



**ASSESSMENT OF KNOWLEDGE AND PRACTICE OF
POST-OPERATIVE PAIN MANAGEMENT AMONG NURSES
WORKING IN SURGICAL WARD IN RWANDAN REFERRAL
HOSPITAL AT RMH AND KUTH**

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College of Medicine and health sciences

School of Nursing and Midwifery

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degree of Master of Nursing

IN

THE COLLEGE OF MEDICINE AND HEALTH SCIENCES.

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DECLARATION

I do hereby declare that this research proposal report submitted in partial fulfillment of the requirements for the Master's degree in nursing, at University of Rwanda/College of Medicine and Health Sciences (UR/CMHS), School of Nursing and Midwifery, is my own original work and has not previously been submitted elsewhere. I do declare that complete list of references is provided indicating all resources of information quoted or cited.

UMUHOZA ODILE

ABSTRACT

Background: Knowledge and practice of nurses towards pain management have been noted in various studies around the World. Deficient knowledge and practice regarding pain management among nurses remains a pervasive problem. For better management of pain in surgical wards, nurses should have adequate knowledge of pain assessment and management.

Purpose: The purpose of this study was to give a picture about knowledge and practice of postoperative pain management among nurses working in Surgical Ward at Rwanda military hospital and Kigali university teaching hospital this will facilitate innovation in pain management and improving the levels of knowledge and practice in clinical area.

Methodology: This study used quantitative study approach with a descriptive correlation study design. The study was guided by Knowledge-to-action framework. A sample of 131 nurses was selected using convenience sampling. Data was collected using a validated self-administered questionnaire with three sections namely the demographic data, level of knowledge and level of practice regarding post-operative management. Descriptive statistics, the Pearson's correlation coefficient, linear regression and the Chi-square test were used to analyse the data. SPSS version 21.0 was used in data analysis.

Results: Forty-eight (37%) nurses had high score in knowledge about postoperative pain management. Sixty-Seven (51%) had moderate levels of knowledge and 16 (12%) of nurses had low knowledge regarding post-operative pain management. Twenty-six (20%) of nurses had high level practice, 106 nurses (79%) had moderate level practice and only 2 (1%) of nurses had lower level of practice on post-operative pain management. The correlation coefficient (0.379, $p < 0.01$) shows a weak positive correlation between knowledge and practice. The effect of knowledge on practice was 14.4%.

Conclusion and recommendation: The level of knowledge and practice on post-operative management was predominantly low among nurses. Therefore, this calls for the need to implement in-service training on pain management for nurses working in the surgical units.

DEDICATION

I dedicate the report to my family; Karekezi Sylvere (husband), Iriza Nancy Sylvie (daughter)Iranzi Odilo Lionel(son), Ms. Harerimana Godeleive (mother) and Mr. Bizimungu Celestin (father) for their physical and emotional support provided. To Umukunzi Alice, Duhujitseko Aime, DR Dushime Jean Paul, umukiza Evelyne, (sisters and brothers). To DR Chironda Geldine for her appreciate support.

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LISTS OF TABLES

Table 1: 4.1 DEMOGRAPHIQUE DATA (N=131).....	22
Table 2: 4.2 KNOWLEDGE OF NURSES ON POST OPERATIVE PAIN MANAGMENT (N=131).....	24
Table 3: 4.3 TOTAL ON KNOWLEDGE SCORES ON POST OPERATIVE PAIN MANAGMENT (N=131).....	26
Table 4: 4.4 a ASSESSMENT OF PRACTICE ON POST OPERATIVE PAIN MANAGEMENT.....	28
Table 5: 4.4b ASSESSMENT OF PRACTICE ON POST OPERATIVE PAIN MANAGEMENT (N=131).....	30
Table 6 4.5PRACTICE SCORE ON POST OPERATIVE PAIN MANAGEMENT	32
Table 7: Pearson correlation matrix of knowledge and practice of post-operative pain management among nurses working in sw.....	33
Table 8: Regression analysis of level of knowledge.....	34

LIST OF FIGURES

Figure 1: 2.5.1 Knowledge-to-action framework (Graham and colleagues, 2006)'	12
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TABLE OF CONTENT

DECLARATION	i
ABSTRACT	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
LISTS OF TABLES	v
LIST OF FIGURES	vi
List of acronyms and abbreviations	x
1.1. Introduction	1
1.2 Background	2
1.3. Problem statement	4
1.4. Purpose of the study.....	5
1.5. Objectives of the study.....	5
1.5.1. General Objective.....	5
1.5.2. Specific Objectives.....	5
1.6. Research questions.....	5
1.7. Significance of the study.....	6
1.8. Definition of key terms	6
1.8.1. Assessment.....	6
1.8.2. Knowledge	6
1.8.3. Practice	6
1.8.4. Pain.....	7
1.8.5. Pain management	7
1.8.6. Nurse.....	7

