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The Effect of Patient Behavior and Race/Ethnicity On the Titration of Opioid Analgesia

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THE EFFECT OF PATIENT BEHAVIOR AND RACE/ETHNICITY ON THE TITRATION OF OPIOID ANALGESIA

By

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Abstract

The undertreatment of pain following surgery is an international problem that the majority of postoperative patients experience. Despite immense technological advances in pain management, the literature remains replete with examples of patients who experience postoperative oligoanalgesia. Because registered nurses play a vital role in the management of patient pain, their practices must be studied. This study examines the correlation between patient race/ethnicity and the titration of opioids in the postoperative setting. The study also explores the knowledge and attitudes that registered nurses possess regarding opioid administration. A convenience sample of 21 perioperative registered nurses was obtained from a hospital in Hattiesburg, Mississippi. Participants completed a modified version of the Knowledge and Attitudes Survey Regarding Pain. The results identified barriers to quality pain management, especially knowledge deficits regarding the pharmacological control of pain. It was discovered that neither patient behavior nor patient race/ethnicity affected the nurse assessment or the titration of opioids. All patients experienced the underadministration of opioids regardless of their behavior or race/ethnicity. Furthermore, none of the participants received a passing score on the survey, which implies widespread misconceptions regarding pain management among the participants. The results of this study support the universal phenomenon of inadequate knowledge regarding postoperative pain management. Educational services regarding opioid administration potentially could improve nurses' theoretical knowledge base and subsequently their practices in the clinical setting.

Keywords: nurses' knowledge, nurses' attitudes, pain management, pain assessment, race/ethnicity, patient behavior, opioid analgesia

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Introduction

The undertreatment of postoperative pain in surgical patients is a persistent problem internationally (Rejeh, Ahmadi, Mohammadi, Kazemnjad, & Anoosheh, 2009; Clarke & Iphofen, 2008; Gunningberg & Idvall, 2007). Despite immense technological advances in pain management and healthcare in general, research indicates post-surgical pain is not relieved in the majority of patients (Rejeh et al., 2009). In June 2011, a report published by the Institute of Medicine urges healthcare providers to improve pain assessments and management. The report also indicates that surgical patients' pain is often underdiagnosed and undertreated in the United States (Institute of Medicine of the National Academies, 2011). Although there are many factors that contribute to unsatisfactory patient pain control, several studies indicate that nurses play a direct role in poor management of pain. Nurses spend more time with patients than any other health professional group and are responsible for administering prescribed analgesics. This relationship makes nurses the lynchpin to adequate patient pain control (Nash, Yates, Edwards, Fentiman, Dewar, McDowell, & Clark, 1999). However, pain management knowledge deficits, inadequate pain assessments, lack of communication, divergent attitudes, and an absence of systematic documentation may lead to unacceptable pain management (Gunningberg & Idvall, 2007).

Definition of Pain

Nurse theorist Margo McCaffery (1968) defines pain as "whatever the experiencing person says it is, existing whenever he/she says it does," (p. 7). Her definition highlights the subjectivity of pain and emphasizes the nurse's professional responsibility to assess the patient's level of pain and accept the patient's self-report

(McCaffery, 1968). Researchers suggest that some nurses doubt the severity of pain that patients report, which leads to the under-administration of opioids and other analgesics (Clarke &Iphofen, 2008; Nash et al., 1999). McCaffery (1968) advocates that the nurse is "entitled to his or her personal opinion about whether the patient is telling the truth about his pain. However, the issue is professional responsibility, which is to accept the patient's report of pain and to help the patient in a responsive and positive manner" (p. 8).

Numeric Rating Scale

The most common method nurses use to assess patient pain is the Numeric Rating Scale (NRS), which ranges from 0 (no pain) to 10 (worst possible pain). Ratings between 0 and 5 correspond to nonexistent, mild, and moderate pain, while ratings between 5 and 10 reflect moderate, severe, and agonizing pain. (Alspach, 2010). The patient self-report of pain remains the gold standard for pain assessment and is the most reliable indicator of pain.

Opioid Analgesics

Opioids are the mainstay in the management of all types of pain, especially in moderate to severe postoperative pain. Pure opioids, such as morphine, do not have a ceiling dose, or maximum dose that may be given (McGuire, 2010). However, dose modifications may be necessary according to each patient's response (McGuire, 2010). The World Health Organization (WHO) provides guidelines to assist healthcare providers select medications congruent with the patient's level of pain. The organization advises that the patient's report of pain on the Numeric Rating Scale (NRS) determines which medications are appropriate. Level 1 pain (1-3 rating) should be managed with non-opioids, like acetaminophen, or non-steroidal anti-inflammatory drugs, such as ibuprofen.

Level 2 pain (4-6 rating) should be controlled with weak opioids alone or in combination with an adjuvant drug, such as Ultram or Vicodin. Level 3 pain (7-10 rating) is severe pain and strong opioids, such as morphine or hydromorphone (Dilaudid) should be used to manage it (McGuire, 2010).

Patient Characteristics Affecting Opioid Administration

Several examiners indicate that nurses associate certain surgeries with expectations about the severity of pain a patient will experience (Nash et al., 1999). Additionally, patient behavior seems to influence nurses and their decision-making regarding pain treatment. It appears that nurses are more likely to believe reports of pain from grimacing rather than from smiling patients (Edwards, Nash, Najman, Yates, Fentiman, Dewar, & Skerman, 2001; Manias, Botti, & Bucknall, 2002; Al-Shaer, Hill, & Anderson, 2011). Manias et al. (2002) suggest that nurses' perceptions of pain may be influenced by the following: their own understanding, their past experiences of pain, the type of operation the patient has undergone, the patient's age, the number of inpatient postoperative days, the patient's gender or culture, as well as other contextual concerns.

Furthermore, there are conflicting studies about whether or not a patient's race/ethnicity affects the prescription and administration of opioid analgesics. While some studies indicate that racial and ethnic minorities are at a higher risk for oligoanalgesia, or the under-administration of analgesia, (Bonham, 2001), other studies suggest that race/ethnicity does not affect the way opioids are given (Tamayo-Sarver, Dawson, Hinze, Cydulka, Wigton, Albert, & Baker, 2003).

The two research questions this study proposes to answer are "How does patient behavior and patient race/ethnicity affect the way nurses titrate opioid analgesics?" and

"How do nurses' knowledge of and attitudes towards postoperative patient pain affect opioid administration?"

