A study of nursing students understanding of pain before and after clinical practice
by Mary Claire Mortensen

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of
MASTER OF NURSING
Montana State University

Abstract:
The problem of the study was to determine, for a group of nursing students, the extent of their understanding of the concept of pain as to its expression and alleviation after exposure to the concept in theory only, and again after exposure to clinical practice. A test was administered to a group of baccalaureate nursing students prior to any clinical practice and again after they had been exposed to two quarters of clinical practice.

The extent of the students' understanding was determined by the percentage of correct responses to each of the test items. The test items dealt with the expression and alleviation of pain on a physiological, psychological, and socio-cultural basis.

The findings suggest that the students performed much better on those items dealing with the psychological and socio-cultural aspects of pain than on those items dealing with the physiological aspects of pain. The findings also suggest that neither age, sex nor personal experience with pain had any significant relationship with how well the student did on the tests.

Other studies confirming the conclusions and seeking additional findings concerning student learning are recommended.

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Date June 4, 1974

A STUDY OF NURSING STUDENTS' UNDERSTANDING OF THE CONCEPT OF PAIN BEFORE AND AFTER CLINICAL PRACTICE

by

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A thesis submitted to the Graduate Faculty
in partial fulfillment of the requirements for the degree

of

MASTER OF NURSING

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ABSTRACT

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Chapter I

INTRODUCTION

"From birth to death, pain is part of man's biological and socio-cultural life."[1] The anticipation of and the actual sensation of pain is a phenomenon which most humans have experienced, except those with congenital indifference to pain.[2] Since pain remains one of the most common and compelling symptoms for which a person seeks medical assistance, its relief becomes a major task of medical personnel.[3]

When evaluating an individual's pain, medical personnel are not so much confronted with the actual sensation of pain as they are with the expression of the pain.[4] Since the pain itself cannot be observed, the individual's reaction to the anticipation or sensation of pain can be observed in terms of his physical and/or psychological behavior. A person's response to pain is influenced by many factors derived from that person's total life experience, and can be observed on an emotional and behavior level; behavior often being determined by feelings and

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[1] Mark Zborowski, People in Pain (San Francisco: Jossey-Boss Publishing, 1969), p. 18.

[2] Walter Modell, Relief of Symptoms (St. Louis: C. V. Mosby company, 1961), p. 75.

[3] Zborowski, op. cit., p. 15; Modell, loc cit.; Cyril Mitchell McBryde, Signs and Symptoms (5th ed.; Philadelphia: J.B. Lippincott Company, 1970), p. 44.

[4] Zborowski, loc. cit.

attitudes brought into play by the sensation or anticipation of pain.[5]

In the hospital setting, the nurse will encounter people anticipating or experiencing pain regardless of the type of health service or clinical setting. The nurse is the member of the health team most readily and consistently available to the individual. The nurse also is the member who should understand the individual's total pain experience and hopefully be the one to alleviate or modify this experience in some way.[6]

It is crucial, therefore, that the nurse understand the concept of pain; the individuality of each pain experience; how cultural background and mores influence behavioral and emotional manifestations of pain; how pain involves the whole person; and how some medical conditions may interfere with the physiological transmission of pain, perhaps rendering the individual unable to feel pain and thus unable to protect himself.

This study was concentrated upon nursing education and dealt with nursing students' understanding of the concept of pain as to its alleviation and expression.

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[5] Ibid.

[6] Margo McCaffery, Nursing Management of the Patient with Pain (Philadelphia: J. B. Lippincott Company, 1972), p. 5.

Statement of the Problem

The problem of this study was to determine the extent to which a group of baccalaureate nursing students understand the concept of pain as to its expression and alleviation after exposure to the concept of pain in theory only, and again after exposure to clinical practice within the hospital setting.

Purpose of the Study

It has been observed by the researcher that many nurses in the hospital setting seemed unable to deal effectively with individuals experiencing or anticipating pain. The apparent overuse of pain-relieving medications and the labeling of individuals according to their behavior while experiencing or anticipating pain by professional nursing staff, led the researcher to undertake this study utilizing student nurses at two different levels in a baccalaureate nursing program.

This study was an attempt to determine two areas of concern: 1) the extent of nursing students' understanding of the concept of pain as to its expression and alleviation after exposure to theoretical consideration only, and 2) the extent of the students' understanding of the concept of pain as to its expression and alleviation after exposure to two quarters of clinical practice. If these two areas can be determined, the effect of both theoretical consideration and clinical practice hopefully will be identified.

The information in this study may be useful to all nurses, particularly to nursing educators who may find the results helpful in determining a theoretical approach to the concept of pain, choosing clinical learning experiences, and emphasizing various aspects of the pain concept.

Assumptions

1. All nursing students participating in the study were exposed to theoretical considerations of the concept of pain.

2. The testing tool was valid and reliable.

3. The student responses on the test would change from pretest to post test.

4. The students followed the directions as given verbally and as written on both the pretest and post test.

Methodology of the Study

The study was a descriptive investigation attempting to determine the extent of nursing students' understanding of the concept of pain as to its expression and alleviation after exposure to the concept in theory only, and again after exposure to clinical practice. Thus, the effects of clinical practice upon the students' understanding of the concept of pain was determined.

The population utilized in this study was a group of nursing students enrolled in one university School of Nursing baccalaureate

program. The method of research was the administering of a test to the students before they began clinical practice, and again after the same students completed two quarters of clinical practice.

The tool used to collect the data was a test developed by the researcher. The test questions and appropriate responses were developed in accordance with the following criteria imposed by the researcher. There was agreement on the content of each test item by two or more authors. The content of each test item related either directly or indirectly to the problem of the study. Therefore, the test items pertained to pain expression and/or pain alleviation. The content of the test included an approximately equal quantity of items pertaining to the socio-cultural, psychological, and physiological aspects of the pain concept. Each test item was designed to measure an objective also constructed by the researcher.*

The test was constructed to be used as both the pretest and post test. It contains a number of multiple choice and true-false items.† This tool was piloted on twenty students not participating in

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*The objectives were constructed as suggested in Robert F. Mager's Developing Attitude Toward Learning (Belmont, California: Fearnon Publishers, 1968).

†Test item construction was facilitated by the material presented in: Robert Ebel, Measuring Educational Achievement (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1965), Chapter 5 and 6, and Robert Thorndike (ed.), Educational Measurement (Washington, D.C.: American Council on Education, 1971), Chapter 4.

the study. After the pilot study results were analyzed, several additional items were added to the original tool. The final test contained eighteen multiple choice and five true-false items. All of the multiple items offered four possible responses with only one correct response. Five items at the beginning of the test elicited personal data about each student.

The purpose of the test and the anonymity of the results were stressed to all of the participants by the researcher. The students were instructed both verbally and on the test, not to guess at the answer.

Each response was hand coded and key punched into computer data cards. The computer was programmed, and the printout was utilized for the data presented.

Limitations of the Study

1. Due to the time in which the study was to be completed, the population tested was limited to sophomore nursing students, tested before clinical practice and again after two quarters of clinical practice.

2. Only one university nursing program was used in the study.

3. The tool was composed of multiple choice, true-false type questions which allow for guessing on the part of the students even though they were instructed not to guess.

4. Certain variables were not controlled, such as teacher methodology and variations in clinical practice.

5. The students were not identified individually and therefore their responses were treated as a single group throughout analysis of the data.

Definition of Terms

The following definitions are presented for the purposes of this study.

Understanding: to grasp the meaning of; to comprehend; to be familiar with the characteristics of.

Concept: compilation of facts, experiences and observations into a meaning which may be directly grasped and readily used and thus fixed by a word.

Pain: a subjective experience influenced by numerous physical, psychological, and socio-cultural factors.

Alleviation: to reduce or relieve; to make better able to endure.

Expression: is meant here to encompass the behavior of a patient in pain. This includes motor, vocal, verbal and phycho-social responses.

Exposure: is used here to mean that the subject content is presented to the students either by films, lecture, discussion,

independent reading, or by caring for actual patients.

Theoretical exposure: this term encompasses the presentation of the subject content in the classroom or by a text or reference book.

Clinical practice: this term describes those experiences that the students acquire in health agencies such as the hospital, nursing home, or patient's home.

Organization of the Remainder of the Study

The remainder of the study is arranged into three chapters. Chapter II consists of a review of pertinent literature. Chapter III includes a description and analysis of data obtained from the study's tool. Chapter IV presents the summary, conclusions and recommendations for further study.

Chapter II

REVIEW OF LITERATURE

There has been quite a number of research studies concerned with nursing intervention in the relief of pain, but very limited number in the area of measuring a nurse's understanding of the concept of pain. It is the researcher's feeling that a nurse cannot make a proper decision about what type of intervention is necessary in a given situation without a basic understanding of the concept of pain and the various behavioral responses of individuals anticipating or experiencing pain.

