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# Emotional Intelligence, Pain Knowledge, and Pain Attitudes of Nursing Students

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Emotional Intelligence, Pain Knowledge, and Pain Attitudes of Nursing Students

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### Abstract

Effective pain assessment is a primary concern for nurses, who begin learning about pain as students. Pain knowledge and emotional intelligence may increase effectiveness of nurses' pain assessments. Few studies have examined the relationship between emotional intelligence and pain knowledge and attitudes in nursing students. This non-experimental, correlational study addresses this research gap by examining associations between emotional intelligence and the pain knowledge and attitudes in nursing students. The study is guided by the Emotional Intelligence Theory and uses convenience sampling of sophomore (year one) and senior (year three) level undergraduate students. The Knowledge and Attitudes Survey Regarding Pain (KASRP) and The Schutte Self Report Emotional Intelligence Test (SSEIT) measure pain knowledge/attitudes and emotional intelligence and are analyzed with independent *t*-tests. A total of 54 nursing students (26 year one students and 28 year three students) completed the questionnaire. Year three students had higher emotional intelligence scores ( $M = 125.39, SD = 8.71$ ) than year one students ( $M = 124.69, SD = 11.76$ ), but the year could not be significantly correlated to the level of Emotional Intelligence ( $t = .257, p = .798$ ). Year three students also scored higher on the KASRP test ( $M = 27.52, SD = 2.3$ ) than year one students ( $M = 25.9, SD = 3.05$ ), and this was found to be a significant correlation ( $t = 2.26, p = .028$ ). These results differ from earlier iterations of this study and the implications of those differences are discussed.

### Emotional Intelligence, Pain Knowledge, and Attitudes of Nursing Students

Pain is a human phenomenon that is of fundamental concern to nurses. Pain can be defined as “an unpleasant sensory and emotional experience associated with potential or actual tissue damage” (LeMone, Burke, & Bauldoff, 2011, p. 159). Although society associates pain as being negative, pain can also serve a protective role by giving the warning that something is physiologically wrong within the body. All people experience pain at some point in their life. An approximated 50 million Americans suffer from chronic pain, and another 25 million people suffer from acute pain (LeMone et al., 2011). The high prevalence of pain demands adequate understanding about pain knowledge and treatment from healthcare professionals because untreated pain can lead to other illnesses such as depression, sleep deprivation, bowel obstructions, and anxiety (LeMone et al., 2011). Understanding of pain is essential for all medical professionals; however, it is even more important that nurses are adequately educated about pain as they are responsible for assessment and treatment of pain as well as patient education about pain.

Representations of pain often are present not only physically but emotionally. Pain is often influenced by emotions that can cause physical effects (Linton & Shaw, 2011). As one feels pain, he or she may not only have difficulty completing tasks that were once enjoyed but may also be saddened by a lack of activity. Inability to complete these once enjoyable tasks can be very emotionally disempowering, leading to feelings of a loss of self and individuality. For example, when emotions of anger or anxiety are experienced, muscles tighten, which may result in pain. The general public, as well as some health care providers, may have negative attitudes toward pain based on their knowledge, culture, and personal experiences. Health care workers may also, at times, stigmatize patients as being pain medication seekers and be less likely to

believe pain ratings that those patients report. However, Kaye, Baluch, & Scott (2010) report that some patients, especially the elderly, actually tend to underreport their pain levels. Poor attitudes towards pain point out the importance of nurses' knowledge and emotional intelligence in clinical settings. Emotional intelligence can be defined as "ability of an individual to perceive, assess and manage emotions of his own self and of other people" (American Society of Registered Nurses, 2007). Performing skills in the clinical setting is important to nurse effectiveness and pain outcomes, however incorporating emotional intelligence and self-awareness into practice can be just as important to nurses' work and professional development. Nurses assess and intervene continuously, communicate with others every day, and stand strong as members of the healthcare team; therefore, based on the theory, nurses with a higher EI may show enhanced communication skills, superior assessment skills, and more therapeutic patient relationships compared to those with lower EI (Goleman, 2006). Because pain is considered subjective data, use of EI by nurses may be critical for accurate pain assessment and management.

