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Pain assessment and management in the critically ill unconscious patient in the adult intensive care units

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CHAPTER 1

OVERVIEW OF THE STUDY

1.0 INTRODUCTION

This chapter seeks to provide an overview of the study as planned. The background to the study is described followed by the problem statement, purpose of the study, research hypothesis, research objectives and questions, significance of the study, the researcher's assumptions and relevant definitions. This is followed by an overview of the research methodology, ethical considerations in the study, validity and reliability of the study and the plan of the study.

1.1 BACKGROUND TO THE STUDY

According to Puntillo (1990a), 63% of 24 patients from two hospitals being transferred from the ICU rated their pain as being moderate or severe in intensity. In a large national survey of 5150 (n=5150) acute care hospitalized patients in the United Kingdom, 61% of patients suffered pain and 33% were in pain almost continuously (Buster, Jarman, Bosonquet, Weston, Evans, Delbone, 1994). Pain was reported to occur in nearly 50% of seriously ill patients interviewed and was described as severe in 15% of patients (Desbians, Broste, Wu, Wenger, Connors, Lynn, Yansui, Phillips, Fulkerson, 1996).

Despite the fact that pain is one of the stressors most commonly reported by critically ill patients (Blenkharn, Faughnan, Morgan, 2002), it was noted that pain fails to be given

appropriate priority and not properly treated in a variety of clinical situations (National Health and Medical Research Council [NHMRC] 1999). Only a limited number of nurses feel strongly that patients can and should be maintained in a pain-free state (Brockopp, Brockopp, Warden, Wilson, Carpenter, Vandevear, 1998).

Unrelieved or inadequate pain control leads to inadequate sleep, exhaustion, disorientation, delirium and stress response conditions which may stimulate catecholamine release. This will lead to tachycardia, increased myocardial oxygen consumption, increased systemic venous return and cardiac work, hypercoagulability, immunosuppression, persistent catabolism, muscle spasm and rigidity with resultant pulmonary complications (Pooler-Lunse & Price, 1992). Thus a proficient pain management for critically ill patients is a significant factor in optimizing their chances to recovery (Puntillo & Weiss, 1994) and reducing the cost of ICU stay.

The close proximity of nurses to the patients puts them in a unique position to be able to effectively assess and manage their pain but studies indicate that ICU nurses underestimate their patients' pain (Puntillo, Miaskowski, Kehrle, Stannard, Gleeson, Nye, 1997; Guru & Dubinsky, 2000; Ahlers, Van Gulik, Van der Veen, Van Dongen, Bruins, Belitser, de Boer, Tibboel, Knibbe. 2008).

Effective pain management can only be achieved through accurate and systemic assessment. When critically ill patients are unable to report their pain, comprehensive pain assessment can only be achieved by using a scoring tool based on physiological and behavioural indicators of pain (Puntillo et al, 1997). According to Pasero and McCaffery (2005) standardized tools promote consistency among health care providers and care

settings and facilitate communication and evaluation of pain management treatment decisions.

As stated in the Scope of Practice of Registered Nurses R2598 by South African Nursing Council (SANC, 1984), it is the duty of the Registered Nurse to diagnose the health needs and execute nursing regimen to meet the needs of the patient, execute treatment or medication prescribed by a registered person and monitoring of patients' vital signs of his reaction to disease conditions and provide physical comfort to their patients. This can be achieved if pain is accurately assessed and managed and prescription adhered to, to keep the patient pain-free and comfortable.

The ethical obligation to manage pain and relieve the patient's suffering is "at the core of a health care professional's commitment to minimize or prevent anything harmful to the patient" (Agency for Health Care Policy and Research (AHCPR), 1992). Therefore, this study aims to describe the parameters identified by intensive care nurses that can be used to assess pain in the critically ill unconscious patients' in the adult intensive care units and whether these parameters are considered by the ICU nurses when managing the unconscious patients' pain.

1.2 PROBLEM STATEMENT

Despite the complications arising from inadequate pain management in the critically ill patients, very few studies have focused on assessing pain in the unconscious patient (Young, Siffleet, Nikoletti & Shaw, 2005). It is an ethical (AHCPR, 1992) and a legal

obligation (SANC, 1984) of the nurse to keep the patient pain free and comfortable. Given that the focus in the ICU is to keep the patient alive, it is not surprising that pain in the critically ill, sedated or unconscious patient is not only underrated but underappreciated (Blenkharn et al, 2002).

