure. Just under one-fifth (19%) of participants reported having less than 1 year of licensed nursing experience. The remainder reported 1-5 years' experience (9.5%), 5-10 years' experience (4.8%), and more than 10 years (9.5%). One participant (4.8%) did not provide a response. This indicates that the majority of participants have either no nursing experience or less than 1 year (71.4%). Based on Benner's Stages of Clinical Competence, this means that the majority of nurses who responded in this study would be classified as either Novice or Advanced Beginner (Benner, 1984).

Consideration for years of nursing experience is an important variable as many previous studies expected to find a difference in scores correlating to the number of years of overall work experience. However, as noted in chapter two, most studies performed found that there was no statistically significant difference between test scores when it

relates to actual work experience. Since individual work experience can be a difficult variable to fully quantify due to the varying nature of the nursing care, it becomes necessary to identify potential metrics that can be used to conduct a quantitative analysis. The two most readily available include the years of work experience possessed by a nurse and if they have had any specialty training or exposure.

Specialty Nursing Experience

As previously stated, one area of interest to the study is if exposure to specialty nursing experience or training has any impact on a nurse's potential pain knowledge and attitude scores. For the purposes of this study, specialty nursing was considered to be nursing experience outside of the Medical-Surgical or general floor area. Participants were asked to state if they considered themselves as having any specialty experience through completion of a closed-ended yes-no assessment question. Participants were then asked to state what type or area of specialty nursing experience they possessed through completion of an open-ended assessment question. Answers submitted were them analyzed by the study team to ensure that they met criteria to be considered specialty experience.

Table 3

Do you have any speciality nursing experience?

		Frequency	Percent
Valid	Yes	10	47.6
	no	10	47.6
	9	1	4.8
	Total	21	100.0
List the specialities out here.	Gerontology, Preop and PACU, Neuro trauma ICU, Emergency Dept., ICU, OB, Orthopedics/Acute rehab, Critical care, Combat medical care		

Table 3. indicates the number of participants who report having specialty nursing experience, along with the types of experience reported. In this case just under one-half (47.6%) reported having specialty experience, while almost one-half (47.6%) reported no specialty nursing experience. One participant (4.8%) did not report a response.

Test Score Distribution

Test scores for the entire study group were analyzed for frequency, distribution, and mean with standard deviation. In conjunction with the established guidelines for KASRP use, a score of 70% was considered as establishing both pain knowledge competency as well as a positive attitude. A scores of less than 70% is associated with a lack of competency regarding general pain knowledge as well as possession of a poor attitude relating to pain (Ferrell & McCaffrey, n.d.).

Table 4

Test Grade

		Frequency	Percent
Valid	51	1	4.8
	56	1	4.8
	59	2	9.5
	61	2	9.5
	66	4	19.0
	71	1	4.8
	73	3	14.3
	76	1	4.8
	78	1	4.8
	80	1	4.8
	83	2	9.5
	85	1	4.8
	Total	20	95.2
Missing	999	1	4.8
Total		21	100.0
Mean = 69.27 SD = 9.83			

Table 4 depicts the range of test scores recorded on the assessment questionnaire. The mean score for the entire cohort (M= 69.27, SD =9.83) was just under the required 70% threshold indicating insufficient competency of knowledge and a negative attitude regarding pain. The data also indicates a wide variability in knowledge and attitude level with scores ranging from 51% to 85%. Caution, however, should be exercised in interpreting these results as the small convenient sample does not allow generalizability beyond the participants of the study and may not reflect the regional nursing population as a whole.

Score Comparison Between Cohorts

For this study, one of the biggest questions to answer is to whether there is a difference in scores between the two differing degree pathways. If a difference is found to occur, it would allow for nursing schools to evaluate program requirements to determine if specific structural program differences need to be evaluated and, if necessary, make changes to the degree path found to be lacking. If no difference is found to exist, it would allow schools to evaluate both programs and if scores were found to be below the threshold of competency, would indicate that a potential overhaul of the curriculum for both degree paths should be made. In this case, an independent t-test was conducted to evaluate the scores between cohorts. Because of the low response rate, interpretation of this t-test is limited Table 5 provides a breakdown of those scores.