In view of the lack of other research in the area of measurement of nurses' understanding of the concept of pain, the researcher will present a review of the literature which will be utilized in developing the tool that will be used in this study. Also, since the tool will be measuring understanding of the pain concept, some literature pertinent to learning and its measurement will be reviewed. Certain sociological, psychological, and physiological concepts provide the basis necessary for nurses to provide a rational approach in caring for individuals anticipating or experiencing pain.

Pain is a very subjective experience. McCaffery defines pain as "...whatever the experiencing person says it is and exists whenever

the patient says it does."[7] This allows the patient to define pain as he experiences it, utilizing the approach that the patient is the only person who knows what he feels and when he feels it.[8] "...real knowledge of what pain is belongs only to the one who experiences it."[9]

People develop their own way of handling pain. This pattern of behavior is an adaptive mechanism for coping with pain. No matter how effective it is, it usually is the individual's best way of coping.[10]

Perception involves comprehending something new by assimilating it with the sum total of one's previous experiences and knowledge. Pain is experienced and responded to in light of its interpretation which involves past experiences. Therefore, the perception that a sensation is painful and that it has a particular character, is subject

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[7]Margo McCaffery, Nursing Management of the Patient with Pain (Philadelphia: J. B. Lippincott Company, 1972), p. 8.

[8]Cyril Mitchell McBryde, Signs and Symptoms (5th ed.; Philadelphia: J. B. Lippincott Company, 1970), p. 44.

[9]M. Kaufmann and D. Brown, "Pain Wears Many Faces," American Journal of Nursing, 61(48):48, 1961.

[10]McCaffery, op. cit., p. 24.

to influence by the individual's current and past experiences.[11]

This leads Smith and Gips and McCaffery to guard nurses against making judgments about how severe pain should be and how much the person should be suffering. They repeat that pain is a private experience and that nurses should allow the individual to express what he feels in whatever way he chooses without imposing any opinions of how much pain he feels.[12] Fear, anxiety, and socio-cultural factors cause some people to suffer intense pain in silence and others to suffer fairly small amounts of pain with great verbal response.[13]

Pain has a greater symbolic significance than any other symptom, and thus evokes a larger variety of adaptive-protective reactions.[14] Both consciousness and attention are necessary for one to experience pain. Psychological, sociological and cultural factors significantly

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[11]Cyril Mitchell McBryde, Signs and Symptoms (5th ed.; Philadelphia: J. B. Lippincott Company, 1970), p. 45; see also Margo McCaffery, Nursing Management of the Patient with Pain (Philadelphia: J.B. Lippincott Company, 1972), pp. 54-55; Walter Modell, Relief of Symptoms (St. Louis: C.V. Mosby Company, 1961), p. 78.

[12]Dorothy Smith and Claudia Gips, Care of the Adult Patient (Philadelphia: J.B. Lippincott Company, 1966), p. 109.

[13]McCaffery, op. cit., p. 45; Modell, op. cit., p. 80.

[14]McCaffery, op. cit., p. 12; Modell, op. cit., p. 76.

influence and modify how people react to and report pain.[15] Modell reports that some people with a low pain threshold may experience severe pain from a relatively low intensity stimulus, whereas other individuals have a higher pain threshold and may experience only a moderate amount of pain with a relatively high intensity stimulus.[16]

Various types and causes of pain make it more of less intense and affect the physiological response to pain, but it is often the psychological factors that determine its tolerability. The nervous system remains more or less stable, but the attitude toward pain shifts from one situation to another.[17]

The more pain a person experiences, the more he concentrates and directs his attention on the pain. This makes him less aware of his surroundings and increases the difficulty to distract him. The degree of attention is one measure of the amount of pain the person perceives he has. An increase in anxiety will also increase perceived pain. A person's anxiety may be observed in the form of tension, irritability, and worry.[18]

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[15] McBryde, loc. cit.; see also McCaffery, op. cit., pg. 38.

[16] Modell, op. cit., p. 79.

[17] Ibid.

[18] McBryde, op. cit., pg. 53.

Pain may indicate actual injury and serves as a protective reflex. For example, pain which accompanies muscle spasm surrounding the area of a fractured bone prevents further tissue damage due to movement.[19] Pain sensation may also indicate a threat of injury to the individual whereas absence of pain may indicate no injury to the individual when in fact injury may be present. Furthermore, pain may come to symbolize injury even in the absence of stimulation, if and when it serves the psychological needs of the individual. In this way, an individual may suffer pain when, for example, guilt imposes a need for punishment.[20]

The need to suffer or to assume the role of a sufferer may result in reports of severe pain when the patient may appear quite comfortable. People who utilize the role of sufferer, consciously or unconsciously, exhibit more pain in the presence of others.[21]

Pain functions very early in our lives. For example, in infancy, it contributes to the process of differentiation of the body

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[19]Walter Modell, Relief of Symptoms (St. Louis: C.V. Mosby Company, 1961), p. 42.

[20]Margo McCaffery, Nursing Management of the Patient with Pain (Philadelphia: J.B. Lippincott Company, 1972), p. 3; see also McBryde, op. cit., p. 46 and 51.

[21]Cyril Mitchell McBryde, Signs and Symptoms (5th ed.; (Philadelphia: J.B. Lippincott Company, 1970), p. 54.

from the environment and the formation of a body image.[22] Szas, in a study on pain and pleasure, suggested that this idea of early psychological equation may contribute to a later use of pain as a means of denying the loss of a body part, called phantom pain.[23]

Phantom pain involves the perception of pain in a part of the body that has been removed, be it a limb or a gallbladder.[24] Some people have congenital lack of the apparatus necessary for pain perception, and others have had their physiological process deliberately or accidentally obliterated.[25]

An individual may express his pain through reflex responses such as tensing of muscles, wincing facial expression, and changes in pulse and blood pressure. Observation of these reflex responses are helpful in determining the presence of pain but cannot be relied upon to determine specific qualities of the painful sensation, including its intensity, location, and duration. These qualities may be reflected in the person's behavior or his selection of words used to describe the pain.[26]

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[22]Ibid., p. 50. [23]Ibid.

[24]McCaffery, op. cit., p. 4.

[25]Modell, op. cit., p. 76.

[26]Mark Zborowski, People in Pain (San Francisco: Jossey-Boss Publishing, 1969), p. 18.

As far as the physiology of pain is concerned, all pain is physiological in the sense that certain physiological processes are necessary for the production of the pain sensation, whether the original stimulus is physical or psychological.[27] When a noxious stimuli comes in contact with the skin, pain receptors are stimulated. This impulse is carried via nerve fibers to the spinal cord and then to the thalamic section of the brain. It is in the thalamus that the pain is perceived. The impulse then travels to the cerebral cortex where pain is interpreted and behavioral responses are initiated.[28]

Since this study was attempting to show an increase in the extent to which students understand the concept of pain as to its expression and alleviation from pretest to post test, through exposure to clinical practice, a review of some of the literature pertinent to learning and its measurement was necessary. Transfer of learning is an important concept in this study. The students were exposed to the theoretical considerations of the pain concept in the classroom. The students were then placed in clinical settings, in part, to apply what they had learned in the classroom. The students were required to transfer theoretical learnings to the actual situation.

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[27] McCaffery, op. cit., p. 29.

[28] "Pain: Basic Concepts and Assessment," Programmed Instruction, American Journal of Nursing, 66(5):2348-2349, May, 1966.

Man has not only wanted to learn, but has been, and continues to be very curious about how he learns. There have been many theories about how people learn. These all are linked to a conception of the basic nature of man.[29] Educational authorities have written that the central aim of education is to help students to increase their abilities to think. Bigge contends that these educators are referring to the concept of transfer of learning, the key to the value of learning.[30]

Transfer of learning means the relationship between a person's learning process and his ability to use his learnings in future situations.[31] Transfer occurs when a person's learning in one situation influences his learning and performance in other situations.

Also, what is learned in one situation tends to facilitate learning in other situations.[32] Redman states that "transfer can be defined as the effect of prior learning on subsequent learning, and is one of the most important products of education since no learner can practice all situations he will meet."[33]

Charles Judd did much work in the field of transfer. Judd and his followers view the degree of transfer of learning which does occur

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[29]Morris Bigge, Learning Theories for Teachers (New York: Harper and Row, Publishers, 1964), p. 11.

[30]Ibid., p. 11. [31]Ibid., p. 16. [32]Ibid., p. 243.