To be effective in pain assessment and management especially in the unconscious patients who cannot verbalise their pain, nurses need to improve their knowledge. This can be achieved through practice based research. But to date, no studies have been found that were conducted in South Africa regarding pain assessment and management in the critically ill unconscious patient.

The researcher sought to answer the following questions:

- What parameters can ICU nurses identify that can be used in assessing pain in the unconscious patients?
- To what extent do ICU nurses manage pain in accordance with the unconscious patients identified parameters?

1.3 PURPOSE OF THE STUDY

The purpose of this study was to describe the parameters identified by intensive care nurses that can be used to assess pain in the critically ill unconscious patients' in the adult intensive care units and whether these parameters are considered by the ICU nurses when managing the unconscious patients' pain.

1.4 RESEARCH HYPOTHESIS

Pain assessment and management practices by intensive care nurses working in the adult ICU's are inconsistent in the unconscious patient.

1.5 RESEARCH OBJECTIVES

- To describe the parameters identified by ICU nurses that can be used for assessing pain in unconscious patients.
- To determine wherether these parameters are considered by ICU nurses when managing the unconscious patient's pain.

1.6 SIGNIFICANCE OF THE STUDY

Pain causes complications in the ICU patient which increases their ICU stay and cost of ICU treatment but it is not given the priority that it deserves. The cost of ICU treatment is already high and there is the need to cut down on cost and improve outcome of patients. Longer stay in the ICU increases the patients' risk of hospital acquired infections that ultimately prolong recovery and increases costs of the ICU stay. There is a limited number of staff, equipment and bed availability in the ICU's and the need to reduce ICU stay is of importance to ensure that other patients who are also in need of this highly specialised service can also be accommodated.

According to Cheever (1999), pain is a subjective experience and therefore the best indicator of a patients' pain is their verbal report. This is not always possible in ICU patients. There is a need therefore to determine how pain can be assessed and managed effectively by nurses who are in the centre of patients' pain assessment and management to optimize ICU care and improve outcome of patients. This study focused on pain assessment and management in the critically ill unconscious patients because there are more at risk for pain under treatment since they cannot verbalise their pain.

1.7 RESEARCHER'S ASSUMPTIONS

Assumptions are statements that are taken for granted or are considered true even though they have not been scientifically tested (Silva, 1981). The study was based on the following assumptions:

1.7.1 Meta-theoretical Assumptions

These are based on Virginia Henderson's major assumptions (1966) particularly related to the four main constructs of Nursing, namely person, environment, nursing and health.

- Person

The person in this case refers to the critically ill patient in the ICU. The person must maintain physiological and emotional balance and pain control is important to maintain

this balance. Any person in severe pain cannot be said to have physiological and emotional balance. The mind and body of the person are inseparable. Critically ill patients require help towards independence. It is the major role of ICU nurses to ensure these patients attain independence by accurate assessment and management of their need including pain relief especially in critically ill patients who are unable to function independently. The patient and the family are a unit and that must be considered in all nursing activities.

- Environment

The environment in this case refers to the adult ICU's in which the patients are admitted. Healthy individuals may be able to control their environment but illness may interfere with their ability especially in critically ill unconscious patients who are even unable to verbalize their needs. Intensive care nurses should protect patients from mechanical injury and also physiological injury such as poorly managed pain that can lead to complications. Nurses should minimize the chances of injury through recommendations regarding construction of building, purchase of equipment and maintenance. ICU doctors use intensive care nurses' observations and judgements upon which to base prescriptions for protective devices and that applies to pain management as well. Nurses must know about social customs and religious practices to assess danger.

- Nursing

The intensive care nurse has a unique function to help well or sick individuals in this case the critically ill unconscious patient in the attainment of their needs. Although the ICU nurse functions as a member of a medical team (pain management requires a team effort),

he/she can also function independently of the physician by doing his/her own nursing assessment but promotes his/her plan if there is a physician in attendance. Henderson (1966) stressed that the nurse can function independently and must if he/she is the best prepared health worker in a situation. The nurse can and must diagnose and treat if the situation demands it. This can be applied in pain management by using alternative ways of pain management such as changing the position of the patient and pressure point care. Henderson (1966) believes that the nurse is knowledgeable in both biological and social sciences and can assess the patient's basic needs.

- Health

Health is a quality of life. No good quality of life can be achieved by an individual if he/she is constantly in pain. Health is basic to human functioning which can be promoted with adequate management of pain. Health requires independence and interdependence of patients on health workers. Critically ill patients rely almost entirely on intensive care nurses for their needs. Promotion of health is more important than care of the sick. Preventing the patient from getting complications from poorly managed pain is better than treating the complications of poorly managed pain and individuals will achieve and maintain health if they have the necessary strength, will and knowledge.