Literature Review

The literature focusing on the incongruity between nurses' assessment of pain and patient self-report of pain is extensive; however, how this discrepancy directly affects opioid administration is still understudied, particularly in the southeast United States. Moreover, how the patient's race/ethnicity affects the titration of analgesia by nurses has yet to be studied. The aim of this study is to explore how nurses' attitudes, knowledge, and biases towards postsurgical patient pain affect the administration of *pro re nata* (prn) opioids.

Undertreatment of Postoperative Patient Pain

Patients have the right to adequate pain assessment and management based on Joint Commission core principles (The Joint Commission, 2013). However, several studies reveal that pain management in postoperative patients is inadequate (Edwards et al., 2001; Idvall, Bergqvist, Silverhjelm, & Unosson, 2008; Ene, Nordberg, Bergh, Johansson, & Sjöström, 2008; Al-Shaer et al., 2011). Because nurses play a key role in post-surgical pain management, many studies focus on their knowledge, attitudes, and practices.

Al-Shaer et al. (2011) speculate that pain may be undertreated as a result of inappropriate assessments or the improper administration of analgesics, especially opioids. In addition, the researchers found that some nurses seemed insensitive to physical signs of discomfort and would listen to patients' experiences of pain, yet would not act upon them (Al-Shaer et al., 2011). Dihle (2006) reported similar findings and

asserted that the most common reason for inadequate pain control is the failure of nursing staff to assess and evaluate patient pain systematically.

Idvall et al. (2008) suggest that nurses do not lack a theoretical knowledge regarding pain management but rather an effective implementation process and evaluation of good clinical practice. Ene et al. (2008) assert that nurses may have the theoretical knowledge regarding pain management but this does not necessarily mean that they will implement this knowledge in the clinical setting. Therefore, how nurses' attitudes influence opioid administration must be considered.

Nurse's Attitudes Towards Patient Pain and Opioid Administration

Edwards et al. (2001) reveal that nurses claim to hold positive attitudes towards opioids and their beneficence, yet when surveyed nearly half (47.8%) of the nurses believed patients should be encouraged to receive non-opioids rather than opioids for pain relief. The researchers suggest that nurses do not administer sufficient doses of opioid analgesics because they are influenced by a range of beliefs, attitudes, and norms that prevent successful pain management. The researchers further conclude that patient behavior influences how opioids are given and that nurses are more likely to believe a patient's self-report of pain if he/she is displaying physical behaviors of pain (Edwards et al., 2001).

Ene et al. (2008) also posit that nurses may be more influenced by patient behavior than self-reports of pain, especially when making decisions about opioid titration. The researchers indicate that documented pain scores are more influential than patients' verbal pain reports, and the documented pain scores largely determined whether or not patients receive opioids. After interviewing both nurses and patients, the

researchers found that approximately one-third of patients' and nurses' reports were incongruent because nurses consistently underestimated severe pain (Ene et al., 2008). It appears that nurses are inclined to rely on personal judgment of patient behavior rather than a pain assessment tool when assessing pain (Ene et al., 2008; Edwards et al., 2001; Idvall et al., 2008; Manias et al., 2002; Al-Shaer, et al., 2011). According to Manias et al. (2002), "nurses' perceptions of pain may be based on their own knowledge, past experiences with pain, type of operation the patient has undergone, patient's age, number of days following surgery, patient's gender or culture, as well as other contextual concerns" (p. 725).

The Impact of Race/Ethnicity on Pain Management

Although there has been extensive research showing that patient behavior affects pain management, there has been little research regarding the effect of race/ethnicity on how nurses administer opioids, especially in the postoperative setting. Bonham (2001) concludes that patients from minority groups are more likely to have the severity of their pain underestimated by their physicians. However, the researcher also points out that other studies have found that a patient's race/ethnicity does not influence how analgesics are prescribed. Nonetheless, the majority of studies reviewed found an inequity in pain treatment, with African Americans and Hispanics more likely to be undertreated for pain than Caucasian patients (Bonham, 2001).

Tamayo-Sarver et al. (2003) constructed three clinical vignettes with each patient having a racially identifiable name (Shaquil Robinson, Luis Martinez, and Sean O'Connor) and explicitly stated the patient's race/ethnicity. The researchers found that the patient's race/ethnicity did not influence the way physicians prescribed pain

medications. The majority of the current literature explores how race/ethnicity influence physicians and their treatment plans, but very little research has been conducted regarding nurses and their practices. Physicians prescribe the opioids, and nurses determine when to administer them (Edwards et al., 2001). Therefore, it is important to examine if race/ethnicity affects the way nurses manage postoperative pain using opioids in the postoperative setting.

Methodology

Purpose

The aim of this study was to explore how the race/ethnicity and behaviors of patients influenced the titration of analgesics. Additionally, nurses' knowledge and attitudes toward postoperative patient pain was also studied.

Sample Selection

This study surveyed a convenience sample consisting of perioperative nurses from a local hospital in Hattiesburg, Mississippi. Nurses from the postanesthesia care unit (PACU), same day surgery, and postoperative floor were invited to complete the questionnaire. Consent to participate in the study was implied by return of the completed questionnaire.

Instrumentation

A modified version of the Knowledge and Attitudes Survey Regarding Pain (Ferrell & McCaffery, 2008) was used (see Appendix A). This tool has been used in several studies and validity and reliability have been established by review of pain experts. Questions regarding cancer and pediatric pain were removed from the survey, leaving 19 true/false questions and 10 multiple-choice questions. Additionally, the

race/ethnicity of the patients in the clinical vignettes was added. The questionnaires consisted of six vignettes portraying an African American male grimacing, an African American male smiling, a Hispanic male grimacing, a Hispanic male smiling, a Caucasian male grimacing, and a Caucasian male smiling while giving a self-report of pain. Patients in the clinical vignettes had racially identifiable names, and their race/ethnicity was explicitly stated. Participants received only two of the vignettes with two patients of the same race, one grimacing and one smiling.

Variables

The dependent variables included the documentation of the patient's pain level and the dose of morphine administered to each patient. Other dependent variables include the nurses' responses to the true/false and multiple-choice questions. The independent variables include the nurses' perceptions of the patient's report of pain.