Nurses start to develop pain knowledge during professional education, which can affect their attitudes about pain. However, very little research has been conducted that investigates any potential link between the knowledge and attitudes that a nursing student has and their emotional intelligence. This study aims to determine the relationships between knowledge of and attitudes toward pain and emotional intelligence in sophomore and senior baccalaureate nursing students. The study answers the following research question: Does emotional intelligence have an effect on nursing students' pain knowledge and attitudes?

## **Review of Literature**

### **Emotional Intelligence**

Researchers have studied emotional intelligence in healthcare professionals (Hefferman, Griffin, McNulty, & Fitzpatrick, 2010) in health care students (Şenyuva, Kaya, Işık, & Bodur, 2014), and in British nursing students (Rankin, 2013). Hefferman, Griffen, McNulty, and Fitzpatrick (2010) researched emotional intelligence in 143 nurses, using the 26-item Self-Compassion Scale and the 30-item Trait Emotional Intelligence Questionnaire. The researchers found a positive relationship between self-compassion and emotional intelligence in nurses working directly with patients in the clinical setting. They suggested screening for self-compassion deficit in nurses and subsequent intervention training to ensure the emotional health of those nurses (Hefferman et al., 2010). In a similar study, Şenyuva et al., (2014), examined self-compassion and emotional intelligence in 471 nursing students and found results similar to that of Hefferman et al. (2010): a positive correlation between self-compassion and emotional intelligence in students.

Chun and Park (2016) examined emotional intelligence in 35 nursing and medical students and found three types of emotional intelligence in nursing and medical students: (1) sensitivity-control (13 individuals), (2) sympathy-motivation (12 individuals), and (3) concern-sympathy (10 individuals). Those in the sensitivity-control type consider the emotions of others to be important, valuing evaluations of others. They also try to mask their own emotions, displaying a front of positivity. Those in the sympathy-motivation group like to share their experiences with others. They also strive to be self-motivated. Those in the concern-sympathy group have a fear of new situations and try to eliminate all unknown variables from a new experience. These people also enjoy discussing their own emotions as

well as the emotions of others. The researchers found that most nursing and medical students (13) fell into the sensitivity-control type and recommended that the best way to prepare nursing and medical students may be to tailor education based on types of emotional intelligence. Finally, Rankin (2013) assessed emotional intelligence in 192 nursing students and determined the relationship between emotional intelligence and clinical performance is positively correlated.

### **Pain Knowledge and Attitudes**

Researchers have examined pain knowledge and attitudes in nursing home staff (Tse & Ho, 2012) and in nursing students in Iran (Rahimi-Madisen, 2010), Hong Kong, (Chan & Hamamura, 2015), Texas, (Duke, Haas, Yarbrough, & Northam, 2013), and Louisiana (Logan & Plaisance, 2006). Tse and Ho (2012) studied the effects of a pain education intervention on pain knowledge and attitudes in 88 nursing home staff, measuring pain knowledge and attitude with the 'Knowledge and Attitudes Survey Regarding Pain' (KASRP). They found deficits in knowledge about pain and pain management before the intervention and significant increases in pain knowledge and attitudes following the education-based intervention.

When researchers have measured pain knowledge and attitudes with the KASRP in nursing students, they have generally found considerable deficits in students' knowledge about pain. For example, Rahimi-Madiseh (2010) studied knowledge and attitudes towards pain in 146 Iranian nursing students and found inadequate knowledge about pain and how to manage it, despite students responding positively to attitudes about pain. Specifically, they found Iranian nursing students to have less pain knowledge in comparison with international standards (Rahimi-Madiseh, 2010). Plaisance and Logan (2006) also used the KASRP to evaluate attitudes and knowledge about pain among 313 Louisiana nursing students. They found similar

deficits in the student's knowledge and attitudes. Chan and Hamamura (2015) assessed the pain knowledge in relation to triage for different ethnic groups in 74 nursing students and found that the ethnicity of simulated patients did have an effect on how the students assessed their pain. The researchers concluded that nursing instructors should be aware of this determining factor in students' attitudes about pain (p. 5). Duke, Haas, Yarbrough, and Northam (2013) used the KASRP to evaluate 162 junior and senior nursing students in Texas. They found that a student's knowledge about pain was positively correlated with his or her educational experience.