2.1. Introduction	8
2.2. Theoretical literature	8
2.3. Empirical literature	9
2.3.4. Knowledge of nurses towards post-operative pain management.....	10
2.3.5 Practice of nurses towards post-operative pain management.....	11
2.4. Critical review and Research gap identification.....	11
2.5 Conceptual framework.....	12
3.1. Introduction	14
3.2. Study approach	14
3.3. Study design	14
3.4. Study setting.....	14
3.5. Study population.....	15
3.5.1. Entire population	15
3.5.2. Target population	15
3.5.3. Accessible population.....	15
3.6. Sampling	15
3.6.1. Sampling strategy	15
3.6.2. Sample size	15
3.7. Data collection.....	16
3.7.1. Data collection instrument	16
3.7.2. Data collection procedures.....	18
3.8. Data analysis.....	18
3.9. Data management	18
3.10. Data dissemination.....	18
3.11. Ethical considerations	18

Conclusion of the findings	34
BUDGET	40
<i>VI. BUDGET SUMMARY</i>	41
Timeline.....	42
References	43
Appendix 1: Questionnaire	47
Appendix 2: Consent form	57

List of acronyms and abbreviations

CPD	: Continuous professional development
HIV/AIDS	: Human Immune –deficiency Virus/Acquired Immune Deficiency Syndrome
IASP	: International Association for the Study of Pain
IRB	: institutional Review Board
IV	: Intravenous
KUTH	: Kigali University Teaching Hospital
LMICs	: Lower Middle Income Countries
Mg:	: Milli Grams
N.B	: Nota bene
PACU	: Post Anesthesia Care Unit
RMH	: Rwanda Military Hospital
RNs	: Registered Nurses
SW	: Surgical Ward
UR/CMHS	: University of Rwanda/College of Medicine and Health Sciences
WHO	: World Health Organization
%	: Per cent
>/<	: Superior/Inferior

CHAPTER I: INTRODUCTION

1.1. Introduction

Worldwide pain is a very big challenge in all ages, race, sex and different economic status, and in different geographical locations (Goldberg and McGee, 2011). Poorly managed pain may cause variety of complications like depression, self-killing idealism, anxiety (Goldberg and McGee, 2011). Classification of pain is different depending on who is classifying and patient's perspectives (World Health organization, 2016). Treating and caring for patient with pain is very crucial in health facility and is classified and monitored as other vital signs and considered as fifth among them (Article, Clara and Dutra, 2011).

In the other hand, (Machado-Alba and colleagues (2013) argued that adequate pain control during postoperative period is the cornerstone in quickly enhancing patient recovery. In some country control of post-surgery pain management is still a challenge like in Columbia where almost a quarter of post-surgery client is not well managed with prevalence of 14% at the entry in hospital and 16% in PACU. (Rodríguez-Betancourt *et al.*, 2014). Differently, a high rate of uncontrolled pain was found in 51.4% of patients four hours after surgery in Columbia and age, type of surgery, non-adherence to the dose and using single analgesic were found to be pain significantly associated with uncontrolled postoperative pain (Machado-Alba *et al.*, 2013).

Nurses have an important role in management of patient's pain from advocacy to administration of analgesics and evaluation of outcome; therefore they should be equipped with accurate and updated knowledge and skills about pain management so that they should give compassionate care especially for patients hospitalized in post anaesthesia care Unit (PACU) also known as recovery room (Madenski, 2014), not only there but also in surgical ward.

1.2 Background

According to International Association for the study of Pain, pain is defined as “ an unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage” (International Association for the study of Pain 2008 as stated inWuhrman and Cooney 2011). Pain can be experienced as acute, intermittent or chronic pain and surgical operations are classified among four largest causes of pain (Goldberg and McGee, 2011). Postoperative pain is an acute pain following surgery and is the one of postoperative complications; it may be due to tissue incision and/or dissection, manipulation of organs and traction (Masagati and Chilonga, 2014); tissues that are commonly injured include skin, bone, muscle, ligaments, tendons and viscera and pain information is transmitted from the injured tissue to the central nervous system (nociception) which sensitize the peripheral and central neuronal structures to intensify and prolong postoperative pain(International association for the study of pain, 2011)

General surgery patients had severe postoperative pain compared with ophthalmology patients who had moderate postoperative pain and ear-nose-throat and maxillofacial procedures who reported no pain 24 hours after operation (Mwaka, Thikra and Mung'ayi, 2013).Uncontrolled postoperative pain was found to be associated with severe chronic pain in 2-10 % of patients, thus health care providers involved in per operative care should work together in collaboration to prevent and treat postoperative pain for the better management of the patient (International association for the study of pain, 2011) Knowledge and practice of nurses towards pain management have been noted in various studies around the World.