Procedures

Approval was sought from the institutional review board (IRB) of the University of Southern Mississippi and the research committee of the local hospital. Permission was obtained from the nurse managers of the units to invite registered nurses to participate in the study. Registered nurses working in the postanesthesia care unit (PACU), same day surgery, and postoperative floor were invited to participate in the study by the nurse managers of the unit. The nurses completed the questionnaire during their monthly staff meeting or at their own convenience. Anonymity was guaranteed and participation was strictly voluntary. There were three variations of the questionnaire labeled form A, B, and C. Form A included the clinical vignettes portraying Caucasian patients. Form B inquired about the care of Hispanic patients, and form C included the vignettes depicting

African American patients. Each nurse answered only one set of clinical vignettes with two patients of the same race. Each questionnaire contained the same 19 true/false statements and 10 multiple-choice questions. It was not made known that there were different forms of the questionnaire, nor that race/ethnicity was a part of the study. After the participants completed the surveys, they placed them inside of a locked ballot box, which was picked up by the researcher after one week.

Analysis

The data was analyzed with the help of a statistician. The survey data was analyzed according to percentage of correct answers instead of categorizing questions as either knowledge or attitudes questions (Ferrell & McCaffery, 2008). The questions most often answered correctly and the most commonly missed questions were determined. The total scores from the Knowledge and Attitudes Survey Regarding Pain (KAS) were calculated by constructing a frequency table. The frequency table also assisted in determining which questions had the highest and lowest correct response rate. A T-test was performed to determine the significance of patient behavior on pain assessments made by the registered nurse and the administration of opioids. Furthermore, analysis of variance (ANOVA) was used to assess the correlation between patient race/ethnicity and the pain assessments documented and the titration of opioids. A p value of <0.05 was considered statistically significant (Matthews & Malcolm, 2007).

Results

The two questions posed for this study were: how does patient behavior and patient race/ethnicity affect the way nurses titrate opioid analgesics, and how do nurses'

knowledge of and attitudes towards postoperative patient pain affect opioid administration?

Data were collected from 21 nurses who were currently working in PACU, same day surgery, and on the postoperative floor at a local hospital in Hattiesburg, Mississippi. All of the participants had experience with administering pain medications postoperatively. Participants were asked to answer 19 true/false statements, four questions regarding pain assessments and morphine administration, and 10 multiple-choice questions. This chapter will describe the study findings as they relate to the research questions.

Response Rate

Table 1 Response Rate of Study

Area of Hospital	**Number of Surveys Distributed**	**Number of Surveys Returned**	**Percentage Response Rate**
PACU	30	4	13.3%
Same day surgery	30	9	30%
Postoperative floor	30	8	26.7%
Total	**90**	**21**	**23.3%**

As depicted in Table 1, a total of 90 surveys were distributed in three perioperative areas of a hospital in Hattiesburg, Mississippi. A total of 21 registered nurses participated in the study and returned surveys. Of the returned surveys, 18 were answered completely. A response rate of 13.3%, 30%, and 26.7% was obtained from PACU, same day surgery, and the postoperative floor respectively for an overall response rate of 23.3%.

Analysis of Nurses' Knowledge and Attitudes Surveys Regarding Pain

The 21 surveys were analyzed to determine the results of the modified Knowledge and Attitudes Survey Regarding Pain (KAS). The survey was divided into three sections and analyzed according to the research question each section aimed to answer.

Section I included 19 true/false statements in which the participant was asked to circle the answer he/she believed to be correct. The statements that received the most correct responses were determined and compared to the items that were missed most often. Section II presented two clinical vignettes, and each vignette asked two questions. The registered nurse first had to decide the level of pain the patient was experiencing and then the correct dose of morphine to administer to the patient. The percentage of correct answers was calculated and each set of forms (A, B, and C) were compared to one another using analysis of variance (ANOVA). Section III posed 10 multiple-choice questions in which the registered nurse was asked to select one answer from four possible answers. Similar to Section I, the questions that were answered correctly most often were determined and compared to the questions that were most often missed. Overall scores on the KAS were calculated, with a score of 80% or higher considered as passing (McCaffery & Robinson, 2002). The creator of the KAS suggested that if a healthcare provider scored less than 80% on the survey, that provider's ability to care for a patient in pain was jeopardized (McCaffery & Robinson, 2002).

Overall Scores on the Knowledge and Attitudes Regarding Pain Survey

On the KAS tool, the maximum score achievable was 33, with 27 correct answers needed to receive a passing score of 80%. When analyzed, each correctly answered item was assigned a "1" and each incorrectly answered item was assigned a "0". Analysis of the surveys revealed that no participant achieved an overall score of 80% or higher on the

survey tool. The total scores ranged from 45.5% to 78.8% with an overall mean of 66.4%.

Analysis of Section I: True/False Statements

Table 2 Percent of Correctly Answered Items on Section I

KAS Item Number	Question Content for True/False Statements	% Correct Answer	T/F
1.	Vital signs are always reliable indicators of the intensity of a patient's pain.	**85.7%**	**F**
2.	Patients who can be distracted from pain usually do not have severe pain.	**100%**	**F**
3.	Patients may sleep in spite of severe pain.	**71.4%**	**T**
4.	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	**47.6%**	**T**
5.	Combining analgesics that work by different mechanisms (e.g. combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.	**85.7%**	**T**
6.	The usual duration of analgesia of 1-2mg of morphine IV is 4-5 hourly.	**66.7%**	**F**
7.	Opioids should not be used in patients with a history of substance abuse.	**85.7%**	**F**
8.	Morphine has a dose ceiling (i.e. a dose above which no greater pain relief can be obtained).	**38.1%**	**F**
9.	Elderly patients cannot tolerate opioids for pain relief.	**100%**	**F**
10.	Patients should be encouraged to endure as much pain as possible before using an opioid.	**100%**	**F**
11.	Patient's spiritual beliefs may lead them to think pain and suffering are necessary.	**90.5%**	**T**
12.	After an initial dose of an opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.	**81.0%**	**T**
13.	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.	**85.7%**	**F**
14.	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 diagnose the cause of pain.	**47.6%**	**F**

15.	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.	**90.5%**	**F**
16.	Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.	**28.6%**	**T**
17.	Narcotic/Opioid addiction is defined as chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, continued use despite harm, and craving.	**85.7%**	**T**
18.	Research shows that promethazine (Phenergan) is a reliable potentiator of opioid analgesics.	**14.3%**	**F**
19.	Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5-10 mg of morphine PO.	**23.8%**	**T**

Section I of the KAS consisted of 19 true/false statements where the participant was asked to circle the answer he or she believed was correct. Table 2 displays the percentage of participants that answered each individual item correctly. The analysis revealed that 11 of 19 questions received a correct answer rate of 80% or above (KAS Item Numbers: 1, 2, 5, 7, 9, 10, 11, 12, 13, 15, 17). Three of the items were answered correctly in 100% of the surveys (KAS Item Numbers: 2, 9, 10). Conversely, eight items received a score of 75% or lower (KAS Item Numbers: 4, 6, 8, 14, 16, 18, 19), and six questions had a correct answer rate of 50% or less (KAS Item Numbers: 4, 8, 14, 16, 18, 19).