### **Emotional Intelligence and Pain Knowledge and Attitudes**

Few researchers have investigated the relationship between emotional intelligence and pain knowledge and attitudes in undergraduate nursing students (Chan & Hamamura, 2016). Chan and Hamamura (2016) measured emotional intelligence with the SSEIT and pain knowledge and attitudes with the KASRP in 104 nursing students in Hong Kong. The researchers found that emotional intelligence was negatively correlated with pain knowledge and attitudes, particularly for year three students but not significantly for year one students.

### **Theoretical Framework**

This study is guided by Daniel Goleman's Emotional Intelligence (EI) theory (Goleman, 2006), which defines the concept of Emotional Intelligence as having skills including self-awareness, self-regulation, motivation, empathy, and social skills. The theory of EI was advanced on the belief that knowledge is not enough for a person to succeed. Rather, EI is how people know, make sense of, and connect with others based on their emotions, thoughts, and feelings. The model of EI, (Appendix A), breaks emotional intelligence into four categories labeled: (1) social awareness, (2) self-awareness, (3) relationship management, and (4) self-



management. Therefore, to present with emotional intelligence, one must not only be self-aware, but also aware of others and social interactions. Success in one category of EI can lead to the success in other categories. For example, if one is more self-aware, he or she can consequently become more socially aware.

Emotional intelligence can be categorized into four domains: (1) identifying emotions at a nonverbal level, (2) using emotions to guide cognitive thinking, (3) understanding the information emotions convey and the actions emotions generate, and (4) regulating one's own emotions for personal benefit and for the common good. The four domains of EI theory can be connected with the model of EI. Identifying emotions at a nonverbal level can be beneficial in social awareness situations as well as relationship management. When one uses emotions to guide cognitive thinking one is said to be self-aware, which in turn leads to proper self-management. By understanding the information emotions convey and the actions that they generate, one can also become more self-aware and socially aware, which can, therefore, lead to positive self and relationship management. When one regulates his or her own emotions for the benefit of himself or herself or for the common good, he or she is seen to be more self-aware and socially aware.

Every day, nurses need to use an awareness of the thoughts, feelings, and emotions of others but also of their own to complement social interactions. Emotional intelligence may also enhance accurate assessment of patient needs, supporting selection of more effective interventions and high-quality care. If nurses do not use EI when communicating with patients during assessments, patients' care may become compromised. For example, if a nurse enters a patient's room to assess a man's complaints of pain and seems to be in a hurry to exit the room and move on to other tasks, then the patient may not feel as if he is a priority to the nurse. In

turn, the trusting relationship between the patient and the nurse may suffer. A nurse that practices a higher quality of emotional intelligence may be able to enter the room in a calm manner and assess the pain. By presenting with more EI, the nurse is more self-aware of her emotions and able to focus intensely on the patient, noticing subtle changes in patient behavior or in the nurse's self which may suggest further assessment. This approach may make the patient feel as if the nurse has the time and skills to address his pain issue regardless of competing demands, which increase the nurse-patient therapeutic relationship. Self-awareness of emotions may lead to a better pain assessment, therefore better pain management administration and better pain reduction for the patient.

According to Goleman (2006), when EI increases, behaviors and academic performance are also positively affected. One might expect that this correlation between emotional intelligence and academic performance (knowledge and attitudes about pain and pain management in this case) could be easily detected within nursing students, since sympathy and compassion are seen as integral skills in the nursing field. Therefore, the hypothesis is that the more emotionally intelligent a nursing student is, the more likely he or she will be able to adequately perceive and treat pain within the clinical setting.

The theory of EI is very important to this correlational study of the relationship between emotional intelligence and pain knowledge and attitudes in nursing students because emotional intelligence has been found to be just as important as knowledge, based on the premise that Intelligence Quotient (IQ) scores are not enough to predict that a person will succeed in the classroom (Goleman, 2006). IQ scores can be defined as "a score determined by one's performance on a standardized intelligence test relative to the average performance of others of the same age" (IQ, 2018). Based on this theory of EI, it is hypothesized that this research study

will find a relationship between emotional intelligence and knowledge in nursing students. By surveying groups of sophomore and senior students, it is expected that there will be a higher EI among the senior group, resulting in greater pain knowledge and more positive attitudes about pain among the senior students when compared with the sophomore students.