1.7.2 Theoretical Assumptions

The following statements are applicable to this study:

- Pain is a major stressor in ICU patients and can lead to complications which prolong their stay in ICU and increase the cost of hospitalization.
- Pain assessment and management is not given the priority it deserves by intensive care nurses.
- Pain assessment and management tools and protocols are not routinely used especially in critically ill unconscious patients.
- The need to educate ICU nurses about the importance of pain assessment and management cannot be over-emphasized

The following operational definitions are used consistently throughout the report:

Pain

Pain in this study refers to an unpleasant sensory and emotional experience associated with tissue damage or treatment, which may be determined by raised blood pressure, raised pulse rate, pupil dilatation and increased respiratory rate in the critically ill unconscious patient.

Critically Ill Unconscious Patient

A patient, who is insensible or incapable of responding to sensory stimuli. It may also be chemically induced by the use of sedative agents such as dormicum or paralyzing agents such as Norcuron and Tracrium. In this study this will be determined by a Glasgow Coma Scale of < 7/15.

Intensive Care Unit (ICU)

It is a specifically designated area in a hospital offering facilities for the prevention, diagnosis and management of patients with more than one system organ failure. In this

study this includes the General ICU, Trauma ICU, Cardiothoracic ICU and the Neurosurgical ICU of an academic hospital.

Intensive Care Nurse

A nurse registered with the South African Nursing Council (SANC) and has undergone an accredited course in intensive care nursing and is also registered in that capacity. In this study, it may also refer to a registered general nurse with SANC who has worked in the ICU for at least six months.

Assessment

In this study, assessment is the critical analysis of the physiological parameters of an unconscious patient to determine their level of pain. It involves gathering, analysis and synthesis of relevant parameters upon which an intensive care nurse will base his/her decisions of whether a critically ill unconscious patient is in pain or not.

Pain Management

In this study involves the **administration of analgesia** to relieve the unconscious patient's pain after assessment of the patient's parameters, documentation of the procedure and follow-up to determine if the patient's pain is relieved. Doctors prescribe the analgesia and nurses are responsible for implementation.

Parameter

Parameter in this study implies all the unconscious patients' data which includes the measure of blood pressure, temperature, respiratory rate, pupil dilatation, heart rate and GCS as recorded on the unconscious patient's ICU chart by the intensive care nurse and measures identified in literature.

Events

For the purpose of this study, events are sudden significant increases in heart rate, blood pressure, temperature, pupil size and respiration in the unconscious patient which are big deviations from patients' normal values as recorded on the patient's ICU chart.

Management Categories

Management categories refer to groups of ICU nurses that managed the unconscious patient's pain in a similar way. In this study, these were derived from the data analysis; four categories were identified and labelled (Categories A – D).

1.7.3 Methodological Assumptions

Assumptions are embedded in the philosophical base of the framework, study design, and interpretation of findings. Instruments are developed on the basis of assumptions and may or may not be recognized by the researcher. These assumptions influence the development and implementation the research process. Assumptions influence the logic of the study, and their recognition leads to more rigorous study development (Burns & Grove, 2001).

The applied or practical approach to research was adopted for the study. Research is a scientific investigation undertaken to generate new knowledge and directly or indirectly influence or improve clinical practice. The purpose of applied research is to solve problems to make decisions, or to predict or control outcomes in real life practice situations (Abdella & Levine, 1994). Because applied research focuses on specific problems, the findings are less generalizable than those from basic research.

1.8 OVERVIEW OF THE RESEARCH METHODOLOGY

Research methodology refers to the blueprint or overall plan of the proposed study. An overview of the research design and research method is provided in the following section.

1.8.1 Research Design

A non-experimental, descriptive, prospective and comparative two part design was used in this study to describe the parameters identified by ICU nurses that could be used to assess pain in the critically ill unconscious patient in the adult ICUs and whether these parameters are considered by the ICU nurses when managing the unconscious patients' pain.

- Study Setting

The study was conducted in four (n=4) adult ICUs at a tertiary academic hospital. These consisted of Trauma ICU (which admits severely injured patients), Neurosurgical ICU (which admits patients' with severe head and spinal cord injuries), Cardiothoracic ICU (which admits mostly patients before and after major cardiac and thoracic surgeries) and General ICU (which admits a broader range of medical and surgical patients).

1.8.2 Research Method

1.8.2.1 Target population

- Part One (Nurses)

All registered nurses with or without additional intensive care training that have worked in the adult intensive care units for at least six months.