Table 5

Score comparison between cohorts

	What nursing degree are you pursuing	N	Mean	S.D.
Test Grade	BSN	10	65.85	10.089
	RN-BSN	10	72.68	8.741

t=1.618 p=.123

The RN-BSN (M=72.68, SD=8.74) did better on the test than the BSN (M=65.85, SD 10.08) group. Even though there was a difference between the two groups, it was not a statistically significant difference (t=1.618, p=.123). A p-value of .123 would necessitate acceptance of the null hypothesis that there is no statistical difference between cohorts. It is important to remember when interpreting these results that due to the small cohort sizes these results may not accurately reflect the regional nursing population.

The variability of the data provides for a difficulty in assessing the competency of both cohorts. While the mean score of the BSN group was 65.85 with an SD of 10.089, there were two outliers within this group. As noted in the previous chart, the range of distribution for scores was between 51% and 85%. While the lowest score of the study was associated with the BS group, the highest score (83) for the BSN cohort was equivalent to the second highest test score (83) of the RN-BSN cohort. This indicates a large variability in overall knowledge with the pre-licensure group.

Additional Analyses

Finally, this study sought to review individual questions to determine if there were any areas in which both groups excelled, lacked, or differed in terms of knowledge competency. This would allow investigators a chance to evaluate each cohort to determine areas of knowledge deficiency with the purpose of identifying themes to

recommend possible curriculum changes. Each question was assessed to determine the percentage of each cohort to provide a correct response.

Table 6.

Comparison of test questions between cohorts

Item	BSN- % correct	RN-BSN - % correct
1. Vital signs are always reliable indicators of the intensity of a patient's pain.	60	90
2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.	80	60
3. Patients who can be distracted from pain usually do not have severe pain	90	80
4. Patients may sleep in spite of severe pain	90	80
5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.	20	40
6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months	20	60
7. Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent	90	100
8. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.	20	60
9. Opioids should not be used in patients with a history of substance abuse	60	60
10. Elderly patients cannot tolerate opioids for pain relief.	100	100
11. Patients should be encouraged to endure as much pain as possible before using an opioid	80	100
12. Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity.	100	100
13. Patients' spiritual beliefs may lead them to think pain and suffering are necessary	90	100
14. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance	80	100

with the individual patient's response		
15. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real	100	90
16. Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5 - 10 mg of morphine PO.	30	30
17. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.	70	20
18. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.	90	100
19. Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment	40	50
20. Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.	100	100
21. The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.	80	70
22. Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.	90	100
23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is	30	50
24. The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is	50	90
25. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?	70	90
26. A 30 mg dose of oral morphine is approximately equivalent to:	50	50
27. Analgesics for post-operative pain should initially be given	70	80
28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory	10	0

depression in the absence of new comorbidity is		
29. The most likely reason a patient with pain would request increased doses of pain medication is	100	90
30. Which of the following is useful for treatment of cancer pain?	60	80
31. The most accurate judge of the intensity of the patient's pain is	100	100
32. Which of the following describes the best approach for cultural considerations in caring for patients in pain:	100	90
33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?	70	50
34. The time to peak effect for morphine given IV is	90	80
35. The time to peak effect for morphine given orally is	40	70
36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following	20	40
37. Which statement is true regarding opioid induced respiratory depression:	40	80
38. Andrew is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Andrew's pain.	90	100
39. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.	30	20
40. Robert is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. A. On the patient's record you must mark his pain on the scale	90	100

below. Circle the number that represents your assessment of Robert's pain:		
41. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time:	30	40

The above table list questions from the Knowledge and Attitude Survey Regarding Pain with percentage of correct answers sorted by cohort. A score of 70% or higher indicates the cohort had an adequate knowledge level and positive attitude regarding the question presented. As noted throughout, most of the scores were very consistent across the cohorts with regards to knowledge level and attitude. Basic general knowledge was good for both groups, as was some basic assessment knowledge. Two big area of deficit noted for both groups overwhelmingly was questions related to pharmacology and those distinguishing physical dependency from psychological addiction. Interestingly, while assessment knowledge was good, during the case study portion, students were able to correctly rate pain, but were unable to provide the appropriate treatment despite having reasonably adequate knowledge indicating a possible disconnect between academic information and real-world application amongst this small cohort. Due to the small convenient sample obtained for this study, it should be understood that these results would not fully reflect on the regional nursing population at large.

Summary

The purpose of this project was to evaluate the general pain knowledge and overall attitude of nursing students as it relates to pain to determine if a level of competency exist. The study sought to determine if nursing students of the IRBSON who meet the inclusion but not exclusion criteria rated as competent on the Knowledge and Attitude Survey Regarding Pain (KASRP); if there was a difference between traditional BSN and non-traditional RN-BSN students; and if specialty nursing experience or exposure had any impact upon KASRP scores.