### **Methods**

The design of this study is non-experimental and correlational. The design is non-experimental because it collects data from the sample population about knowledge but does not subject them to an intervention or activities beyond the filling out of a questionnaire. The study is correlational because it aims to determine whether or not there is a relationship between emotional intelligence and knowledge/attitudes about pain. University Institutional Review Board (IRB) approval was obtained before the recruitment process started.

### **Setting and Sample**

This study took place in a baccalaureate nursing program at a large urban public university in the Midwestern United States. The total number of students at the university for 2015 was 25,177. The number of students in the school of nursing in 2016 was about 515 not including graduate students. The undergraduate programs include traditional baccalaureate (BSN), RN to BSN, accelerated, and LPN to BSN.

The target population consisted of students in the nursing school. In order to participate in the study, students must have been over 18 years of age and a sophomore or senior enrolled in the undergraduate program within the school of nursing. The exclusionary criteria for the study were as follows: (1) students in any accelerated nursing program and (2) students enrolled in the LPN-to-BSN programs.

### **Sampling Procedures**

Convenience sampling was used in this study. A mass email (Appendix D) describing the study and containing a link to the consent form and survey questionnaire was sent out in three waves to eligible students in the school of nursing. Before starting the survey, participants were prompted with a consent form (Appendix E) and a general description of the study. This consent form also explained that the participant's involvement is completely voluntary, that responses cannot be linked in any way to their personal identity, and that only the co-conductors and project sponsor will have access to their responses. Participants were told that informed consent is implied when they complete and submit the questionnaire data.

### **Measures**

Emotional intelligence was measured with The Schutte Self Report Emotional Intelligence Test (SSEIT), written by Dr. Nicola Schutte in 1998. The SSEIT (Appendix B) is made up of 33 statements that the participant is asked to rate to what extent he or she disagrees with or agrees with each statement. Ratings are measured with a Likert scale of 1-5, 1 being strongly disagreeing to 5 being strongly agreeing. All the response values are added up to assign the participant a score that is representative of his or her emotional intelligence. Several questions were reverse coded as appropriate. Previous studies reported sound reliability of the SSEIT (Chan and Hamamura, 2016). Chan and Hamamura (2016) reported a Cronbach's alpha of 0.88 for the scale in a sample of 104 nursing students.

Knowledge and attitudes about pain were measured with The Knowledge and Attitudes Survey Regarding Pain (KASRP), written by Ferrell and McCaffery in 2012. The KASRP, (Appendix C), consists of 39 questions, 21 of them being true or false questions, 16 being

multiple-choice questions, and two case studies. Participants are asked to respond to each item by choosing the answer that they believe is the most correct response. A correct answer to any of the questions is scored as one point, making the possible range of scores 0-39. Previous studies have shown the KSARP to have established content validity, test-retest reliability ( $r > .80$ ), and internal consistency reliability ( $r > .70$ ) (Ferrell & McCaffery, 2012).

### **Data Collection Procedures**

Once participants gave informed consent, they completed the online survey, which included variable measures and demographics of gender, age, level of progression, employment status, and ethnicity. Participants completed the surveys at their own pace, revised response options if desired, and moved back and forth within the survey to review responses or gauge progress. As a gesture of gratitude, participants had the option to enter into a raffle for three, ten-dollar gift cards at the end of the survey by entering their email via a separate web link. This separate link ensured their responses can in no way be connected to the previous data entries.

Data collection was conducted through the Qualtrics survey, available through the university and password protected. Only those conducting the study had access to the survey and results. The data was stored online and was erased from the Qualtrics software once the study had been completed. After all of the responses to the survey were received, data was imported into SPSS, a statistical analysis software program. The dataset was confidential and anonymous; it was only available to the co-coordinators and sponsor and was password protected.