Analysis of Section II: Clinical Vignettes

Section II of the KAS consisted of two clinical vignettes. Form A depicted two Caucasian male patients, one joking and smiling while giving a report of pain, and the other grimacing while scaling his pain. Form B consisted of one smiling Hispanic male patient and one grimacing Hispanic male patient. Form C included two African American male patients in the clinical vignettes. Again, one of these patients was smiling

while the other was grimacing. All patients in the vignettes scaled their pain as an "8" on a scale of 0-10 and had identical vital signs.

Each case study asked two questions for a total of four questions per form. These case studies determined participants' knowledge and attitudes concerning pain assessments and opioid titration. Additionally, because each set of patients was racially different, the vignettes aimed to determine if biases were present regarding patient pain assessments and the administration of opioids. The first question asked the nurse to scale the patient's pain based on his or her own assessment. The second question asked the nurse for the correct dose of morphine that should be administered to the patient based on the pain assessment. A simulated physician's order was given in the scenario to administer "morphine 1-3mg intravenously (IV) every hour as required (PRN) for pain relief." Four choices were then given in which the participant must select the correct dosage of morphine to administer. The four possible answers ranged from "administer no morphine" to "administer 3mg IV morphine." For both patient scenarios, the correct answer was "administer 3mg IV morphine."

Patient Behavior

The clinical vignettes were analyzed to determine if patient behavior influenced the documentation of patient self-report of pain and the administration of morphine. A T-test was performed to determine significance, with a p value <0.05 considered statistically significant.

Table 3 Form A Paired Samples Statistics

		Frequency (N)	Percent Correct	Significance
Pair 1	**cp1**	7	71.4%	.356
	cp3	7	85.7%	
Pair 2	**cp2**	7	0.0%	.356
	cp4	7	14.3%	

Seven respondents answered Form A, which depicted Caucasian patients. Clinical vignette question one (cp1) was compared to clinical vignette question three (cp3) to determine if patient behavior influenced pain assessments. These two questions asked the participant to scale the patient's pain according to the NRS. The first pain assessment was performed on the smiling patient, and received a 71.4% correct response rate. The second pain assessment was performed on the grimacing Caucasian patient, and received an 85.7% correct response rate. A p value of .356 was calculated indicating that no significance was found.

Clinical vignette question two (cp2) was then compared with clinical vignette question four (cp4) to determine the influence of patient behavior on the titration of morphine. Of the seven forms completed, no participants (0.0%) administered the correct dosage of morphine to the smiling patient. Only 14.3% of the registered nurses gave 3mg morphine to the grimacing patient. As shown in Table 3, the T-test revealed that no significance was found in regards to patient behavior and the administration of morphine in the Caucasian patients.

Table 4 Form B Paired Samples Statistics

		Frequency (N)	Percent Correct	Significance
Pair 1	**cp1**	6	83.3%	.363
	cp3	6	66.7%	
Pair 2	**cp2**	6	16.7%	.363
	cp4	6	33.3%	

Six registered nurses completed Form B, which included Hispanic patients in the clinical vignettes. Of the six forms answered, 83.3% of the participants correctly scaled the smiling patient's pain (cp1), and 66.7% correctly scaled the grimacing patient's pain

(cp3). A p-value of .363 was calculated, which indicated that no significance was found. Like the Caucasian patients, it appeared that patient behavior did not influence the nurses' pain assessments.

Similar to Form A, a low percentage of respondents gave the appropriate dose of morphine. As depicted in Table 4, just 16.7% of the nurses administered 3mg morphine to the smiling Hispanic patient (cp3). Furthermore, only a third (33.3%) of the participants correctly titrated the morphine for the grimacing patient (cp4). The T-test revealed a p-value of .363, which suggested that the Hispanic patients' behavior did not influence the amount of morphine administered.

Table 5 Form C Paired Samples Statistics

		Frequency (N)	Percent Correct	Significance
Pair 1	**cp1**	8	87.5%	Cannot be
	cp3	8	87.5%	computed
Pair 2	**cp2**	8	25.0%	1.000
	cp4	8	25.0%	

As displayed in Table 5, eight registered nurses answered Form C, which depicted African American patients in the case studies. Of these eight respondents, 87.5% correctly scaled the smiling (cp1) and grimacing (cp3) patients' pain. A p-value could not be computed because the standard error of the difference was zero. Comparable to Form A and Form B, the patients' behavior did not impact the documentation of pain assessments.

Even though the majority of respondents accepted the patients' self-report of pain, only 25.0% titrated the dose of morphine appropriately to either patient. A p-value of 1.000 was computed, which implied that the administration of morphine was not influenced by the African American patients' behavior.

Overall Scores on Section II

Table 6 Overall Correct Vignette Scores

Question	Percent Correct
cp1	81.0%
cp2	14.3%
cp3	81.0%
cp4	23.8%

A frequency table was constructed to analyze the overall scores for all of the clinical vignettes. As shown in Table 6, 81.0% of the participants accepted the smiling and grimacing patients' self-report of pain. However, only 14.3% of the registered nurses knew how to correctly titrate the morphine for the smiling patients. Similarly, less than one-fourth (23.8%) of the grimacing patients received the correct dose of morphine for their pain.

Table 7 Overall Distribution of Pain Assessments

# Valid	Frequency (N)	Percent %
.00	3	14.3%
1.00	2	9.5%
2.00	16	76.2%

Table 7 illustrates the percentage of respondents that accepted both patients' self-report of pain despite their behavior. Three respondents (14.3%) failed to answer either question (cp1 and cp3) correctly, while two nurses (9.5%) believed only one self-report of pain. Nevertheless, the majority of respondents (76.2%) scaled both patients' pain correctly.