[33]Barbara Redman, The Process of Patient Teaching in Nursing (St. Louis: The C.V. Mosby Company, 1972), pp. 73-74.

depends upon the extent to which the products of learning are consolidated into generalizations. A generalization is a characteristic common to many situations.[34] A generalization is a statement or an understanding of relationships, and may also be called a principle, rule, or law. Judd states that "a generalization is another name for the relating of experience in such a way that what is gained at one point will rebound to the advantage of the individual in many spheres of that action.[35]

Jack Kittel supports Judd's views in his studies measuring transfer of learning in sixth graders. He concluded that "evidence from this experiment and that of similar experiments indicates that furnishing learners with information in the form of underlying principles promotes transfer and retention of learning principles and provides the background that may enable future discovery of new principles."[36] Judd states further that "...the most effective use of knowledge is assured not through the acquisition of any particular item of experience but only through the establishment of associations which illuminate and expand an item of experience so that it has general value."[37]

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[34]Morris Bigge, Learning Theories for Teachers (New York: Harper and Row, Publishers, 1964), p. 273.

[35]Ibid., p. 274. [36]Ibid., pp. 275-276.

[37]Ibid., p. 276.

Cronback, a cognitive field theorist, believes Judd did an inadequate job in noting the conditions necessary for transfer to occur. He contends that transfer of a behavior learned in one situation to a new situation will likely occur only when the learner recognizes the new situation as similar to other situations for which the behavior is appropriate. Cronback also believes that to facilitate transfer, a student needs to learn general principles and be given the opportunity to recognize the applicability of the principles.[38]

Thus, Gestalt field psychologists view transfer as occuring because of perceived similarities between two situations, and that learning is in the form of generalizations, concepts, or insights which are developed in one learning situation and are usable in others, in other words, transposition.[39] They also believe that transfer of learning to new tasks will be improved if in learning, the learner can discover relationships for himself and be given the opportunity to apply his learning to a variety of tasks. Transfer is dependent upon methods of teaching and learning which use life-like situations.[40]

Redman points out that the development of a learner's ability to transfer is really aimed at helping the learner remember. The more interconnections a learning has with the learner's experiences and the more active he has been in using the learning in different situations,

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[38]Ibid., p. 277. [39]Ibid., p. 278. [40]Ibid., p. 283.

the deeper the impact on his memory.[41]

According to Bloom, learning takes place in three domains; the cognitive, affective, and psychomotor. Cognitive learning involves acquiring and developing concepts or mental constructs. Affective learning involves attitudes, emotionally toned predispositions to react in a particular way toward an object, an idea, or a person. Psychomotor learning involves performing skills. In order to perform a skill, the learner must first possess a neuromuscular system that is capable of performing the skill and the learner must have a mental image of how it is to be done.[42] This study involves that area of learning Bloom calls the cognitive domain.

Measuring learning involves measuring behavior and interpreting it in terms of the desired behavior.[43] All measurement of behavior involves direct or indirect observation. Direct observation involves viewing the actual behavior, and indirect involves the student's written or verbal responses.[44]

It is most accurate to measure a behavior by direct observation. Natural behavior is not always accessible and is not an expedient measurement. Therefore indirect methods of measurement must be used. Tests are one means of indirect measurement. Test strategy involves

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[41] Barbara Redman, The Process of Patient Teaching in Nursing (St. Louis: C.V. Mosby Company, 1972), p. 73.

[42] Ibid., p. 78. [43] Ibid., p. 133. [44] Ibid.

controlling the situation in such a way that the desired behavior can be stimulated at will in the form of written responses to a mock situation.[45]

Written test items such as multiple choice and true-false questions with only one right answer are able to measure all of the levels within the cognitive domain. However, they are not adequate in measuring the affective domain except if a statement is given and the student must agree or disagree on a scale from say, strongly disagreeing to strongly agreeing. In this domain, there is not one right answer.[46] In a multiple choice test, the learner must be able to produce information from his memory and discriminately choose between ideas, some of which he might not otherwise have considered, thus helping to measure his depth of understanding. True-false items are most adaptable for testing knowledge and comprehension.[47]

Morris Bigge presents an interesting discussion of teaching-learning situations. He classifies teaching-learning situations into three categories: memory-level, understanding-level, and reflective-level. Memory-level learning encompasses committing facts to memory. The more meaningful the material to be learned, the easier it is to commit to memory. Testing in this level is best accomplished through

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[45]Ibid., p. 134. [46]Ibid., p. 147. [47]Ibid., pp. 143-144.

short answer completion.[48]

Understanding-level learning encompasses the development of a generalized insight. Understanding equips the learner with generalized insights which can be applied to problematic situations. These generalized insights involve principles, relationships, concepts, rules, laws, and theories. Testing at this level is best accomplished through factual essay, true-false, or multiple choice.[49]

Reflective-level learning involves problem-centered, exploratory learning. The student must actively participate and use his imagination and creativeness. It involves what is learned at the other two levels, independent thinking and a scientific outlook. Testing at this level is accomplished best by use of the problem-centered essay.[50]

The study's tool was developed to measure objectives concerned with the concept of pain as to its expression and alleviation. The tool concentrates on the students' understanding level in the cognitive domain.

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[48]Morris Bigge, Learning Theories for Teachers (New York: Harper and Row, Publishers, 1964), pp. 316-327.

[49]Ibid., pp. 323-327.

[50]Ibid., pp. 326-327.

Chapter III

DESCRIPTION AND ANALYSIS OF DATA

Test items one through five deal with personal information about the study's participants. This information was then correlated with pretest and post test scores. Thus, this data and its discussion will follow the presentation of data collected from test items six through twenty eight.

Data from each individual test item six through twenty eight is presented as follows: a statement of an objective that the test item is designed to measure; the test item as it was presented to the participants; a brief description of the test item and a statement of what findings were expected; a presentation of the findings; and the data arranged in tabular form.

Objective: The student will formulate an accurate definition of pain.

Test Item No. 6:

6. Which of the following do you think is the most accurate definition of pain?

____ Pain is a physiological sensation due to a noxious stimuli.
____ Pain is the opposite of pleasure.
_X_ Pain is a subjective experience influenced by numerous physical, emotional, and cultural factors.
____ Pain is an unpleasant feeling state.

This test item deals mainly with the general theoretical aspects of the concept of pain. It requires the student to synthesize theoretical knowledge into an accurate and inclusive definition of pain.

It would be expected that the percentage of correct responses would increase after exposure to clinical practice.

Table 1 shows that the percentage of correct responses increased 7.5 percent from pretest (83.9 percent) to post test (91.4 percent). The extent of the students' understanding of the concept of pain as measured by the percentage of correct responses to this test item did increase after exposure to clinical practice.

Table 1 also shows a 6.3 percent decrease in incorrect responses from pretest (12.7 percent) to post test (6.4 percent). The percentage of those who did not know the answer also decreased 1.2 percent from pretest (3.4 percent) to post test (2.2 percent).

TABLE 1

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM SIX

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	83.9%	91.4%	7.5%
Incorrect response	12.7%	6.4%	6.3%
Did not know	3.4%	2.2%	1.2%

Objective: The student will identify those cues related to the expression of pain.

Test Item No. 7:

7. What observation(s) would you make in assessing a patient's pain?

A. Facial expression	_____A only
B. The patient's position	_____A,B, and C
C. The presence of perspiration	_____B and C
D. Tenseness of the muscles	__X__A,B,C, and D

This test item deals with the expression of pain. It involves the student's ability to synthesize theoretical information regarding non-verbal expressions of pain and apply this information to the patient. Therefore, an increase in correct responses could be expected after exposure to clinical practice.

Table 2 shows that the percentage of correct responses 1.7 percent from pretest (95.1 percent) to post test (96.8 percent). Although this is a very small increase, the percentage of correct responses were very high before exposure to clinical practice. The extent of the students' understanding of the concept of pain as measured by the percentage of correct responses to this test item did increase slightly after exposure to clinical practice.

Table 2 also shows a 0.1 percent increase in percentage of incorrect responses from pretest (2.5 percent) to post test (2.6 percent) and a 1.9 percent decrease in percentage of those who did not know the answer from pretest (2.4 percent) to post test (0.5 percent).

TABLE 2

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM SEVEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	95.1%	96.8%	1.7%
Incorrect response	2.5%	2.6%	0.1%
Did not know	2.4%	1.5%	1.9%

Objective: The student will determine the nature, location, and duration of a patient's pain through his description of that pain.

Test Item No. 8:

8. What questions would you ask a patient in relation to his complaint of pain?

A.	Where is the pain?	____ B only
B.	Can you describe the pain?	____ A and B
C.	How long have you had the pain?	____ A,B,C, and D
D.	Would you like to see your doctor?	__X__ A,B, and C

This test item deals with the expression of pain and focuses on applying theoretical knowledge in the practical situation. The percentage of correct responses would therefore be expected to increase after exposure to clinical practice.

Table 3 shows a 21.8 percent increase in percentage of correct responses from pretest (65.9 percent) to post test (87.7 percent). This is a substantial increase. The extent of the students' understanding of the concept of pain as measured by the percentage of correct responses to this test item substantially increased after exposure

to clinical practice.

Table 3 also shows a substantial 21.4 percent decrease in percentage of incorrect responses from pretest (33.2 percent) to post test (11.8%). The percentage of those who did not know the answer also decreased 0.5 percent from pretest (1.0 percent) to post test (0.5 percent).