Based on analysis of the data, there is no statistical difference between the KASRP scores of the two cohorts studied. Both cohorts were even dispersed with ten complete responses each. Experience was not assessed to affect scores to any statistical difference. Work experience ranged from none for pre-licensure BSN students to more than ten years. In the case of this study, specialty nursing experience was not shown to impart a statistically significant difference as no statistical difference in scores was established.

A wide variability of knowledge and attitude scores was assessed, especially amongst the BSN group with a 32-point difference between the highest and lowest score. The overall score for both cohorts combined was just below the level needed to establish competency. When each cohort was individually assessed, there was an almost 7-point difference between the two groups with the RN-BSN cohort scoring just above 70%, while the BSN cohort scored just below 70%, however these scores are not statistically significant. Caution is to be exercised when interpreting these results as the small sample

size is suspected as having a major impact. This will be further discussed in the chapter five section of study limitations.

Chapter V

Discussion

The purpose of this project was to evaluate the general pain knowledge and overall attitude of nursing students as it relates to pain to determine if a level of competency exist. The study sought to determine if nursing students of the IRBSON who meet the inclusion criteria rated as competent on the Knowledge and Attitude Survey Regarding Pain (KASRP); if there was a difference between traditional BSN and non-traditional RN-BSN students; and if specialty nursing experience or exposure had any impact upon KASRP scores.

Relationship of Outcomes in Research

Identification of Key Findings

During the course of this project, it was discovered that overall, there was no statistically significant difference between RN-BSN and BSN students when comparing KASRP scores. The combined mean score for both cohorts was 69.27 with a standard deviation of 9.83, which is slightly below the required threshold of 70 to establish competency of knowledge and a positive attitude relating to pain. Secondly, though there was a slight difference in the scores between the two cohorts, these were not rated as statistically significant. This indicates that, at least from a mathematical perspective, there is no meaningful difference in KASRP scores between the two groups as assessed.

However, caution is to be exercised when viewing these results and will be further discussed in the limitations section.

Another area of note was the variability of knowledge, especially with the BSN cohort. The overall range of scores for both cohorts was fifty-one to eighty-five. This difference of thirty-four represents a meaningful difference between establishing competency versus lack of competency between participants. When viewing the BSN cohort specifically, test scores ranged from fifty-one to eighty-three, which is a difference of thirty-two. This wide dispersion of scores represents a discrepancy in the knowledge obtained by pre-licensure nursing students as it relates to obtaining, retaining, and using knowledge about pain, or developing a positive attitude towards pain. The RN-BSN cohort faired somewhat better, but only just. The range of scores for the RN-BSN cohort ranged from fifty-nine to eighty-five for a difference of twenty-six. Again, this goes to show that even amongst licensed and practicing nurses, there is a noticeable difference in the competency level and attitude of nurses as it relates to pain knowledge.

As noted in Table 3, a wide range of specialty experiences were noted. Gerontology refers to the specific care of geriatric or elderly patients (American Geriatrics Society, n.d.). The American Geriatrics Society (n.d.) notes that this area of healthcare focuses on treating patients with multiple health conditions that cause impairment or medical frailty. The Association of Perioperative Registered Nurses state that pre-operative and post-anesthesia care fall under the category or Perioperative nursing care (Benze et al., 2021). In this role, nurses are responsible for providing care to patients who are preparing for, undergoing, or who have completed a surgical or

procedure experience. An emphasis in this role is placed on proper assessment knowledge related to areas such as post-procedure pain evaluation and management.

Intensive Care Unit/Critical Care nursing involves the increased management of patients who are listed as the most medically vulnerable and therefore require more direct patient care. Nurses in this area are usually limited to one or two patients at a time and are responsible for the continued evaluation of the patient's condition, including patients pain levels through the use of advanced evaluation skills (Meinke, 2019). Obstetric (OB nursing, also known as Perinatal nursing refers to the care of women during all stages of pregnancy. These nurses are tasked with providing the majority of care to patients who are in the early stages of delivery through completion of the delivery process. Part of this care includes the assessment of patient pain, discomfort, and distress (Every Nurse, 2018)

Orthopedic nursing is nursing care related specifically to musculoskeletal conditions (Nursing Explorer, n.d.). Nurses in this area of nursing care are tasked with care of patients with painful conditions such as arthritis, bone fractures, and joint replacements. This requires continued patient assessment for pain and the ability to administer and educate patients on pain medications. While not considered a traditional nursing specialty role, combat medical experience was included as specialty experience for the purposes of this study as the experiences obtained are similar enough to those of Emergency nursing care.