Table 8 Overall Distribution of Morphine Administration

# Valid	Frequency (N)	Percent %
.00	15	71.4%
1.00	4	19.0%
2.00	2	9.5%

Conversely, the majority of participants (71.4%) did not administer the correct dose of morphine to either patient. As shown in Table 8, four of the participants (19.0%)

gave one patient 3mg of morphine, but gave the second patient an incorrect dose. Only two nurses (9.5%) gave both patients 3mg morphine to alleviate their pain.

Patient Race/Ethnicity

Table 9 ANOVA Clinical Vignettes

		Sum of Squares	df	Mean Square	F	Significance
cp1	**Between Groups**	.101	2	.051	.290	.751
	Within Groups	3.137	18	.174		
	Total	3.238	20			
cp2	**Between Groups**	.238	2	.119	.918	.417
	Within Groups	2.333	18	.130		
	Total	2.571	20			
cp3	**Between Groups**	.173	2	.086	.507	.611
	Within Groups	3.065	18	.170		
	Total	3.238	20			
cp4	**Between Groups**	.119	2	.060	.290	.751
	Within Groups	3.690	18	.205		
	Total	3.810	20			

As shown in Table 9, an analysis of variance (ANOVA) was performed to determine if the patient's race/ethnicity influenced the participants' assessment of patient pain or the administration of morphine. For all four questions, it was determined that the patients' race/ethnicity was not significant in terms of pain assessments or the dose of morphine given.

Table 10 ANOVA Pain Assessments and Opioid Administration

	Sum of Squares	df	Mean Square	F	Significance
cp1-cp3 Between Groups	.238	2	.119	.200	.821
Within Group	10.714	18	.595		
Total	10.952	20			
cp2-cp4 Between Groups	.595	2	.298	.641	.538
Within Group	8.357	18	.464		
Total	8.952	20			

Further analysis was performed to determine if patient behavior combined with race/ethnicity influenced the acceptance of the patient's report of pain or the titration of morphine. The ANOVA revealed a p-value of .821 when comparing the two pain assessments. This indicated that neither the patient's behavior nor race/ethnicity was significant in terms of the pain assessment made. As displayed in Table 10, a p-value of .538 was computed when cp2 and cp4 were compared to one another. This suggested that the titration of morphine was influenced by neither the patient's behavior nor race/ethnicity.

Analysis of Section III: Multiple-Choice Questions

The final section of the KAS consisted of 10 multiple-choice questions with four possible answers for each question. Participants were asked to select the answer they believed to be the correct response for each question. The multiple-choice questions related to various aspects of pain management including: pharmacology, patient variables, administration of analgesics, and addiction.

Table 11 Overall Correct Answer Rate on Section III

Overall Correct Answer Rate	Frequency (N)	Percent of Participants
0%	2	9.5%
10%	1	4.8%
40%	1	4.8%
50%	2	9.5%
60%	6	28.6%
70%	6	28.6%
80%	3	14.3%

Table 11 displays the overall correct answer rates on Section III of the KAS. Only three registered nurses (14.3%) received a passing score of 80% on the multiple-choice section. The remaining 85.7% of the participants received a score of 70% or lower, with 28.6% of the registered nurses scoring a 50% or lower. Table 12 illustrates the distribution of the correct answer rates for Section III.

Table 12 Percentages of Correctly Answered Multiple-Choice Items

KAS Item Number	Content for Multiple Choice Questions	Correct Answer Rate
24	The recommended route of administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is?	100%
25	Which of the following IV doses of morphine administered over a 4-hour period would be equivalent to 30 mg of oral morphine every 4 hours?	43.8%
26	Analgesics for postoperative pain should initially be given?	22.2%
27	The most likely reason a patient with pain would request an increased dose of pain medication is?	88.9%
28	The most accurate judge of the intensity of the patient's pain is?	100%
29	Which approach describes the best approach for cultural considerations in caring for patients in pain?	100%
30	How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?	31.3%

31	The time to peak effect for morphine given IV is?	82.4%
32	The time to peak effect for morphine given orally is?	61.1%
33	Following abrupt discontinuation of an opioid, physical dependence is manifest by the following:	27.8%

Five of the multiple-choice questions (KAS Item Number: 24, 27, 28, 29, 31) received a correct response rate of 80% or higher. Less than 75% of the participants answered the remaining five questions correctly (KAS Item Number: 25, 26, 30, 32, 33). The most commonly missed questions related to pharmacology and addiction.

Table 13 Distribution of Responses to KAS Item 26

Analgesics for postoperative pain should initially be given?	Percentage %
***Around the clock on a fixed schedule**	**22.2%**
Only when the patient asks for medication	66.7%
Only when the nurse determines the patient has moderate pain	11.1%

KAS Item 26 was missed most often with a correct response rate of 22.2%. The correct answer, which is starred and bolded, was that medications should be given around the clock on a fixed schedule. As shown in Table 13, two-thirds of the participants (66.7%) erroneously believed that analgesics should be given in the postoperative period only when the patient asks for medication. This shows a lack of knowledge regarding the correct administration of postoperative pain medications.

Table 14 Distribution of Responses to KAS Item 33

Following abrupt discontinuation of an opioid, physical dependence is manifest by the following:	Percentage%
***Sweating, yawning, diarrhea, and agitation**	**27.8%**
Impaired control of drug use, compulsive use, and craving	5.6%
The need for higher doses to achieve the same effect	0.0%
All of the above	66.7%

As shown in Table 14, KAS Item 33 received the second lowest correct response rate (27.8%). This question asked the participants to identify the clinical manifestations

of physical dependence. Less than one-third (27.8%) of the respondents knew that the manifestations included sweating, yawning, diarrhea, and agitation. The majority of participants (66.7%) responded that impaired control of drug use, compulsive use, craving, and the need for high doses to achieve the same effect were also signs and symptoms of physical dependence. These other manifestations describe opioid addiction and opioid tolerance respectively (Potter & Perry, 2009, p. 1051).