### **Data Analysis**

Pearson's  $r$  and independent  $t$ -tests were used to answer the research questions. The associations between emotional intelligence and pain knowledge and attitudes were determined

by performing correlational analyses with Pearson's correlation coefficients. Independent *t*-tests were used to determine differences among different groups in descriptive statistics, as well as gaps in emotional intelligence and pain knowledge of year one and year three students. The Pearson correlation coefficients (*p*) were all set with alphas less than 0.05.

### Results

Table 1

*Pain Knowledge results (KASRP) and Emotional Intelligence (SSEIT) Results Among Year One and Year Three Undergraduate Nursing Students*

|              | <b>Year one (n=26)</b>  | <b>Year three (n=28)</b> | <b><i>t</i></b> | <b><i>p</i></b> |
|--------------|-------------------------|--------------------------|-----------------|-----------------|
|              | <b>Mean +/- SD</b>      | <b>Mean +/- SD</b>       |                 |                 |
| <b>KASRP</b> | <b>25.9 +/- 3.05</b>    | <b>27.57 +/- 2.3</b>     | <b>2.26</b>     | <b>.028</b>     |
| <b>SSEIT</b> | <b>124.69 +/- 11.76</b> | <b>125.39 +/- 8.71</b>   | <b>.257</b>     | <b>.798</b>     |

*Note: Emotional intelligence was measured with the SSEIT tool and Pain Knowledge was measured with the KASRP tool.*

In analyzing the 64 completed survey responses, seven responses had to be removed because they fell outside of the acceptable range of standard deviations. On average, the participants of this study scored a 26.74 out of 40 points on the KASRP test and 125.04 out of 165 on the SSEIT survey. Of the 26 sophomores and 28 seniors that responded, there were only a few discernable correlations. While seniors scored slightly higher on average than the sophomores in the SSEIT, the difference between the two was small, and the Pearson coefficient of .798 was far higher than the .05 value that suggests any correlation. However, the results of the KASRP test suggest that there is in fact a significant correlation between college level and

knowledge and attitudes about pain. Year 3 students scored an average of 2.26 points higher than year 1 students, and a Pearson's coefficient of .028 places this result well within the significance limit. As far as any connection between EI and pain knowledge/attitudes, a slight positive correlation (.064) was discovered. However, with a Pearson correlation coefficient of 0.646, no significance can be attributed to this correlation.

### **Discussion**

While a similar, previous study in Hong Kong (Chan & Hamamura, 2016) demonstrated a significant negative correlation between emotional intelligence and pain knowledge/attitudes in the whole group and in year three students, this study could not confirm the trend. In this study it was found that there was a slight increase in the EI in the year three students as well as a significant increase in knowledge. Through data analysis, it was found that a slight correlation between EI and pain knowledge/attitudes exists; however, the correlation was not found to be statistically significant. Although based on the theory of EI it was hypothesized that a significant relationship between EI and pain knowledge/attitudes exists, this study could not confirm there was a strong correlation between the variables. According to Shanta and Gargiulo (2014), nursing students demonstrated a decreased ability to perceive emotions in patients as they progressed through nursing school. The theory that prolonged patient exposure decreases a nursing student's sensitivity to patient emotions was supported by the Hong Kong study (Chan & Hamamura, 2016) but not by this replication. The presence of a positive trend of emotional intelligence throughout nursing school suggests that further studies are needed in order to confirm or reject this idea.

Although this study cannot conclude anything definitive on emotional intelligence, its results on the progression of pain knowledge and attitudes of nursing students throughout the

program are noteworthy. In this way, this study differs from its Hong Kong counterpart (Chan & Hamamura, 2016). While both studies' trends are positive, showing higher KASRP scores of year three students than those of year one, this replication can present that trend as being statistically significant. This suggests that some significant degree of pain knowledge and attitudes is expected to be gained throughout the nursing education process. Nonetheless, more research is needed in order to determine whether this is due to differing curriculums or whether this university is somehow exempt from the widespread knowledge deficits found in nursing students throughout the world (Plaisance & Logan, 2006; Rahimi-Madiseh, Tavakol & Dennick, 2010).

### **Study Limitations**

The interpretation and utilization of the results of this study should be considered with its several limitations. This study utilized self-report measures and is only accurate if the students were authentic with their responses. Because this study is cross-sectional, only correlations should be extracted from it. Finally, the participants of this study were from one school and were fewer in number than previous, similar studies. Generalization of its results should therefore be avoided.