A review of the KASRP scores indicates that there is no statistically significant impact related to specialty nursing experience within the cohort. This conclusion can be inferred due to the combined cohort failing to score above the required 70% threshold to establish competency. Also, since there is no statistically significant difference between

the scores of the individual cohorts, it again leads to the determination that specialty nursing experience did not produce an impact in this study. Due to the small convenient sampling, generalization to the greater nursing population at large should not be inferred.

Relationship of Findings to Research

It is important to establish how the results of this study compare with the available body of nursing research. The first research question of this study sought to determine if there was a difference in the KASRP scores between pre-licensure BSN and post-licensure RN-BSN students who met the inclusion but not exclusion criteria. As previously established, there was not statistically significant difference noted between the two groups as assessed. It is difficult to compare these results to the available body of evidence as the investigators were unable to find another study that specifically sought to compare the two groups together.

When reviewing the literature, the main areas of focus seem to be solely on post-licensure practicing nurses without regard to degree level. Adams et al. (2020) study was conducted using nurses who were already practicing in a hospital setting in Ghana. This study did not review if the nurses were enrolled in an academic program at the time of assessment. Al-Quliti and Alamari (2015) conducted a similar study that reviewed both nurses and physicians practicing in Saudi Arabia. Likewise, this study did not address if participants were part of an academic program at the time of assessment. The Bloch (2016) study was conducted in the United States, but was specifically focused on nurses of Hispanic ethnicity. In the case of this study, the focus was related to whether ethnicity and cultural differences had any impact upon KASRP scores. With no other direct

comparison study noted in the literature, it is difficult to say how this finding compares with what is currently known.

With that said, we can view the data in terms of how the combined scores of both cohorts compare with the literature. The combined mean score for both cohorts were 69.27 with a standard deviation of 9.83. This score is less than the required score of seventy percent to establish both competency of knowledge and presence of a positive attitude as it relates to pain. When comparing this finding to the current research, one can see that it is consistent with the findings of Adams et al. (2020), Bloch (2016), and Al-Quliti and Alamri (2015).

Of note regarding the overall results is the wide distribution of overall scores obtained during this study. Scores ranged from fifty-one to eighty-five, which indicates that there is a wide range of acquired pain knowledge, nursing theory comprehension, assessment skill level, and attitudes even amongst the small sample size. This again is consistent with the available body of evidence showing that nurses possess varying degrees of knowledge competency and attitude quality. Ge et al. (2013), demonstrated that in China there was a wide range of test scores amongst participants of that study as well. This Chinese study examined nurses of varying levels of education to determine the level of competency relating to pain management. What they found is that the overall group did not rate as adequate, but that there was a wide dispersion of test scores noted. Ge et al. (2013), however, does not directly to this study as they were not comparing specific differences between degree pathways but were instead evaluating the differences between the varying levels of nursing degree.

When viewing the effect of years of nursing experience, we see that once again, there is no statistically significant difference in scores between those who are pre-licensure and those who are post-licensure. This once again appears to be consistent with many of the available studies in the body of nursing research. Adams et al. (2020), Al-Quliti and Alamri (2015), Ge et al. (2013), and Nguyen et al. (2021) all assessed participants of their studies for the number of years of nursing experience to evaluate if this had any impact upon test scores. In these studies, it was noted that overall years of work experience did not have a statistically significant difference in relation to KASRP scores. This is also consistent with the finding of this study.

In this study, the years of nursing experience ranged from none for pre-licensure BSN students to more than ten years for post-licensure RN-BSN students. Again, there was no statistically significant difference established between the scores of the two groups, and the combined cohort mean scores was 69.27 with a standard deviation of 9.83.

Interestingly, the distribution of work experience was not evenly established across participants. Roughly half of the participants of the study were pre-licensure and therefore had no actual working experience as a nurse outside of academic clinicals which do not count for this study. For post-licensure RN-BSN students, roughly twenty percent of respondents had less than one year of experience. In addition, almost ten percent of RN-BSN students reported having between one and five years of experience. Based on Benner's Stages of Clinical Competence, this would indicate that almost one-fifth of participants in this study were either Novice or Advanced Beginner level nurses (Benner, 1984). However, regardless of Benner's stage, scores for the overall group were

consistent with those established in other previously conducted studies such as Adams et al. (2020), Bloch (2016), Ge et al. (2013), and Nguyen et al. (2021).