Table 15 Distribution of Responses to KAS Item 30

How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?	Percentage%
Less than 1%	50.0%
***5-15%**	**31.3%**
25-50%	12.5%
75-100%	6.3%

Surprisingly, the registered nurses underestimated the likelihood of a patient already having an alcohol and/or drug abuse problem developing pain. Table 15 illustrates that half of the participants (50%) incorrectly believed that less than 1% of patients that develop pain already have an alcohol and/or drug abuse problem.
Other commonly missed questions related to equianalgesic dosing (KAS Item 25) and the peak of PO morphine (KAS Item 32). Less than half of the participants (43.8%) selected the correct equianalgesic dose of IV morphine when compared to PO morphine. Furthermore, only 61.1% of the registered nurses knew how long it takes for the effects of PO morphine to peak.

Discussion

The purpose of this study was to investigate the relationship between patient behavior and patient race/ethnicity on the titration of opioids. Additionally, perioperative registered nurses' knowledge of and attitudes toward postoperative patient pain was

examined. Before conducting this study, there was little to no research concerning the correlation between the patient's race/ethnicity and the administration of analgesics by registered nurses. However, previous studies have shown that patient behavior influences both the documentation of pain assessments and the titration of analgesics. Even so, very few of these studies have been carried out in the southeastern region of the United States. This study assisted in identifying knowledge deficits in perioperative registered nurses at a local hospital in Hattiesburg, Mississippi. It also helped to determine that patient behavior and patient race/ethnicity were not significant in terms of pain assessments and the administration of morphine.

While the findings of this study cannot be generalized due to a small sample size (n=21), the results of this survey are still startling. All participants of the study were registered nurses, and theoretically should have proficient knowledge of the management of pain in the postoperative setting. Nevertheless, none of the respondents received a passing score of 80% or higher on the KAS. The total scores ranged from 45.5% to 78.8% with an overall mean of a 66.4% correct response rate. This is significantly below the threshold of 80%, which has been established as the minimum level that indicates a healthcare provider is capable of delivering quality care to patients who are experiencing pain.

Ultimately, the knowledge deficits found in this study may influence the provision of optimal care given to patients who are experiencing pain in the postoperative setting. The findings from this study mirror those of previously published international studies. This study reinforces the widespread problem of poor knowledge and attitudes leading to

the undertreatment of pain. These findings are unsettling because competent nurses are essential to adequate pain control (Nash et al., 1999).

Several items on Section I of the survey received a 100% correct response rate. All of the respondents concurred that patients can still have severe pain even if the patient can be distracted from it, and that opioids may be used in elderly patients to help alleviate their pain. Additionally, all participants agreed that patients should not be encouraged to endure as much pain as possible before using an opioid. This shows that the nurses possessed a positive attitude concerning opioids and do not rely on patient behavior for pain assessments.

Furthermore, three of the multiple-choice questions in Section III received a 100% correct response rate. These questions were in relation to the most appropriate route of analgesic administration and accepting the patient self-report of pain. All of the nurses agreed that each patient should be evaluated individually despite their culture. These findings were reemphasized in the clinical vignettes where race/ethnicity did not influence pain assessments or the administration of morphine. In the clinical vignettes, the registered nurses demonstrated acceptance of the patient self-report and the importance of assessing each patient individually.

On all three sections of the survey, different aspects of pharmacological control of pain received the lowest correct response rates. Only 14.3% of the participants knew that Phenergan, an antinausea medication, does not intensify the analgesic effects of opioids. Furthermore, only 28.6% of respondents correctly answered that benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm. While 100% of participants said that patients should not be forced to endure pain, the majority of

respondents (52.4%) incorrectly answered that opioids should not be used during the pain evaluation period.

Respondents also appeared to have knowledge deficits in relation to morphine in particular. There were extensive misconceptions related to: equianalgesic dosing, morphine duration, drug administration, untoward effects of morphine, and selection of morphine dosages. This salient finding was most apparent in the clinical vignettes. It was evident that the registered nurses accepted the patient's self-report of pain, yet they did not know how to apply this information. In this present study, analysis revealed that respondents were ambivalent toward the selection and provision of appropriate dosages of morphine to the two patients presented in the clinical vignettes. It was discovered that only 9.5% of the respondents gave the correct dose of morphine to both patients, while the majority (71.4%) did not give the right dosage to either patient. This finding highlights a major knowledge deficit in relation to the titration of morphine and the use of opioids to control pain.

Unlike in previous studies, patient behavior did not influence the registered nurses' pain assessments. For both patients, smiling and grimacing, the majority of respondents accepted the patient's self-report of pain. The analysis of the clinical vignettes showed that 14.3% of the nurses' pain assessments did not correlate with either of the patients' self-report of pain. Only 9.5% of the participants scaled one patient's pain assessment incorrectly, while 76.2% scaled both patients' pain correctly. Even though patient behavior was not statistically significant, almost one-fourth (23.8%) of the patients were not believed.

The patient's race/ethnicity was also found to be statistically insignificant concerning pain assessments and the titration of opioids. For all three races/ethnicities (Caucasian, Hispanic, and African American), the majority of nurses accepted the patient's self-report of pain. However, the majority of patients experienced oligoanalgesia without regard to their race/ethnicity. This underscores that all patients are at risk for the underadministration of analgesics because of deficient knowledge regarding correct titration. The findings revealed that the registered nurses' knowledge of pain management was far from optimal.

Limitations and Recommendations for Future Research

Several limitations should be acknowledged for the current study. First, because of the small sample size (n=21), the results of this study cannot be generalized to a larger population. The study could have been improved by personally speaking with nurses in the hospital to encourage a higher response rate. Additionally, more hospitals could have been included in the study to increase the sample size and to obtain a more representative sample of the perioperative nurses in Hattiesburg, Mississippi.

Secondly, because the clinical vignettes are hypothetical situations, the results may not represent what actually happens in practice. Observational data of nurses may yield more thorough and conclusive results. The results of the KAS survey could have been compared with observational data to provide a more substantial insight into the phenomenon of pain management. Observational data may also provide more evidence concerning the influence that patient race/ethnicity has on the treatment of postoperative pain. Also, patient charts could have been examined to study the documentation practices of the nurses with regard to pain assessment and opioid administration. While

the results of the patient vignettes could be indicative of what occurs in the clinical setting, it is not certain. However, due to time constraints and limited resources, it would have been unfeasible for the researcher to carry out these additional aspects.

Additionally, the true/false format of Section I may have allowed participants to inadvertently guess answers. This would reveal a higher correct response rate for some items and may not represent actual knowledge. Future research may consider revisions to this format to improve the reliability of the instrument. A true/false/don't know format might allow more insight into knowledge deficits.