### **Conclusion**

This study found a slight correlation between emotional intelligence and pain knowledge/attitudes; however, these findings were not statistically significant. Additionally, data showed a significant positive trend of pain knowledge/attitudes between year one and year three students. This study was limited as it depended on self-report tools, relied on a small sample size, and was a cross-sectional study, meaning only correlations could be extracted from data findings. Although this study may not be representative of a larger nursing student



population, the need for an accurate understanding of nursing students' ability to understand and effectively treat pain is critical. Even at the advanced practice level, a deficit exists in adequate pain management for patients (Fontana, 2008). With a positive correlation between these variables, it is key for nursing educators to incorporate EI building techniques into nursing curriculum so that graduates from these programs are more effective at assessing and treating pain, as well as building therapeutic relationships with patients. This study provides meaningful data that will guide future research into adequate pain management by nursing personnel. Future research is essential to learn more about the significance of the correlation between EI and pain knowledge/attitudes of nursing students.

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Appendix A  
Emotional Intelligence Theory



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## Appendix B

Chan, J. Y., &amp; Hamamura, T. (2016).

## The Schutte Self Report Emotional Intelligence Test (SSEIT)

Instructions: Indicate the extent to which each item applies to you using the following scale:

- 1 = strongly disagree
- 2 = disagree
- 3 = neither disagree nor agree
- 4 = agree
- 5 = strongly agree

1. I know when to speak about my personal problems to others
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them
3. I expect that I will do well on most things I try
4. Other people find it easy to confide in me
5. I find it hard to understand the non-verbal messages of other people
6. Some of the major events of my life have led me to re-evaluate what is important and not important
7. When my mood changes, I see new possibilities
8. Emotions are one of the things that make my life worth living
9. I am aware of my emotions as I experience them
10. I expect good things to happen
11. I like to share my emotions with others
12. When I experience a positive emotion, I know how to make it last
13. I arrange events others enjoy
14. I seek out activities that make me happy
15. I am aware of the non-verbal messages I send to others
16. I present myself in a way that makes a good impression on others
17. When I am in a positive mood, solving problems is easy for me
18. By looking at their facial expressions, I recognize the emotions people are experiencing
19. I know why my emotions change
20. When I am in a positive mood, I am able to come up with new ideas
21. I have control over my emotions
22. I easily recognize my emotions as I experience them
23. I motivate myself by imagining a good outcome to tasks I take on
24. I compliment others when they have done something well
25. I am aware of the non-verbal messages other people send
26. When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself
27. When I feel a change in emotions, I tend to come up with new ideas
28. When I am faced with a challenge, I give up because I believe I will fail
29. I know what other people are feeling just by looking at them

30. I help other people feel better when they are down
31. I use good moods to help myself keep trying in the face of obstacles
32. I can tell how people are feeling by listening to the tone of their voice
33. It is difficult for me to understand why people feel the way they do

## Appendix C

Chan, J. Y., &amp; Hamamura, T. (2016).

## Knowledge and Attitudes Survey Regarding Pain

True/False – Circle the correct answer.

- T F 1. Vital signs are always reliable indicators of the intensity of a patient's pain.
- T F 2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.
- T F 3. Patients who can be distracted from pain usually do not have severe pain.
- T F 4. Patients may sleep in spite of severe pain.
- T F 5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.
- T F 6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.
- T F 7. Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent.
- T F 8. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.
- T F 9. Opioids should not be used in patients with a history of substance abuse.
- T F 10. Elderly patients cannot tolerate opioids for pain relief.
- T F 11. Patients should be encouraged to endure as much pain as possible before using an opioid.
- T F 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.
- T F 13. Patients' spiritual beliefs may lead them to think pain and suffering are necessary.
- T F 14. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.
- T F 15. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.
- T F 16. Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5-10 mg of morphine PO.
- T F 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.
- T F 18. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.
- T F 19. Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regimen.
- T F 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.
- T F 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.
- T F 22. Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.



Multiple Choice – Place a check by the correct answer.