The second topic that this study sought to address is if possession of specialty nursing experience made any impact upon KASRP scores. Similar to the finding of overall work experience, there was no statistically significant difference established between those who did and those who did not. Comparing this area to the research is somewhat more difficult as there is conflicting information within the body of nursing research. For example, Blackburn et al. (2018), established that oncology nurses possess a higher ability to perform pain management assessments when compared to non-oncology nurses. While this would indicate that there may be some difference, the study results do not directly correlate in a measurable way. The Blackburn study did not use the KASRP as an assessment tool, meaning there is no opportunity for an apples-to-apples comparison of results.

Al-Quliti and Alamri (2015) and Ge et al. (2013) reviewed nurses of all levels at regional hospitals in Saudi Arabia and China respectively, where many levels of care were provided, however they did not analyze specifics related to nursing specialty experience. The closest comparison for the results of the effect of nursing specialty are those of Nguyen et al. (2021).

The Nguyen study was conducted at a Geriatric hospital in Vietnam and so would have had nurses with geriatric experience. One of the areas of nursing accepted as a specialty for this study was gerontology, with at least one respondent reporting such experience. Extrapolating the results of this study with the Nguyen study, we see similar results in specialty experience not imparting a statistically significant difference upon

KASRP test scores. However, as there were more nursing specialties reported for this study than just gerontology, this comparison should be taken with a grain of salt as differences may exist that were not adequately captured or observed in either study.

From the analysis of the data, there is no statistically significant difference between the pre-licensure BSN and RN-BSN group. Also noted was that when viewing the KASRP scores as a whole, there was a lack of competency and failure to establish a positive attitude amongst participants. In addition, a wide range of scores indicating a varying range of knowledge and attitudes amongst participants of the study. This is in keeping with the majority of studies which indicate that a real problem does exist in the nursing community which desperately needs to be addressed. It is the position of this study that improved education is required to properly prepare nurses to provide adequate nursing care.

Observations

During analysis of the KASRP scores, there were a couple of areas of deficiency noted that stood out between both groups. The first of these dealt with questions related to pharmacology, which involves understanding what medications are used to treat certain conditions, how the body responds, what administration routes are best for providing the most efficacy, and how medications compare in terms of strength or dosing.

Analysis of many of the individual questions had at least one cohort respond correctly and, in many cases, both cohorts were able to achieve a score of at least 70%. Competency was able to be established with broad pharmacological concepts such as combined use of multiple drug classes being more effective than use of a single analgesic

agent. Failure to establish competency occurred with more specific questions related to analgesic use, duration of effect, equivalency dosing, and recommended route of administration. As an example, all questions related morphine milligram equivalents indicated a lack of specific application of knowledge though understanding of concept of equianalgesia was established.

Participants also failed to fully show competency as it relates to the specific concepts within pharmacodynamics, which is the study of how the drug affects the body (Farinde, 2018). In layman's terms, this is what effects or adverse reactions can occur with a medication and at what frequency they are likely to occur. Participants in both cohorts were unable to show adequate knowledge as it relates to the topic of opioid usage and respiratory depression.

Another area where lack of competency was demonstrated deals with opioid withdrawal. Only twenty percent of BSN students and forty percent of RN-BSN students were able to accurately describe the physical symptoms associated with dependency and withdrawal. This stands in stark contrast with other assessment knowledge where both cohorts demonstrated high levels of understanding.

Finally, there appeared to be an unexpected disconnect between possession of knowledge and application of knowledge in the case study section of the KASRP. In the KASRP, there are two case studies in which participants were given a patient scenario, asked to rate what pain level they would document for the patient, and what level of medication they would administer. In both case studies, participants were able to establish overwhelming competency in determining a patient's pain rating. Interestingly though, when given a physician's order for medication administration, less than half of

each cohort were able to indicate the correct dosage to administer to the patient in either case study. This is a concerning finding as the possession of knowledge, but the inability to put that knowledge into practice, may demonstrate a key failure in the comprehension of core nursing theories and how they relate to providing complete and competent patient care. It is important that nurses be able to utilize nursing theory as a base of clinical decision making as opposed to the simple regurgitation of memorized facts and protocols.