- Part Two (Patients)

Patient population in the study comprised of unconscious patients admitted to the adult intensive care units for the first 48 hours.

1.8.2.2 Sample and sampling method

- Part One (Nurses)

This sample comprised of registered nurses with or without additional intensive care training that had worked in the adult intensive care units on day or night shifts for at least six months. Simple random sampling method was used to select nurses for the study.

- Part Two (Patients)

The sample comprised of unconscious patients admitted to the adult intensive care units for the first 48 hours. Simple random sampling was used to select the critically ill unconscious patients for the study.

1.8.2.3 Data collection

- Part One (Nurses)

ICU nurses sampled for the study were asked with their consent to complete their demographic information then a self-administered Likert-type questionnaire **(**refer **Annexure A)** consisting of ten questions which were developed by the researcher related to parameters identified in literature that could be used to assess unconscious patients' pain.

- Part Two (Patients**)**

Patients' demographic data was obtained with consent from their next of kin. A record review of patients' ICU charts was then undertaken. These records were reviewed for the first 48 hours of admission to the ICU **(**refer **Annexure B)**.

1.8.2.4 Data analysis

- Part One (Nurses)

ICU nurses demographic data and responses to the Likert-type questionnaire were descriptively analysed. Percentages were allocated to the responses to determine the parameters identified that could be indicative of pain in unconscious patients. Responses

on the Likert-Scale were collapsed to form two groups of disagree and agree in order to make statistical analysis possible.

- Part Two (Patients**)**

The unconscious patients' demographic data and record review of their ICU charts were descriptively analysed. Percentages were allocated to patients' demographic data and increased parameters. Particular note was taken of parameters that could be indicative of pain, and the administration of analgesia.

A comparison was then undertaken between the two parts (part one and two) to see if the parameters identified by intensive care nurses were considered in their management of the unconscious patients' pain. This was done by identifying sudden significant increases in the patient's heart rate, blood pressure, pulse, pupil size and respiratory rate which were referred to as 'events'. It was then determined if the nurses that agreed that increases in these parameters could be indicative of pain in the unconscious patient gave pain medication in the hour of these events.

1.9 ETHICAL CONSIDERATIONS

Considerations to protect the rights of human participants in research studies and standards of any scientific enquiry were taken into consideration by the researcher. Before the commencement of the study, ethical clearance and permission to conduct the study were obtained from relevant university committees and the hospital where the study was

conducted. Participation in the study was voluntary and participants were free to withdraw from the study at any time.

1.10 VALIDITY AND RELIABILITY OF THE STUDY

Validity was maintained in this study by ensuring that all the parameters in the study were obtained from relevant literature on pain assessment and management in critically ill patients. The data collection instruments were assessed and verified by clinical experts to establish face and content validity. Prospective patient record review measured all the relevant parameters in the questionnaire as recorded on the patient's ICU chart to ensure content validity. Only the data on the ICU charts were recorded and all the data recorded was relevant to pain assessment and management in the unconscious patients. Selection bias was avoided by sampling any nurse that met the inclusion criteria and was willing to participate in the study. Participation in the study was voluntary and patients were assured that withdrawal will not affect their treatment. Nurses and patients were both assured that their identity will be withheld. Statistical assistance was sought from an expect statistician during the data analysis and his recommendations complied with.

On the other hand, reliability was maintained by ensuring that the same method of data collection and instrument was used throughout the study. All the data was collected by the researcher alone and was collected independently without influence from anyone. An expert statistician verified data collected for accuracy and helped in the analysis of the data to ensure accuracy. The scale used for the data collection (Likert Scale) is the most widely used scale to determine opinions or attitudes of subjects and contains a number of

declarative statements (Burns & Grove, 2001) it was the most appropriate scale for the type of questionnaire used in the study.

1.11 PLAN OF THE STUDY

This study is presented as follows:

Chapter One	:	Overview of the study
Chapter Two	:	Literature review
Chapter Three	:	Research methodology
Chapter Four	:	Data analysis and discussion of results
Chapter Five	:	Summary, main findings, limitations and recommendations

1.12 SUMMARY

In this chapter, an overview of the research has been given. The background to the research rationale and questions were described. The researcher's assumptions were discussed and the research methodology, ethical issues' pertaining to the study and validity and reliability of the study were addressed.

In the next chapter, the literature review will be described in greater detail. Research methodology will follow and finally, the limitations of the study, summary of research findings, conclusions and recommendations for future research will follow in subsequent chapters.