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

- a. intravenous
- b. intramuscular
- c. subcutaneous
- d. oral
- e. rectal

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

- a. intravenous
- b. intramuscular
- c. subcutaneous
- d. oral
- e. rectal

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

- a. codeine
- b. morphine
- c. meperidine
- d. tramadol

26. 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 (e.g., Asians are stoic, Italians are expressive, etc).
- c. Patients should be individually assessed to determine cultural influences.
- d. Cultural influences can be determined by an individual's socioeconomic status (e.g., blue collar workers report more pain than white collar workers).

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

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

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

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

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

- \_\_\_\_\_ a. 5 min.
- \_\_\_\_\_ b. 30 min.

- c. 1 – 2 hours
- d. 3 hours

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

- a. sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued.
- b. Impaired control over drug use, compulsive use, and craving.
- c. The need for higher doses to achieve the same effect.
- d. a and b

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.

### Case Studies

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

Directions: Please select one answer for each question.

38. Patient A: Andrew is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the

following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

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

0 1 2 3 4 5 6 7 8 9 10 (0 is no pain, 10 is worst pain)

B. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings

following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation,

or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's

order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.

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

39. Patient B: Robert is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information:

BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

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

0 1 2 3 4 5 6 7 8 9 10

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

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

## Appendix D

Hello Undergraduate Nursing Students!

If you are a sophomore or senior, we are inviting you one final time to participate in a nursing honors research project about emotional intelligence and pain knowledge/attitudes in nursing students. This important study is by senior nursing students: Brittany Butcher, Taylor Weber, and Nathan Herr, and will only be available to complete for the **next week** or so! If you are interested in participating, please click the following link to participate in the online survey, which should take approximately 20 minutes. Your data will be anonymous, however, at the completion of the survey you will be able to enter your email to be entered in a drawing to win one of three \$10 Starbucks gift cards. Thank you in advance for your time and commitment to supporting research by undergraduate students in our nursing program. We once again appreciate your time and support!

**Follow this link to the Survey:**

[Take the Survey](#)

Or copy and paste the URL below into your internet browser:

[https://akron.qualtrics.com/jfe/form/SV\\_9vmOA2zaCjR88yp](https://akron.qualtrics.com/jfe/form/SV_9vmOA2zaCjR88yp)

Sincerely,

Taylor Weber, Brittany Butcher, Nathan Herr

## Appendix E

**Consent Form**

**Title of Study:** Emotional Intelligence, Pain knowledge, and Pain attitudes of Nursing Students

**Introduction:** You are invited to participate in a research project that is being conducted by Brittany Butcher, Taylor Weber, Nathan Herr, and Dr. Carrie Scotto.

**Purpose:** This study aims to determine the relationships between knowledge of and attitudes towards pain and emotional intelligence in sophomore and senior baccalaureate nursing students. The study plans to answer the following research question: Does emotional intelligence have an effect on nurses' pain knowledge and attitudes?

**Procedures:** Participants will be asked to fill out a survey. It is estimated that this survey will take approximately 15 minutes to complete.

**Benefits:** You may not receive any benefits from this study, but your participation may help education of nursing students in the future.

**Payments to participants:** Participants of this study will be entered into a drawing to receive a \$10 starbucks gift card at the end of the data collection. The winner will be reached by email and asked for the address that they would like to receive the payment at.

**Right to Refuse or Withdraw:** Participation in this study is voluntary and refusal to participate or withdraw from the study at any time will not affect one's grade or involve any other penalties.

**Anonymous Data collection:** No identifying information will be collected, and your anonymity is further protected by not asking you to sign and return the informed consent form.

**Confidentiality of records:** Data that is collected from this study will be protected by password and only viewed by the investigators as well as the sponsor. At the conclusion of the study all data will be deleted from the server.

**Questions:** For questions, participants are asked to contact Taylor Weber at [tmw113@zips.uakron.edu](mailto:tmw113@zips.uakron.edu), or Dr. Scotto at [cscotto@uakron.edu](mailto:cscotto@uakron.edu). This project has been reviewed and approved by the University of Akron Institutional Review Board. If you have any questions about your rights as a research participant, you may call the IRB at (330) 972-7666.