TABLE 3

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM EIGHT

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	65.9%	87.7%	21.8%
Incorrect response	33.2%	11.8%	21.4%
Did not know	1.0%	0.5%	0.5%

Objective: The student will evaluate the patient's status before administering pain relieving medication.

Test Item No. 9:

9. When judging and deciding upon which medication and dosage is suitable when several pain medications are ordered, which factors would you consider?

A. The patient's age	____A,B, and C
B. The description of the pain	____B,C, and D
C. Other drugs recently administered	____A and B
D. The patient's vital signs	__X__A,B,C, and D

This question deals mainly with the alleviation of pain and those factors which should be considered before administering pain

relieving medications. The students are required to apply theoretical knowledge about the actions and precautions of medications to the practical situation. It is expected that the percentage of correct responses would increase after exposure to clinical practice.

Table 4 shows that the percentage of correct responses increased only 0.7 percent from pretest (85.4 percent) to post test (86.1 percent). Since the percentage increase in correct responses was so small, exposure to clinical practice did not appreciably affect the students' understanding of the pain concept as measured by the percentage correct responses to this test item.

Table 4 also shows a 7.0 percent increase in incorrect responses from pretest (6.4 percent) to post test (13.4 percent) and a 7.7 percent decrease in those who did not know the answer from pretest (8.2 percent) to post test (0.5 percent). This shows that after exposure to clinical practice a higher percentage of students evidently believed they knew the correct response but responded incorrectly.

TABLE 4

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM NINE

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	85.4%	86.1%	0.7%
Incorrect response	6.4%	13.4%	7.0%
Did not know	8.2%	0.5%	7.7%

Objective: The student will identify the components of a total pain experience.

Test Item No. 10:

10. What factors contribute to a patient's total pain experience?

A. The autonomic reflex response	____A and B
B. The physical sensation	____B,C, and D
C. The attitude of the patient toward pain	__X__A,B,C, and D
D. The physical, social and emotional environment	____A,B, and D

This test item deals with the physiological, psychological, and socio-cultural components of a pain experience. The student is required to pool information from various disciplines to understand all that may be involved in a painful experience. It is expected that correct responses to this test item would increase after exposure to clinical practice.

Table 5 shows that the percentage of correct responses actually decreased 2.8 percent from pretest (65.9 percent) to post test (63.1 percent). This is not an appreciable decrease. The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item decreased after exposure to clinical practice.

Table 5 also shows that the percentage of incorrect responses increased 6.7 percent from pretest (19.0 percent) to post test (11.2 percent). The percentage of those who did not know the answer decreased 3.9 percent from pretest (15.1 percent) to post test (11.2 percent).

This shows that after exposure to clinical practice, a higher percentage of students evidently believed they knew the correct response though responding incorrectly.

TABLE 5

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	65.9%	63.1%	2.8%
Incorrect response	19.0%	25.7%	6.7%
Did not know	15.1%	11.2%	3.9%

Objective: The student will explain why every individual reacts differently to pain.

Test Item No. 11:

11. In the research lab, ten people were given the same painful stimuli but all of them reacted differently. Why?

A. Pain is an individual experience to each person	____A,B, and C
B. Pain has different symbolic meanings to each individual	_X_ A and B
	____B and C
C. Pain sensation is felt equally by all people	____A only

This question deals mainly with the theoretical aspects of pain. It requires the student to explain some of the underlying reasons why individuals express and react to pain in different ways. It can be expected that the percentage of correct responses would increase after exposure to patients in the clinical setting.

Table 6 shows that the percentage of correct responses increased 8.4 percent from pretest (64.9 percent) to post test (73.3 percent). Although the percentage of correct responses is not appreciably high, it did increase after exposure to clinical practice. Therefore, the extent of the students' understanding of the concept of pain as measured by the percentage of correct responses to this test item did increase after exposure to clinical practice.

Table 6 also shows that the percentage of incorrect responses decreased 5.2 percent from pretest (30.3 percent) to post test (25.1 percent). The percentage of those who did not know the answer decreased 3.3 percent from pretest (4.9 percent) to post test (1.6 percent).

TABLE 6

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM ELEVEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	64.9%	73.3%	8.4%
Incorrect response	30.3%	25.1%	5.2%
Did not know	4.9%	1.6%	3.3%

Objective: The student will identify those psychological factors that may contribute to pain expression.

Test Item No. 12:

12. Fear of the unknown increases anxiety which many times decreases the individual's pain tolerance.

__X__ True ____ False

This question deals with the theoretical aspect of pain expression and requires the student to identify the fear-anxiety-pain cycle. An increase in correct responses could be expected after exposure to patients in the clinical setting.

Table 7 shows that the percentage of correct responses decreased 1.4 percent from pretest (79.5 percent) to post test (78.1 percent). Therefore, the extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item actually decreased after exposure to clinical practice.

Table 7 also shows that the percentage of incorrect responses increased 3.7 percent from pretest (16.6 percent) to post test (20.3 percent). The percentage of those who did not know the answer decreased 2.3 percent from pretest (3.9 percent) to post test (1.6 percent). This shows that evidently a higher percentage of students believed they knew the correct answer after exposure to clinical practice, but responded incorrectly.

TABLE 7

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWELVE

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	79.5%	78.1%	1.4%
Incorrect response	16.6%	20.3%	3.7%
Did not know	3.9%	1.6%	2.3%

Objective: The student will determine the symbolic significance of pain.

Test Item No. 13:

13. Pain has a greater symbolic significance to the individual than any other symptom. __X__ True _____ False

This question deals with the theoretical aspect of pain on a psychological and socio-cultural basis. It involves an understanding of pain as a symptom, and the individual meanings attached to pain. It is not necessarily expected that the percentage of correct responses would increase after exposure to clinical practice since the nature of this test item is purely theoretical, unless this content was specifically dealt with in the clinical setting.

Table 8 shows that the percentages of correct responses increased only 0.2 percent from pretest (63.4 percent) to post test (63.6 percent). Therefore, the extent of the students' understanding of the concept of pain as measured by the percentage of correct responses to this test item remained essentially unchanged after exposure to clinical practice. However, the percentage of incorrect responses increased 6.8 percent from pretest (14.1 percent) to post test (20.9 percent). The percentage of those who did not know the answer decreased 6.9 percent from pretest (22.4 percent) to post test (15.5 percent). This suggests that after exposure to clinical practice a higher percentage of students believed they knew the answer but responded incorrectly.

TABLE 8

PERCENTAGE OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM THIRTEEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	63.4%	63.6%	0.2%
Incorrect response	14.1%	20.9%	6.8%
Did not know	22.4%	15.5%	6.9%

Objective: The student will identify the significance of pain as an initiation of many adaptive-protective body mechanisms.

Test Item No. 14:

14. Pain evokes a larger variety of both physical and psychological adaptive-protective reactions than any other symptom.

_X_ True ____ False

This test item deals with the theoretical aspect of pain expression and involves the physiological, psychological and socio-cultural factors of pain. The student is required to understand the meaning of adaptive-protective responses and that pain or its anticipation may trigger them. It could be expected that the percentage of correct responses may increase somewhat after experience with patients in the clinical setting.

Table 9 shows that the percentage of correct responses increased 9.1 percent from pretest (72.2 percent) to post test (81.3 percent). The extent of the students' understanding of the pain concept is measured by the percentage of correct responses to this test item

increased after exposure to clinical practice.

Table 9 also shows that the percentage of incorrect responses decreased 1.7 percent from pretest (5.4 percent) to post test (3.7 percent). The percentage of those who did not know the answer decreased 7.4 percent from pretest (22.4 percent) to post test (15.0 percent). This is a fairly substantial decrease in those who did not know the answer.

TABLE 9

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM FOURTEEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	72.2%	81.3%	9.1%
Incorrect response	5.4%	3.7%	1.7%
Did not know	22.4%	15.0%	7.4%

Objective: The student will identify that behavioral responses to pain are predominantly learned responses.

Test Item No. 15:

15. Pain reactions are not learned but are inherited.

____True __X__False

This question deals with the theoretical aspect of pain and involves both socio-cultural and psychological knowledge with regard to pain behavior. The student is required to synthesize various psychological and socio-cultural concepts related to pain expression. The

percentage of correct responses to this test item is not expected to substantially increase after clinical practice since the nature of the item is purely theoretical.

Table 10 shows that the percentage of correct responses increased 3.5 percent from pretest (91.7 percent) to post test (95.2 percent). Although this is not a large increase, the percentage of correct responses were quite high on the pretest. The extent of the students' understanding of the pain concept as measured by this test item did increase after exposure to clinical practice.

Table 10 also shows that the percentage of incorrect responses decreased 1.8 percent from pretest 3.4 percent) to post test (1.6 percent). The percentage of those who did not know the answer decreased 1.7 percent from pretest (4.9 percent) to post test (3.2 percent).