Conclusions from this study have implications for future research initiatives. A replication of this current study from a broader perspective and an observational component is recommended. A larger sample size in a greater number of clinical settings would be necessary to generalize the findings from the study. The researcher recommends that methodologies from both quantitative and qualitative paradigms be integrated into future research to obtain a clearer perspective concerning the educational needs of nurses relating to pain management.

Conclusions

Despite the limitations listed above, this study clearly demonstrated a lack of knowledge among perioperative nurses regarding effective management of pain. Considering the results, educational services may be warranted for perioperative nurses regarding optimal postoperative pain management. However, it is reassuring that these services do not need to include the race/ethnicity of patients since the findings indicated that all patients were assessed equally. All patients were undertreated equally for their pain due to the lack of knowledge surrounding opioid administration. Ultimately, this

study provides further data representing the gap between documented pain assessments and opioid administration. The current study also added to the literature by developing a modified Knowledge and Attitudes Survey Regarding Pain to assess the influence of patient race/ethnicity.

Appendix A

Information Sheet for Knowledge and Attitudes Survey Regarding Pain

Principal Investigator: Marjorie Geisz-Everson, PhD, RN, CRNA, USM Assistant Director Nurse Anesthesia Program
Student: Kirstin Kellar, SN
Title of Study: The Knowledge and Attitudes of Registered Nurses towards Postoperative Patient Pain and Opioid Analgesics

You are invited to participate in this survey regarding your knowledge and attitudes regarding postoperative patient pain. I am an undergraduate student at the University of Southern Mississippi, and I am conducting this survey as part of my undergraduate thesis. I am interested in finding out how registered nurses' knowledge and attitudes toward postoperative patient pain affect pain management.

Your participation in this study will be confidential and require completion of the attached questionnaire. This should take approximately 10 minutes of your time. Filling out the survey will denote consent to participate in this research. You will not be contacted again in the future, nor you will not be paid for being in this study. We believe this survey does not involve any risk to you. Although you may find it interesting to participate in this study, there will be no direct benefit to you for your participation.

Participation in this study is strictly voluntary, and you may quit at anytime without penalty. I will be happy to answer any questions you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact me, Kirstin Kellar at Kirstin.kellar@eagles.usm.edu, or my advisor, Marjorie Geisz-Everson, PhD, RN, CRNA, USM Assistant Director Nurse Anesthesia Program at Marjorie.geiszeverson@usm.edu. This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820.

Please complete the attached survey and return it by the end of the staff meeting. Thank you.

Please Circle T for True or F for False

1. Vital signs are always reliable indicators of the intensity of a patient's pain. T F

2. Patients who can be distracted from pain usually do not have severe pain. T F

3. Patients may sleep in spite of severe pain. T F

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

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

6. The usual duration of analgesia of 1-2mg of morphine intravenous (IV) is 4-5 hourly. T F

7. Opioids should not be used in patients with a history of substance abuse. T F

8. Morphine has a dose ceiling (i.e. a dose above which no greater pain relief can be obtained). T F

9. Elderly patients cannot tolerate opioids for pain relief. T F

10. Patients should be encouraged to endure as much pain as possible before using an opioid. T F

11. Patient's spiritual beliefs may lead them to think pain and suffering are necessary. T F

12. After an initial dose of an opioid analgesic is given, subsequent doses should adjusted in accordance with the individual patient's response. T F

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

14. 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 diagnose the cause of pain. T F

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

16. Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm. T F

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

18. Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of analgesics. T F

19. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5-10 mg of morphine PO. T F

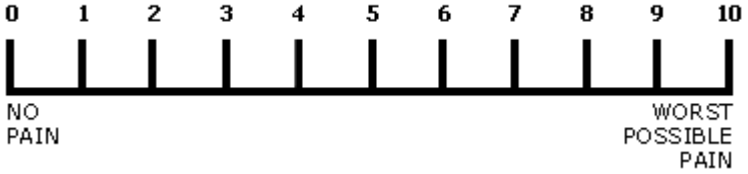
A

Case Studies

Two patient vignettes are presented. Please select one answer for each question:

Patient A: Sean O'Connor is a 25 year old Caucasian male, and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues joking and talking with his visitor. Your assessment reveals: BP=120/80, HR=80, RR=18. On a scale of 0 to 10, where 0=no pain and 10=worst pain, he rates pain as 8.

Item 20: On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Sean's pain.

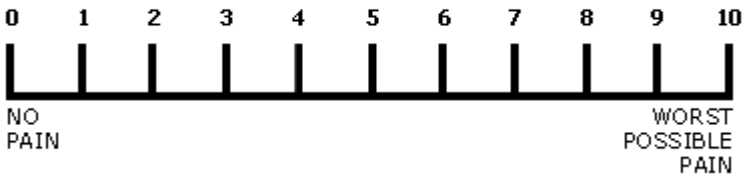


Item 21: Your assessment, above, is made 2 hours after he received morphine 2mg IV. Half hourly pain ratings range from 6-8 and he has had no clinically significant respiratory depression, sedation, or other untoward side effects. His physician's order for analgesia is "morphine 1-3mg every hour PRN".
What action would you take now?

Administer no morphine at this time [ ]
Administer morphine IV 1mg [ ]
Administer morphine IV 2mg [ ]
Administer morphine IV 3mg [ ]

Patient B: Cody Smith is a 25 year old Caucasian male, 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: BP=120/80, HR=80, RR=18. On a scale of 0 to 10, where 0=no pain and 10=worst pain, he rates pain as 8.

Item 22: On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Cody's pain.



A

Item 23: Your assessment, above, is made 2 hours after he received morphine 2mg IV. Half hourly pain ratings range from 6-8 and he has had no clinically significant respiratory depression, sedation, or other untoward side effects. His physician's order for analgesia is "morphine 1-3mg every hour PRN".
What action would you take now?