Evaluation of Theoretical Framework

The results of this study illustrate that while Kolcaba's comfort theory is an established theory of nursing care, it is not always placed into practice to the desired level. As noted in chapter one, the first theoretical statement of Kolcaba's comfort theory is that comfort interventions, when effective, result in increased comfort for recipients compared to pre-intervention baseline (Merkel, 2007). In order for this first statement to be completed, it is important that the performing nurse correctly assess the patient and then performs the proper intervention.

Based on data collected in this study, there is a suspected disconnect between performing an assessment and applying the correct intervention. In both case studies, the patient's pain was properly assessed but the correct intervention was selected less than half of the time, and in some cases much less than half. The implication of this is that a patient may have their condition properly evaluated but the actual care measures were still substandard which results in poor patient care.

The implications of a failure to properly complete step one of the comfort theory could potentially have a direct impact on step two which states that increased comfort results in increased engagement in health-seeking behaviors (Merkel, 2007). Ruhaiyem et

al. (2016) identified that pain is the number one fear of patients, especially in a hospital setting. Even fear of pain has been known to keep patients from seeking necessary medical treatment early in a disease course when repair would be much simpler. By delaying treatment, patients generally arrive in a state that requires more involved care resulting in a much greater utilization of resources for that individual.

While fear of pain can cause a patient to delay treatment, having a painful experience during medical treatment or care can cause a patient to forego seeking care altogether. An example of this would be when a patient experiences a pain while under nursing or physician care that was not properly treated, causing a continued or even increased pain sensation. Because of this, the patient may decide to disengage from the health seeking behaviors, only re-engaging again when treatment will be more complicated and potentially more painful than if they had initially sought care at an earlier time. Data from this study indicates that as a group, the nurses and future nurses who participated may not possess adequate knowledge or a proper attitude at this time to select the correct treatment plan. This increases the risk that the patient will receive substandard care and elect to forego positive health seeking behavior as noted above.

Failure to properly complete step two of the comfort theory will further limit the completion of step three which states that increased engagement in health-seeking behaviors results in increased quality of care (Dowd, 2017). In layman's terms, this means that the better care is, the more people will want to seek health care earlier, which will provide nurses with more exposure and a chance to further improve their experience and skill set. Another way to look at is happy patients come back which allows nurses to

practice their craft. Since practice makes perfect, the more exposure a nurse has, the more likely they are to improve the quality of their care delivery.

Inversely, if a patient received poor care, then they will not seek care as early or as often as would be appropriate. This limits the exposure that a nurse may have, hindering their ability to gain first-hand experience and thereby improve the quality of care provided. Continuing the evaluation based on data from this study, as a group the nurses and future nurses who participated statistically may not yet possess either the desired level of competency or attitude needed to definitively provide the necessary care required to fulfill Kolcaba's comfort theory. It should be noted that the use of the phrase "may not yet" as some nurses did score above the established threshold for establishing competency on the KASRP. However, with mean score of 69.27, statistically competency for the group as a whole is not established.

Evaluation of Logic Model

The results of this study do line up with the assumptions identified during the logic model. It has been determined that a knowledge gap, however small, does exist in relation to pain as indicated by overall mean KASRP scores. In conjunction, this coincides with the assumption that there is a lack of proper attitude, however slight, that does exist in relation to pain as indicated the KASRP scores. The logic model illustrates that once deficits are identified, the ideal solution to correct this problem is a modification to the curriculum as it relates to pain. It has been shown that targeted education relating to pain assessment, medications, and treatments can improve KASRP scores when they are comparing pre-assessment and post-assessment scores (Onianwa et al., 2017).

The logic model identifies that for changes to occur, the external force of stakeholder cooperation must be overcome. This can be difficult as changes to curriculum require tedious preparation on the part of faculty instructors to be able to assemble updated lesson plans. This work would need to be completed in addition to their other essential duties, creating a potential disengagement situation. Furthermore, incorporation of this specific change may necessitate a re-engineering of the proposed class assignment schedule, or be willing to incorporate an additional lesson or module. It should could go without saying that as teachers are already heavily worked, the addition of materials may meet with some resistance that will have to be overcome for progress to be realized.