TABLE 10

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM FIFTEEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	91.7%	95.2%	3.5%
Incorrect response	3.4%	1.6%	1.8%
Did not know	3.4%	3.2%	1.7%

The next two test items and Tables 11 and 12 pertain to the following situation.

Situation: Mrs. Adams, Caucasian, 24 years old, had a breast biopsy this AM and a benign cyst was removed. The doctor has not made his post-operative rounds yet, so the patient does not know that the lump was a benign cyst. She is complaining bitterly of pain and states that the pain pills do not work.

Objective: The student will recognize the psychological factors which contribute to an individual's pain behavior.

Test Item No. 16:

16. Which of the following may explain why Mrs. Adams is having such an unusual amount of pain?

A. Since she does not know the results, she may be extremely frightened.
B. Fear of disfigurement increases anxiety and is a threat to her body image.
C. She most likely has psychotic problems thus causing her to over-react.

X A,B, and C	_____C only
_____B only	_____A and B

This test item deals with the theoretical aspect of pain expression. It involves the application of psychological factors of pain to a practical situation. It may be expected that the percentage of correct responses would increase after exposure to clinical practice.

Table 11 shows that the percentage of correct responses increased 7.4 percent from pretest (85.9 percent) to post test (92.5 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item increased after exposure to clinical practice.

Table 11 also shows that the percentage of incorrect responses decreased 3.0 percent from pretest (8.4 percent) to post test

(5.4 percent). The percentage of those who did not know the answer decreased 3.8 percent from pretest (8.4 percent) to post test (5.9 percent).

TABLE 11

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM SIXTEEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	85.9%	92.5%	7.4%
Incorrect response	8.4%	5.4%	3.0%
Did not know	5.9%	2.1%	3.8%

Objective: The student will identify approximate initial nursing actions with regard to a patient experiencing pain.

Test Item No. 17:

17. What should you do first when an aide reports that Mrs. Adams is having pain?

____ Look on her chart and find out what medication is ordered for her for pain, and then give it.
_X_ Go observe the patient, assess the pain, and verify the complaint.
____ Ask the aide how bad the pain is.
____ Look at the chart to see when her last pain medication was given.

This test item deals with the application of theoretical knowledge to a simulated practical situation. The student must identify a priority of nursing actions appropriate to pain alleviation. An increase in correct responses would be expected after exposure to

clinical practice.

Table 12 shows an increase of 13.6 percent in correct responses from pretest (74.6 percent) to post test (88.2 percent). The extent of the students' understanding of the concept of pain as measured by this test item did increase after exposure to clinical practice.

Table 12 also shows that the percentage of incorrect responses decreased 7.4 percent from pretest (17.6 percent) to post test (10.2 percent). The percentage of those who did not know the answer decreased 6.2 percent from pretest (7.8 percent) to post test (1.6 percent).

TABLE 12

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER FOR TEST ITEM SEVENTEEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	74.6%	88.2%	13.6%
Incorrect response	17.6%	10.2%	7.4%
Did not know	7.8%	1.6%	6.2%

The next two test items pertain to the following given situation.

Situation: Mr. Jones, a 45 year old, Caucasian lumber jack, had surgery yesterday to remove a diseased gallbladder. The night nurse reported that he had rested comfortably all night, and did not require any medication for pain. You observed that Mr. Jones was flat on his back, staring at the ceiling, and perspiring heavily, and seemed very tense.

Objective: The student will be able to utilize non-verbal cues from the patient in making an assessment of the patient's pain.

Test Item No. 18:

18. What do the above observations mean to you?

_____The patient's room is too hot and this has made him upset.
_____The patient is nervous and worried about the results of the surgery.
__X__The patient is likely to be in pain even though he has not complained.
_____The patient is uncomfortable from sweating all night.

This test item deals with both the theoretical and practical aspects of pain. It involves a simulated practical situation in which the student must utilize the non-verbal expressions of pain in assessing a patient's pain. Since this question deals with the application of theoretical knowledge to a practical situation, an increase in correct response would be expected after exposure to clinical practice.

Table 13 shows that the percentage of correct responses increased 7.6 percent from pretest (84.9 percent) to post test (92.5 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item increased after exposure to clinical practice.

Table 13 also shows that the percentage of incorrect responses decreased 4.6 percent from pretest (8.3 percent) to post test (3.7 percent). The percentage of those who did not know the answer decreased 3.1 percent from pretest (6.8 percent) to post test (3.7 percent).

TABLE 13

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM EIGHTEEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	84.9%	92.5%	7.6%
Incorrect response	8.3%	3.7%	4.6%
Did not know	6.7%	3.7%	3.1%

Objective: The student will initiate appropriate nursing actions when presented with a practical situation.

Test Item No. 19:

19. What would you do first for Mr. Jones?

_____Turn down the heat, and sponge him off.
_____Ask him if he would like you to call his doctor.
_____Give him a good bed bath and change the sheets.
__X__Ask him if he is having pain.

This test item deals with both the theoretical and practical aspects of pain. The student must first recognize the non-verbal expression of pain presented in the given situation. Then the student must initiate the appropriate nursing action toward alleviation. It could be expected that the percentage of correct responses would increase after exposure to clinical practice.

Table 14 shows that the percentage of correct responses increased 9.1 percent from pretest (83.4 percent) to post test (92.5 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test

item increased after exposure to clinical practice. Table 14 also shows that the percentage of incorrect responses decreased 2.4 percent from pretest (7.8 percent) to post test (5.4 percent). The percentage of those who did not know the answer decreased 6.7 percent from pretest (8.8 percent) to post test (2.1 percent).

TABLE 14

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM NINETEEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	83.4%	92.5%	9.1%
Incorrect response	7.8%	5.4%	2.4%
Did not know	8.8%	2.1%	6.7%

Test Items Number 20 and 21 deal with the following given situation.

Situation: Mr. Gasparetti, a small elderly Italian man, has come into the emergency room after a fall at home. He is yelling and complaining of severe pain in his left shin, three inches below the knee. You try to take his vital signs but he is yelling and crying so much that this is impossible. There is a large amount of old blood on his left leg. After cleansing the leg gently it is noted that there is only a small surface cut and no new bleeding. Mr. Gasparetti continues to moan and groan, yelling "don't touch me any more, get out of here."

Objective: The student will utilize psychological and socio-cultural principles when interpreting the behavior of a patient experiencing pain.

Test Item No. 20:

20. What factors should you keep in mind when talking to and caring for Mr. Gasparetti?

____This small superficial scratch could not possibly be causing all this pain, and he is making some of it up.
____He is very frightened by all the blood and is close to hysteria.
__X__People react differently to pain due to their background, and the meaning that pain has to them.
____Elderly people have a tendency to make more out of situations than is actually the case.

The test item deals with the theoretical and practical aspects of pain. The student must apply psychological, socio-cultural, and physiological principles in explaining a patient's behavior or the verbal and non-verbal expression of pain. An increase in the percentage of correct responses would be expected after exposure to clinical practice.

Table 15 shows that the percentage of correct responses increased 5.0 percent from pretest (62.4 percent) to post test (67.4 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item increased after exposure to clinical practice.

Table 15 also shows that the percentage of incorrect responses decreased 9.4 percent from pretest (31.3 percent) to post test (21.9 percent). The percentage of those who did not know the answer increased 4.4 percent from pretest (6.3 percent) to post test (10.7 percent).

TABLE 15

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	62.4%	67.4%	5.0%
Incorrect response	31.3%	21.9%	9.3%
Did not know	6.3%	10.7%	4.4%

Objective: The student will initiate appropriate nursing actions when confronted with a given situation.

Test Item No. 21:

21. What is the best thing to say to Mr. Gasparetti at this point while waiting for the doctor to come?

____ You are acting like a baby, please be quiet.
____ You are disturbing the other patients with that yelling, please calm down.
_X_ The bleeding has stopped, the doctor's on his way, and I will stay with you until he comes.
____ That yelling is not doing you any good, the doctor will be here as soon as he can.

This question deals with the theoretical and practical aspects of pain. The student must utilize psychological and socio-cultural principles in understanding the patient's behavior and responding appropriately to the patient. An increase in correct responses would be expected after exposure to clinical practice.

Table 16 shows that the percentage of correct responses increased 2.2 percent from pretest (94.6 percent) to post test (96.8 percent). The extent of the students' understanding of the pain concept

as measured by the percentage of correct responses to this test item increased after exposure to clinical practice.

Table 16 also shows that the percentage of incorrect responses decreased 2.3 percent from pretest (3.4 percent) to post test (1.1 percent). The percentage of those who did not know the answer increased slightly, 0.1 percent, from pretest (2.0 percent) to post test (2.1 percent).

TABLE 16

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY ONE

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	94.6%	96.8%	2.2%
Incorrect response	3.4%	1.1%	2.3%
Did not know	2.0%	2.1%	0.1%

Objective: The student will recognize the psychological and physiological purposes pain may serve for an individual.