Administer no morphine at this time [ ]
Administer morphine IV 1mg [ ]
Administer morphine IV 2mg [ ]
Administer morphine IV 3mg [ ]

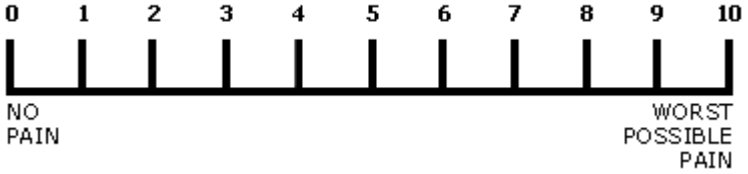
B

Case Studies

Two patient vignettes are presented. Please select one answer for each question:

Patient A: Luiz Martinez is a 25 year old Hispanic male, and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues joking and talking with his visitor. Your assessment reveals: BP=120/80, HR=80, RR=18. On a scale of 0 to 10, where 0=no pain and 10=worst pain, he rates pain as 8.

Item 20: On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Luiz's pain.



Item 21: Your assessment, above, is made 2 hours after he received morphine 2mg IV. Half hourly pain ratings range from 6-8 and he has had no clinically significant respiratory depression, sedation, or other untoward side effects. His physician's order for analgesia is "morphine 1-3mg every hour PRN".
What action would you take now?

Administer no morphine at this time [ ]
Administer morphine IV 1mg [ ]
Administer morphine IV 2mg [ ]
Administer morphine IV 3mg [ ]

Patient B: Fabian Lopez is a 25 year old Hispanic male, 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: BP=120/80, HR=80, RR=18. On a scale of 0 to 10, where 0=no pain and 10=worst pain, he rates pain as 8.

Item 22: On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Fabian's pain.

B

Item 23: Your assessment, above, is made 2 hours after he received morphine 2mg IV. Half hourly pain ratings range from 6-8 and he has had no clinically significant respiratory depression, sedation, or other untoward side effects. His physician's order for analgesia is "morphine 1-3mg every hour PRN".
What action would you take now?

Administer no morphine at this time [ ]
Administer morphine IV 1mg [ ]
Administer morphine IV 2mg [ ]
Administer morphine IV 3mg [ ]

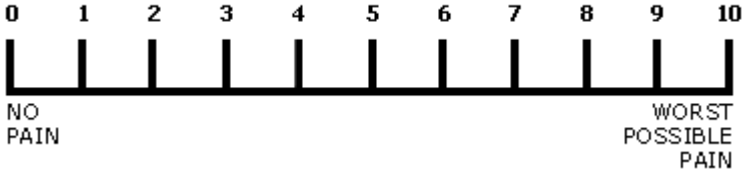
C

Case Studies

Two patient vignettes are presented. Please select one answer for each question:

Patient A: Shaquil Robinson is a 25 year old African American male, and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues joking and talking with his visitor. Your assessment reveals: BP=120/80, HR=80, RR=18. On a scale of 0 to 10, where 0=no pain and 10=worst pain, he rates pain as 8.

Item 20: On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Shaquil's pain.

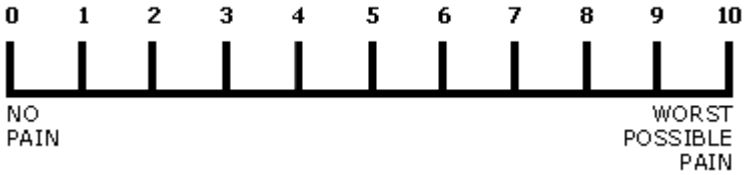


Item 21: Your assessment, above, is made 2 hours after he received morphine 2mg IV. Half hourly pain ratings range from 6-8 and he has had no clinically significant respiratory depression, sedation, or other untoward side effects. His physician's order for analgesia is "morphine 1-3mg every hour PRN".
What action would you take now?

Administer no morphine at this time [ ]
Administer morphine IV 1mg [ ]
Administer morphine IV 2mg [ ]
Administer morphine IV 3mg [ ]

Patient B: Marquis Jackson is a 25 year old African American male, 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: BP=120/80, HR=80, RR=18. On a scale of 0 to 10, where 0=no pain and 10=worst pain, he rates pain as 8.

Item 22: On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Marquis's pain.



C

Item 23: Your assessment, above, is made 2 hours after he received morphine 2mg IV. Half hourly pain ratings range from 6-8 and he has had no clinically significant respiratory depression, sedation, or other untoward side effects. His physician's order for analgesia is "morphine 1-3mg every hour PRN".
What action would you take now?

Administer no morphine at this time [ ]
Administer morphine IV 1mg [ ]
Administer morphine IV 2mg [ ]
Administer morphine IV 3mg [ ]

Multiple Choice Questions: Please place an X beside the Correct Answer

24. The recommended route of administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is:
Intravenous [ ]
Intramuscular [ ]
Subcutaneous [ ]
Oral [ ]
Rectal [ ]

25. Which of the following IV doses of morphine administered over a 4-hour period would be equivalent to 30mg of oral morphine every 4 hours?
Morphine 5mg [ ]
Morphine 10mg [ ]
Morphine 30mg [ ]
Morphine 60mg [ ]

26. Analgesics for postoperative pain should initially be given:
Around the clock on a fixed schedule [ ]
Only when the patient asks for medication [ ]
Only when the nurse determines the patient has moderate pain [ ]

27. The most likely reason a patient with pain would request increased dose of pain medication is?
The patient is experiencing increased pain [ ]
The patient is experiencing increased anxiety or depression [ ]
The patient is requesting more staff attention [ ]
The patient's requests are related to addiction [ ]

28. The most accurate judge of the intensity of the patient's pain is?
The treating physician [ ]
The patient's primary nurse [ ]
The patient [ ]
The pharmacist [ ]
The patient's spouse or family [ ]

29. Which approach describes the best approach for cultural considerations in caring for patients in pain:
There are no longer cultural influences in the United States due to the diversity of the population [ ]
Cultural differences are determined by an individual's ethnicity (e.g. Asians are stoic, Italians are expressive, etc.) [ ]
Patients should be individually assessed to determine cultural influences [ ]
Cultural influences can be determined by a person's socioeconomic status [ ]

30. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?
Less than 1% [ ]
5-15% [ ]
25-50% [ ]
75-100% [ ]

31. The time to peak effect for morphine given IV is?
15 minutes [ ]
45 minutes [ ]
1 hour [ ]
2 hours [ ]

32. The time to peak effect for morphine given orally is?
5 minutes [ ]
30 minutes [ ]
1-2 hours [ ]
3 hours [ ]

33. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:
Sweating, yawning, diarrhea and agitation [ ]
Impaired control of drug use, compulsive use and craving [ ]
The need for higher doses to achieve the same effect [ ]
All of the above [ ]

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