Assuming that faculty stakeholders are onboard, the conditions will need to be established to allow for the identification and acceptance that a knowledge gap exist within the student body. This could be facilitated through the use of a pre-assessment exam to how deficiencies, then the lesson, followed by a post-assessment exam as needed to evaluate knowledge uptake. This will help teachers and students monitor if competency of knowledge is achieved and if the conditions for developing a positive attitude relating to pain are in place. Improving the overall competency of nurses relating to pain knowledge and attitude will have a positive impact on patient care and help nurses fulfill the required steps necessary to complete Kolcaba's comfort theory.

Limitations

No study performed is entirely perfect, and this study does possess limitations that may affect the generalizability of results. The sampling method used for this study was a convenience sample. While this allows for the invitation of a large number of potential participants in a short period of time, it eliminates the possibility of random selection.

With the elimination of random sampling, the sample of participants may not be wholly representative of the broader body of students or nurses in the area.

Another limitation to the study, which is suspected to have a major impact on generalizability is the small sample size that was achieved. As with any study, a smaller sample size increases the likelihood that results may be obtained through chance. In the case of this study, the p-value obtained during analysis was p=.123 indicating that chance may have played a large role. Because of this, the best that can be stated is that the results are applicable to the participants of the study but may not reflect the general population they are intended to represent. As such, much caution should be used in the interpretation of these results.

Finally, limiting the possible participants to one specific school of nursing could impact generalizability. It may provide a snapshot of the competency of only a small subset of the available nursing population. This would also imply that, in the case of BSN students, it may only be a reflection upon either the curriculum of one particular institution or the quality of nursing student admitted. Since there are multiple educational institutions in the region who provide nursing education, the results of this study may or may not accurately reflect the competency levels found at those institutions.

Implications for Future Research

While this study is a good start at breeching the door on this topic, it should in no way be considered the end of this topic. Further research should be conducted using a larger sample size, with the potential inclusion of random sampling. This will allow for a more complete and generalizable analysis of the pain knowledge competency and attitude regarding pain that exist within the student body of the IRBSON.

Furthermore, the incorporation of multiple educational institutions to evaluate efficacy of curriculum between them could lead to a collaboration with the goal of improving pain knowledge and attitudes throughout the region. By improving competency and creating an environment for students and nurses to develop a positive attitude relating to pain, it increases the level of care that a patient can receive and may help to better engage them in health seeking behaviors. This increase in health seeking behaviors could potentially lead to more nursing opportunities to further improve quality of care delivered.

Implications for Education

While the results of the research data are potentially limited by the small sample size, it does still have implications for nursing education that should be explored. Since the comparison of scores between cohorts was not statistically significant, the results of the overall mean score and range of results achieved are the most telling areas. They indicate that either an overhaul, or at least a fine tuning, of current pain curriculum is required to meet the challenges facing nurses.

Analyzing further, the notable deficiency in responses related to pharmacology and pharmacodynamics should be an area of focus. By better educating nurses on what medications are considered appropriate for treating pain conditions, what administration routes are preferred in which situations, and how pain medications compare to each other in terms of strength, they can be assured to perform the proper intervention when the patient is in need.

Finally, finding ways to better help students not only obtain information but put it into practice will be crucial. As previously noted, there seemed to be a disconnect

between having knowledge and using that knowledge appropriately. By finding ways for students to apply what they know through the increased use of case studies, simulation labs, or direct patient care, they can gain the confidence that in a situation they not only know what to do but how to do it. This increase in confidence will further empower nurses in the knowledge that they can and will provide the high-quality patient care that the nursing community has built its reputation on.

Conclusion

The purpose of this project was to evaluate the general pain knowledge and overall attitude of nursing students as it relates to pain to determine if a level of competency exist. The study sought to determine if nursing students of the IRBSON who meet the inclusion but not exclusion criteria rated as competent on the Knowledge and Attitude Survey Regarding Pain (KASRP); if there was a difference between traditional BSN and non-traditional RN-BSN students; and if specialty nursing experience or exposure had any impact upon KASRP scores.

In this case, it was established that while some nurses may possess the desired level of competency, there is still room for improvement. This study has shown that some nurses who are either currently practicing or may soon be practicing, may not adequately level of pain knowledge or the positive attitude related to pain that is needed to meet Kolcaba's comfort theory. The implication of which is that a retooling of the current nursing curriculum is needed to help prepare them for the needs of their patients and provide the standard of care expected.

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APPENDIX

Appendix 1.

Knowledge and Attitude Survey Regarding Pain survey assessment tool

A. Test section

1. Vital signs are always reliable indicators of the intensity of a patient's pain.

   True **False**

2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.