Test Item No. 22:

22. What purpose(s) can pain serve for an individual?

A. As a warning signal that something is wrong.
B. As a hindering mechanism to keep the individual from aggravating an injury.
C. As a punishment thus relieving guilt feelings.
D. As an indicator of actual injury or the threat of an injury.

____ A and C
____ A,B, and D
____ A only
__X__ A,B,C, and D

This test item deals with the theoretical aspects of pain and involves the psychological and physiological factors in the expression of pain. An increase in correct responses would be expected after exposure to clinical practice.

Table 17 shows that the percentage of correct responses increased 17.7 percent from pretest (17.1 percent) to post test (34.8 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item increased substantially after exposure to clinical practice.

Table 17 also shows that the percentage of incorrect responses decreased 13.6 percent from pretest (74.6 percent) to post test (61.0 percent). The percentage of those who did not know the answer decreased 4.0 percent from pretest (8.3 percent) to post test (4.3 percent).

TABLE 17

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY TWO

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	17.1%	34.8%	17.7%
Incorrect response	74.6%	61.0%	13.6%
Did not know	8.3%	4.3%	4.0%

Objective: The student will identify the two conditions necessary an individual must possess in order to experience pain.

Test Item No. 23:

23. In order for an individual to experience pain, which of the following must be present?

A.	A physiological noxious stimuli	____B only
B.	Consciousness	____A and B
C.	A normal intelligence quotient	_X_B and D
D.	The individual's attention	____B,C, and D

This test item deals with the theoretical aspect of pain. It involves knowledge of the psychological and physiological conditions necessary in order for an individual to experience pain. It would be expected that the percentage of correct responses would increase after exposure to clinical practice if the student was assigned a patient who lacked one of the conditions.

Table 18 shows that the percentage of correct responses increased 8.0 percent from pretest (10.7 percent) to post test (18.7 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item increased after exposure to clinical practice.

Table 18 also shows that the percentage of incorrect responses increased 9.4 percent from pretest (54.1 percent) to post test (63.5 percent). The percentage of those who did not know the answer decreased 18.5 percent from pretest (35.1 percent) to post test (17.6 percent). This finding suggests that after exposure to clinical practice, a higher percentage of students thought they knew the answer but responded incorrectly.

TABLE 18

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY THREE

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	10.7%	18.7%	8.0%
Incorrect response	54.1%	63.5%	9.4%
Did not know	35.1%	17.6%	18.5%

Objective: The student will identify that area of the brain responsible for pain perception.

Test Item No. 24:

24. In what area of the brain are pain sensations perceived?

_____Cerebrum
__X__Thalamus
_____Medulla
_____Cerebellum

This question deals with the theoretical aspect of pain and involves knowledge of anatomy and physiology related to pain. It would be expected that the percentage of correct responses would remain the same after exposure to clinical practice due to the purely theoretical content of this test item.

Table 19 shows that the percentage of correct responses decreased 8.6 percent from pretest (15.6 percent) to post test (7.0 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item decreased after exposure to clinical practice.

Table 19 also shows that the percentage of incorrect responses increased 21.6 percent from pretest (24.4 percent) to post test (46.0 percent). This is a substantial increase. The percentage of those who did not know the answer decreased 13.0 percent from pretest (60.0 percent) to post test (47.0 percent). This finding suggests that after exposure to clinical practice a higher percentage of students believed they knew the answer but responded incorrectly.

TABLE 19

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY FOUR

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	15.6%	7.0%	-8.6%
Incorrect response	24.4%	46.0%	21.6%
Did not know	60.0%	47.0%	13.0%

Objective: The student will explain the mechanism involved in phantom pain.

Test Item No. 25:

25. Which of the following statements are valid when attempting to explain phantom pain?

A. Phantom pain involves the perception of pain in a part of the body that has been removed.
B. Phantom pain is caused by extensive nerve damage unavoidably occurring during the operation.
C. Phantom pain is an attempt by the patient to deny the loss of a body part.

D. Phantom pain refers to that pain which is felt by an individual in either his fingers, arms, toes or legs.

_____A,B, and C
_____A,C, and D
__X__A and C
_____B,C, and D

This test item involves the theoretical aspect of pain and involves knowledge of psychological, socio-cultural, and physiological factors within the concept of pain as to its expression. It would be expected that there would be an increase in correct responses after exposure to clinical practice.

Table 20 shows that the percentage of correct responses increased 37.7 percent from pretest (19.5 percent) to post test (57.2 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item increased substantially after exposure to clinical practice.

Table 20 also shows that the percentage of incorrect responses also increased 12.7 percent from pretest (15.1 percent) to post test (27.8 percent). The percentage of those who did not know the answer decreased a very substantial 50.4 percent from pretest (65.4 percent) to post test (15.0 percent). These findings suggest that after exposure to clinical practice a higher percentage of students believed they knew the answer but responded incorrectly.

TABLE 20

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY FIVE

Responses to Test Item	Pretest(N=205)	Post Test (N=187)	Difference
Correct response	19.5%	57.2%	37.7%
Incorrect response	15.1%	27.8%	12.7%
Did not know	65.4%	15.0%	50.4%

Objective: The student will identify the two areas of the brain involved in the experience of pain.

Test Item No. 26:

26. Pain stimuli are picked by receptors, travel via nerve fibers to what two (2) parts of the brain?

__X__Thalamus and cerebrum
_____Cerebrum and hypothalamus
_____Cerebellum and medulla
_____Thalamus and cerebellum

This test item deals with the theoretical aspect of pain. It involves knowledge of the anatomy and physiology related to pain. It would be expected that the percentage of correct responses would remain unchanged after exposure to clinical practice due to the purely theoretical nature of this item.

Table 21 shows that the percentage of correct responses decreased 8.3 percent from pretest (19.0 percent) to post test (10.7 percent). The extent of the students' understanding of the concept of pain as measured by the percentage of correct responses decreased after

exposure to clinical practice.

Table 21 also shows that the percentage of incorrect responses increased a rather substantial 22.0 percent from pretest (11.2 percent) to post test (33.2 percent). The percentage of those who did not know the answer decreased 13.7 percent from pretest (69.8 percent) to post test (56.1 percent). This suggests that after exposure to clinical practice a higher percentage of the students believed they knew the answer but responded incorrectly.

TABLE 21

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY SIX

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	19.0%	10.7%	8.3%
Incorrect response	11.2%	33.2%	22.0%
Did not know	69.8%	56.1%	13.7%

Objective: The student will identify that area of the brain which is responsible for pain interpretation and the initiation of behavior responses to pain.

Test Item No. 27:

27. In which part of the brain are pain sensations interpreted and behavioral responses initiated?

__X__ Cerebrum
_____ Thalamus
_____ Medulla
_____ Cerebellum

This item deals with the theoretical aspect of pain and involves knowledge of the anatomy and physiology related to pain. The percentage of correct responses is expected to remain the same after exposure to clinical practice due to the theoretical nature of the item.

Table 22 shows that the percentage of correct responses increased 0.6 percent from pretest (24.0 percent) to post test (24.6 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses to this test item remained essentially the same after exposure to clinical practice.

Table 22 also shows that the percentage of incorrect responses increased 6.4 percent from pretest (14.7 percent) to post test (20.3 percent). The percentage of those who did not know the answer decreased 8.2 percent from pretest (61.3 percent) to post test (52.1 percent). This suggests that after exposure to clinical practice, a higher percentage of students believed they knew the answer but responded incorrectly.

TABLE 22

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY SEVEN

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	24.0%	24.6%	0.6%
Incorrect response	14.7%	20.3%	6.4%
Did not know	61.3%	53.1%	8.2%

Objective: The student will determine the contribution of pain in infancy.

Test Item No. 28:

28. In infancy, pain contributes to the process of differentiation of body from environment and formation of body image.

__X__ True _____ False

This test item deals with the theoretical consideration of pain. It involves the physiological and psychological aspects of the pain concept. It could be expected that the percentages of correct responses would not change appreciably after exposure to clinical practice due to the theoretical nature of the test item.

Table 23 shows that the percentage of correct responses increased a substantial 20.9 percent from pretest (55.6 percent) to post test (76.5 percent). The extent of the students' understanding of the pain concept as measured by the percentage of correct responses increased after exposure to clinical practice.

Table 23 also shows that the percentage of incorrect responses decreased only 0.4 percent from pretest (6.8 percent) to post test (6.4 percent). The percentage of those who did not know the correct response decreased 20.5 percent from pretest (37.6 percent) to post test (17.1 percent). The substantial decrease in the percentage of those who did not know the answer apparently contributed to the substantial increase in the percentage of correct responses since the percentage of incorrect responses remained essentially the same after

exposure to clinical practice.

TABLE 23

PERCENTAGES OF CORRECT RESPONSES, INCORRECT RESPONSES, AND THOSE WHO DID NOT KNOW THE ANSWER TO TEST ITEM TWENTY EIGHT

Responses to Test Item	Pretest(N=205)	Post Test(N=187)	Difference
Correct response	55.6%	76.5%	20.9%
Incorrect response	6.8%	6.4%	0.4%
Did not know	37.6%	17.1%	20.5%

Test items one through five were developed to elicit personal information about the participants of the study. This information was then correlated with the student's total correct score on both the pretest and post test by using the Pearson product-moment correlation coefficient formula. The significance of the critical value of the correlation coefficient was determined by using a .05 level of significance for a two-tailed test.

Each question is presented, followed by a discussion of the findings and a table containing those findings.

Test Item No. 1:

1. What is your age? (write in the number) ____

The ages of the pretest group ranged from 19 to 41 years, with a mean age of 20.42 years. The correlation coefficient between age and score on the pretest was computed as r = .05354. The ages of the post

test group ranged from 19 to 36 years, with a mean age of 21.02 years. The correlation coefficient between age and score on the post test was computed as r = .13210. Neither of these correlation coefficient values show a significant relationship between age and score on the test.

TABLE 24

CORRELATION BETWEEN AGE AND SCORE ON TESTS

Age	Pretest (N=205)	Post Test (N=187)
Age range	19 to 41 years	19 to 36 years
Mean age	20.42 years	21.02 years
Correlation coefficient	r = .05354	r = .13210

Test Item No. 2:

2. What is your sex? Male_____ Female_____

Females were coded as 1 (one) and males as 2 (two). Of the 205 pretest participants, 190 or 92.7 percent were female and fifteen or 7.3 percent were male. A correlation coefficient of r = -.03387 was computed between sex and score on the pretest. Of the 187 post test participants, 172 or 92.0 percent were female and fifteen or 8.0 percent were male. A correlation coefficient of r = .10283 was computed between sex and score on the post test. Neither of these correlation coefficient values show a significant relationship between sex and score on the test.

TABLE 25

CORRELATION BETWEEN SEX AND SCORE ON TESTS

Sex	Pretest (N=205)	Post Test (N=187)
Female	92.7% (190)	92.0% (172)
Male	7.3% (15)	8.0% (15)
Correlation Coefficient	r = -.03387	r = .10283

Test Item No. 3:

3. Have you ever had an illness, operation, or injury which you can remember, that caused you to experience pain?

_____Yes _____No

A yes answer was coded as 1 (one) and a no answer as 2 (two). Of the 205 pretest participants, 183 or 89.3 percent answered yes, and twenty two or 10.7 percent answered no to this question. A correlation coefficient between previous personal experience with pain and score on the pretest was computed as r = .07238. Of the 187 post test participants, 175 or 93.6 percent answered yes, and twelve or 6.4 percent answered no to this question. A correlation coefficient between previous personal experience with pain and score on the post test was computed as r = .01004. Neither of these correlation coefficient values show a significant relationship between previous personal experience with pain and score on the test.

TABLE 26

CORRELATION BETWEEN PREVIOUS PERSONAL EXPERIENCE WITH PAIN AND SCORE ON THE TESTS

Previous Personal Experience	Pretest (N=205)	Post Test (N=187)
Yes	89.3% (183)	93.6% (175)
No	10.7% (22)	6.4% (12)
Correlation coefficient	r = .07238	r = .01004

Test Item No. 4:

4. Has a relative, who you have had contact with, ever had an illness, operation, or injury which caused them to experience pain?

____Yes ____No

A yes answer was coded as 1 (one) and a no answer as 2 (two). Of the 205 pretest participants, 197 or 96.1 percent answered yes, and eight or 3.9 percent answered no to this question. A correlation coefficient of r = -.03623 was computed between contact with a relative who has experienced pain and score on the pretest. Of the 187 post test participants, 181 or 96.8 percent answered yes, and six or 3.2 percent answered no to this question. A correlation coefficient of r = -.00698 was computed between contact with a relative who has experienced pain and score on the post test. Neither of these correlation coefficient values show a significant relationship between contact with a relative who has experienced pain and score on the test.

TABLE 27

CORRELATION BETWEEN CONTACT WITH A RELATIVE WHO HAS EXPERIENCED PAIN AND SCORE ON THE TESTS

Contact with Relative	Pretest (N=205)	Post Test (N=187)
Yes	96.1% (197)	96.8% (181)
No	3.9% (8)	3.2% (6)
Correlation coefficient	r = -.03623	r = -.00698

Test Item No. 5:

5. Have you ever had previous working experience in a hospital or nursing home or doctor's office? Yes_____ No_____

A yes answer was coded as 1 (one) and a no answer as 2 (two). Of the 205 pretest participants, 109 or 52.2 percent answered yes and 96 or 46.8 percent answered no to this question. A correlation coefficient of r = -.07274 was computed between previous working experience and score on the pretest. Of the 187 post test participants, 130 or 69.5 percent answered yes, and 57 or 30.5 percent answered no to this question. A correlation coefficient of r = .08043 was computed between previous working experience and score on the post test. Neither of these correlation coefficient values show a significant relationship between previous working experience and score on the test.

TABLE 28

CORRELATION BETWEEN PREVIOUS WORKING EXPERIENCE IN THE MEDICAL FIELD AND SCORE ON TESTS

Previous Working Experience	Pretest (N=205)	Post Test (N=187)
Yes	53.2% (109)	69.5% (130)
No	46.8% (96)	30.5% (57)
Correlation coefficient	r = -.07274	r = .08043

Summary of Findings

The percentages of correct responses were expected to increase after the students were exposed to clinical practice on seventeen of the twenty three test items. Out of these seventeen, only two items (No. 10 and No. 12) had findings contrary to what was expected. Item No. 10 dealt with the contributing factors of a total pain experience and item No. 12 dealt with fear and anxiety as factors which decrease a patient's pain tolerance. The percentage of correct responses actually decreased after the students were exposed to clinical practice.*

The percentages of correct responses were expected to remain unchanged after the students were exposed to clinical practice on six of the twenty three test items. Out of these six, four had findings contrary to what was expected. The percentage of correct responses on test items No. 15 and No. 28, which both dealt with the psychological

*See Table 5, page 29 for findings on Item No. 10, and Table 7, page 31 for findings on Item No. 12.

aspects of pain, increased after the students were exposed to clinical practice.* The percentage of correct responses on test items No. 24 and No. 26, both of which dealt with the anatomical and physiological aspects of pain, decreased after the students were exposed to clinical practice.†

In eight of the twenty three test items, the percentages of incorrect responses actually increased after exposure to clinical practice.‡ In twenty two of the twenty three test items, the percentage of those who did not know the answer decreased after exposure to clinical practice. This would suggest that a higher number of students believed they knew the answer but responded incorrectly after exposure to clinical practice. Item No. 20, (see Table 15, page 43), which dealt with a simulated practical situation, was the only test item in which the percentage of those who did not know the answer increased after exposure to clinical practice.

*See Table 10, page 35 for findings on Item No. 15, and Table 23, page 54 for findings on Item No. 28.

†See Table 19, page 48 for findings on Item No. 24, and Table 21, page 51 for findings on Item No. 26.

‡See Item No. 9, Table 4, page 27; 10, Table 5, page 29; 12, Table 7, page 31; 13, Table 8, page 33; 23, Table 18, page 47; 24, Table 19, page 48; 25, Table 20, page 50; and 27, Table 22, page 52.

Chapter IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The problem of this study was to determine, for a group of nursing students, the extent of their understanding of the concept of pain as to its expression and alleviation after exposure to the concept in theory only, and again after exposure to clinical practice. A test was administered to a group of baccalaureate nursing students prior to any clinical practice. The same test was again administered to the same group of students after they had been exposed to two quarters of clinical practice.

The test contained five items dealing with personal information as to age, sex, and previous experience with pain. This was correlated with the total scores on both the pretest and post test to determine if there was any relationship between this personal information and how well the students did on these tests.

The remaining twenty three test items dealt with the expression and alleviation of pain on a psychological, physiological, and socio-cultural basis. The extent of the students' understanding was determined by the percentage of correct responses to each test item.

Conclusions

Findings revealed that in general, the extent of the students' understanding of the concept of pain as to its expression and

alleviation increased after exposure to clinical practice on those test items dealing with the psychological and socio-cultural aspects of pain. The extent of the students' understanding of the concept of pain decreased after exposure to clinical practice on those items dealing with the physiological aspects of pain. This may suggest that the physiological subject content of pain was not adequately covered in theory and/or not sufficiently emphasized in the clinical setting.