   True **False**

3. Patients who can be distracted from pain usually do not have severe pain

   True **False**

4. Patients may sleep in spite of severe pain

   True False

5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.

   True **False**

6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months

   True False

7. Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent

   True False

8. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.

   True **False**

9. Opioids should not be used in patients with a history of substance abuse

   True **False**

10. Elderly patients cannot tolerate opioids for pain relief.

    True **False**

11. Patients should be encouraged to endure as much pain as possible before using an opioid

    True **False**

12. Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity.

    True **False**

13. Patients' spiritual beliefs may lead them to think pain and suffering are necessary

    True False

14. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response

    True False

15. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real

    True **False**

16. Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5 - 10 mg of morphine PO.

    True False

17. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.

    True **False**

18. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.

    True **False**

19. Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment

True False

20. Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.

True False

21. The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.

True False

22. Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.

True False

23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is

a. Intravenous b. Intramuscular c. Subcutaneous d. **Oral** e. Rectal

24. The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is

a. **Intravenous** b. Intramuscular c. Subcutaneous d. Oral e. Rectal

25. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?

a. Codeine b. **Morphine** c. Meperidine d. Tramadol

26. A 30 mg dose of oral morphine is approximately equivalent to:
a. Morphine 5 mg IV **b. Morphine 10 mg IV** c. Morphine 30 mg IV d. Morphine 60 mg IV

27. Analgesics for post-operative pain should initially be given
a. around the clock on a fixed schedule
b. only when the patient asks for the medication
c. only when the nurse determines that the patient has moderate or greater discomfort

28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient

developing clinically significant respiratory depression in the absence of new comorbidity is

a. less than 1% b. 1-10% c. 11-20% d. 21-40% e. > 41%

29. The most likely reason a patient with pain would request increased doses of pain medication is
    a. The patient is experiencing increased pain
    b. The patient is experiencing increased anxiety or depression
    c. The patient is requesting more staff attention.
    d. The patient's requests are related to addiction

30. Which of the following is useful for treatment of cancer pain?
    a. Ibuprofen (Motrin) b. Hydromorphone (Dilaudid)
    c. Gabapentin (Neurontin) **d. All of the above**

31. The most accurate judge of the intensity of the patient's pain is

    a. the treating physician b. the patient's primary nurse c. **the patient**

    d. the pharmacist e. the patient's spouse or family

32. Which of the following describes the best approach for cultural considerations in caring for patients in pain:

    a. There are no longer cultural influences in the U.S. due to the diversity of the population.

    b. Cultural influences can be determined by an individual's ethnicity

    c. **Patients should be individually assessed to determine cultural influences.**

    d. Cultural influences can be determined by an individual's socioeconomic status

33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?

< 1% **5 - 15%** 25 - 50% 75 - 100%

34. The time to peak effect for morphine given IV is

a. 15 min. b. 45 min. c. 1 hour d. 2 hours

35. The time to peak effect for morphine given orally is

a. 5 min. b. 30 min **c. 1 – 2 hours** d. 3 hours

36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following

a. **sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued.**

b. Impaired control over drug use, compulsive use, and craving.

c. The need for higher doses to achieve the same effect

d. a and b

37. Which statement is true regarding opioid induced respiratory depression:

a. More common several nights after surgery due to accumulation of opioid.

b. **Obstructive sleep apnea is an important risk factor.**

c. Occurs more frequently in those already on higher doses of opioids before surgery.

d. Can be easily assessed using intermittent pulse oximetry.

38A. Andrew is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Andrew's pain.

0 1 2 3 4 5 6 7 **8** 9 10

38B. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.

a. Administer no morphine at this time b. Administer morphine 1 mg IV now.

c. Administer morphine 2 mg IV now. d. **Administer morphine 3 mg IV now**.

39A. Robert is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Robert's pain:

0 1 2 3 4 5 6 7 **8** 9 10

39B. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time:

a. Administer no morphine at this time. b. Administer morphine 1 mg IV now.
c. Administer morphine 2 mg IV now. **d. Administer morphine 3 mg IV now.**

40. Which nursing degree course are you pursuing?

a. BSN b. RN-BSN

41. How many years of licensed nursing experience do you have?

a. None, I am prelicensure b. Less than 1 yr c. 1-5 years

d. 6-10 years e. More than 10 years

42. Do you have any specialty nursing experience?

a. Yes b. No

43. If you answered yes, please indicate what type of specialty nursing experience you have.

A.