In eight of the twenty three test items, the percentage of incorrect responses actually increased and the percentage of those who did not know the answer decreased after the students were exposed to clinical practice. And since, in six of these eight items, the percentage of correct responses either remained the same or decreased after the students were exposed to clinical practice, it can be concluded that after exposure to clinical practice, the students either actually believed they knew the answer and responded incorrectly, or thought they were expected to know the answer and guessed at the correct response, even though they had been instructed not to guess on the tests. These items dealt with those factors to consider when making a judgment about pain medication; factors contributing to a pain experience; fear, anxiety, and symbolism related to pain; and the anatomical and physiological aspects of pain.*

*See Tables 4, page 27; 5, page 29, 7, page 31; 8, page 33; 19, page 48; and 22, page 52.

It can also be concluded on the basis of the insignificant correlations between personal information and score on the tests, that neither age, sex, nor previous experience with pain had any significant relationship with the total score on either the pretest or post test.

Recommendations

A study of a similar nature would be quite advantageous if each participant was coded so that individual changes from pretest to post test could be determined and statistical analysis could be applied.

An extension of this study, testing the same group of students after four, and again after six quarters of clinical practice, would reveal some interesting data.

A study using an experimental design with two groups of students may elicit important results. One group would be exposed to theory first, followed by clinical practice. The other group would be exposed to both theory and practice concurrently. This type of study may reveal data about the retention of theoretical concepts and principles if application is made immediately. This also may have some interesting findings about transfer of learning which takes place under different conditions.

Another study, utilizing the same instructor for both theory and clinical supervision, could provide valuable information about the effectiveness of different teaching methods when presenting the concept of pain.

It is further recommended, on the basis of the results obtained, that more emphasis be placed upon the physiological aspects of pain and the concept of phantom pain in both theory and clinical practice.

APPENDICES

APPENDIX A

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CHECKING THE APPROPRIATE LINE

1. What is your age? (write in the number) _____

2. What is your sex? Male _____ Female _____

3. Have you ever had an illness, operation, or injury which you can remember, that caused you to experience pain?
   Yes _____ No _____

4. Has a relative, who you have had contact with, ever had an illness, operation, or injury which caused them to experience pain?
   Yes _____ No _____

5. Have you ever had previous working experience in a hospital or nursing home or doctor's office? Yes _____ No _____

   READ EACH QUESTION CAREFULLY.
   IF YOU DO NOT KNOW THE ANSWER, PLEASE LEAVE THE QUESTION BLANK.
   DO NOT GUESS!

6. Which of the following do you think is the most accurate definition of pain?
   _____Pain is a physiological sensation due to a noxious stimuli.
   _____Pain is the opposite of pleasure.
   _____Pain is a subjective experience influenced by numerous physical, emotional, and cultural factors.
   _____Pain is an unpleasant feeling state.

7. What observation(s) would you make in assessing a patient's pain?
   A. Facial expression
   B. The patient's position
   C. The presence of perspiration
   D. Tenseness of the muscles

   _____A only
   _____A,B, and C
   _____B and C
   _____A,B,C and D

8. What questions would you ask a patient in relation to his complaint of pain?
   A. Where is the pain?
   B. Can you describe the pain?
   C. How long have you had the pain?
   D. Would you like to see your doctor?

   _____B only
   _____A and B
   _____A,B,C, and D
   _____A,B, and C

9. When judging and deciding upon which medication and dosage is suitable when several pain medications are ordered, which factors would you consider?

A.	The patient's age	_____A,B, and C
B.	The description of the pain	_____B,C, and D
C.	Other drugs recently administered	_____A and B
D.	The patient's vital signs	_____A,B,C, and D

10. What factors contribute to a patient's total pain experience?

A.	The autonomic reflex response	_____A and B
B.	The physical sensation	_____B,C, and D
C.	The attitude of the patient toward pain	_____A,B,C, and D
D.	The physical, social and emotional enviornment	_____A,B, and D

11. In the research lab, ten people were given the same painful stimuli but all of them reacted differently. Why?

A.	Pain is an individual experience to each person	_____A,B, and C
B.	Pain has different symbolic meanings to each individual	_____A and B
C.	Pain sensation is felt equally by all people	_____B and C _____A only

TRUE OR FALSE

12. Fear of the unknown increases anxiety which many times decreases the individual's pain tolerance. _____True _____False

13. Pain has a greater symbolic significance to the individual than any other symptom. _____True _____False

14. Pain evokes a larger variety of both physical and psychological adaptive-protective reactions than any other symptom.
_____True _____False

15. Pain reactions are not learned but are inherited.
_____True _____False

SITUATIONS

Mrs. Adams, Caucasian, 24 year old, had a breast biopsy this AM and a benign cyst was removed. The doctor has not made his post-operative rounds yet, so the patient does not know that the lump was a benign cyst. She is complaining bitterly of pain and states that the pain pills do not work.

16. Which of the following may explain why Mrs. Adams is having such an unusual amount of pain?
    A. Since she does not know the results, she may be extremely frightened.
    B. Fear of disfigurement increases anxiety and is a threat to her body image.
    C. She most likely has psychotic problems thus causing her to over-react.

    _____A,B, and C _____C only
    _____B only _____A and B

17. What should you do first when an aide reports that Mrs. Adams is having pain?
    _____Look on her chart and find out what medication is ordered for her for pain, and then give it.
    _____Go observe the patient, assess the pain, and verify the complaint.
    _____Ask the aide how bad the pain is.
    _____Look at the chart to see when her last pain medication was given.

Mr. Jones, a 45 year old, Caucasian lumber jack, had surgery yesterday to remove a diseased gallbladder. The night nurse reported that he had rested comfortably all night, and did not require any medication for pain. You observed that Mr. Jones was flat on his back, staring at the ceiling, and perspiring heavily, and seemed very tense.

18. What do the above observations mean to you?
    _____The patient's room is too hot and this had made him upset.
    _____The patient is nervous and worried about the results of the surgery.
    _____The patient is likely to be in pain even though he has not complained.
    _____The patient is uncomfortable from sweating all night.

19. What would you do first for Mr. Jones?
    _____Turn down the heat, and sponge him off.
    _____Ask him if he would like you to call his doctor.
    _____Give him a good bed bath and change the sheets.
    _____Ask him if he is having pain.

Mr. Gasparetti, a small elderly Italian man, has come into the emergency room after a fall at home. He is yelling and complaining of severe pain in his left shin, three inches below the knee. You try to take his vital signs but he is yelling and crying so much that this is impossible. There is a large amount of old blood on his left leg. After cleansing the leg gently it is noted that there is only a small surface cut and no new bleeding. Mr. Gasparetti continues to moan and groan, yelling "don't touch me any more, get out of here."

20. What factors should you keep in mind when talking to and caring for Mr. Gasparetti?
    _____This small superficial scratch could not possibly be causing all this pain, and he is making some of it up.
    _____He is very frightened by all the blood and is close to hysteria.
    _____People react differently to pain due to their background, and the meaning that pain has to them.
    _____Elderly people have a tendency to make more out of situations than is actually the case.

21. What is the best thing to say to Mr. Gasparetti at this point while waiting for the doctor to come?
    _____You are acting like a baby, please be quiet.
    _____You are disturbing the other patients with that yelling, please calm down.
    _____The bleeding has stopped, the doctor's on his way, and I will stay with you until he comes.
    _____That yelling is not doing you any good, the doctor will be here as soon as he can.

22. What purpose(s) can pain serve for an individual?
    A. As a warning signal that something is wrong.
    B. As a hindering mechanism to keep the individual from aggravating an injury.
    C. As a punishment thus relieving guilt feelings.
    D. As an indicator of actual injury or the threat of an injury.

    _____A and C
    _____A only
    _____A,B, and D
    _____A,B,C, and D

23. In order for an individual to experience pain, which of the following must be present?
    A. A physiological noxious stimuli
    B. Consciousness
    C. A normal intelligence quotient
    D. The individual's attention

    _____B only
    _____A and B
    _____B and D
    _____B,C, and D

24. In what area of the brain are pain sensations perceived?
    _____Cerebrum
    _____Thalamus
    _____Medulla
    _____Cerebellum

25. Which of the following statements are valid when attempting to explain phantom pain?
    A. Phantom pain involves the perception of pain in a part of the body that has been removed.
    B. Phantom pain is caused by extensive nerve damage unavoidably occurring during the operation.
    C. Phantom pain is an attempt by the patient to deny the loss of a body part.
    D. Phantom pain refers to that pain which is felt by an individual in either his fingers, arms, toes or legs.

    _____A,B, and C
    _____A,C, and D
    _____A and C
    _____B,C, and D

26. Pain stimuli are picked up by receptors, travel via nerve fibers to what two (2) parts of the brain?
    _____Thalamus and cerebrum
    _____Cerebrum and hypothalamus
    _____Cerebellum and medulla
    _____Thalamus and cerebellum

27. In which part of the brain are pain sensations interpreted and behavioral responses initiated?

_____Cerebrum
_____Thalamus
_____Medulla
_____Cerebellum

28. In infancy, pain contributes to the process of differentiation of body from environment and formation of body image.

_____True _____False

Thank you very much

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