In Jordan, Knowledge deficit about pain management had been found in non-oncology nurses compared to oncology who scored high knowledge and attitude towards the use of pharmacological and non-pharmacological pain management (Abed El-Rahman, Al nurses Kalaldeh and Muhbes, 2013). Similarly, recent national study in Jordan (D *et al.*, 2016) reported deficient knowledge and practice regarding pain management in Jordanian nurses with the mean correct answer of 41.84%, high level of education i.e. master and having additional course on pain management were among the factors associated with high knowledge and practice of pain management.

In Kenya, the prevalence of postoperative pain within 30 minutes was found to be 41% and moderate pain was 6% while severe pain was 8%, the prevalence of moderate pain did not change at the time of discharge from PACU (6%) whereas the rate of severe pain decreased from 8% to 3.4% at the time of discharge from PACU, surprisingly the rate of mild pain increased from 27.3% to 46.3% at the time of discharge from PACU (Mwaka, Thikra and Mung'ayi, 2013); this may explain the habitual management of severe pain only and not respond to moderate pain; further the low concentration of anaesthetics at the time of discharge from PACU may increase the rate of mild pain in postoperative period.

In Rwanda, pharmacological management of pain follows the World health organization analgesic Ladder from non-opioid analgesics like non steroid anti-inflammatory drugs, weak opioid, strong opioid to nerve block, epidurals; however the ladder goes downward in case of surgical procedure from the strong analgesia to non-opioid analgesics as the patient gets better in postoperative period('Pain management guidelines', 2012). No findings on postoperative pain have been found in Rwanda, but studies conducted in east African countries like Kenya has shown a picture of postoperative pain in the region.

In terms of maximum management, pain should be assessed in comprehensive manner and documented as a "fifth vital sign" for enhanced management of acute pain('Pain management guidelines', 2012). In addition, using uni-dimensional measures of pain such as numerical rating scale, visual analogue pain (Francis, Vitals and Thikra, 2016).and multidimensional measures of pain such as McGill Pain Questionnaire, Brief pain Inventory Francis, Vitalis and Thikra, 2016).among others, helps in management of pain as it transforms the subjective nature of pain to standard measures that can guide the management. Pharmacological and non-pharmacological pain management strategies can be used to relieve patients pain and pain medications (analgesics) may be administered systemically or by another local way to control postoperative pain (Francis, Vitalis and Thikra, 2016). For better management of pain, nurses should have adequate knowledge of pain assessment and management.

1.3. Problem statement

Inadequately controlled postoperative pain is life-threatening, causes long time of hospitalization and can be even fatal (Masagati and Chilonga, 2014), chronic pain to not well managed patient may appear in around 10%–50% of patients after various common operations and 2%–13% may even experience it within two years postoperatively (Meissner *et al.*, 2015) as it can be associated with delayed mobilization and increase the risk for serious conditions like myocardial infarction (Francis, Vitalis and Thikra, 2016). In addition, uncontrolled postoperative pain may cause high morbidity and chronic postsurgical pain (Rodríguez-Betancourt *et al.*, 2014). Under management of postoperative pain is associated to inadequate knowledge of staff, poor pain assessment and fear of analgesics-related complications (Gupta *et al.*, 2010).

Inadequate knowledge on assessment and management of postoperative pain has been reported in nurses in Kenya, only 41% felt that they have sufficient knowledge to assess and manage postoperative pain, lack of knowledge about pain assessment tool and lack of formal education about pain assessment and management were the barriers to management of postoperative pain (Kituyi *et al.*, 2011). Few studies have been conducted in East Africa (Kituyi *et al.*, 2011) and around the world (Abed El-Rahman, Al Kalalkeh and Muhbes, 2013; Madenski, 2014; D *et al.*, 2016) assessing knowledge and practice of nurses towards pain management in postoperative patients in surgical ward at referral hospital.

In Rwanda the Ministry of health developed guidelines where effective assessment of pain is key in its management ('Pain management guidelines', 2012). In Rwanda there is no published paper about knowledge and practice of postoperative pain management among nurses working in Surgical Ward in referral hospitals of Rwanda, my study will show a picture of management of postoperative pain management in 2 Rwandan Referral hospitals RMH and KUTH

1.4. Purpose of the study

The purpose of this study was to give a picture about knowledge and practice of postoperative pain management among nurses working in Surgical Ward at Rwanda military hospital and Kigali university teaching hospital this will facilitate innovation in pain management and improving the levels of knowledge and practice in clinical area.

1.5. Objectives of the study

1.5.1. General Objective

To assess knowledge and practice of post-operative pain management among nurses working in surgical ward at Rwanda military hospital and Kigali university teaching hospital.

1.5.2. Specific Objectives

1. To assess the knowledge of registered nurses working in Surgical Ward regarding post-surgery pain management at Rwanda military hospital and Kigali university teaching hospital
2. To evaluate the practice of nurses working in Surgical Ward towards post-surgery pain management at Rwanda military hospital and Kigali university teaching hospital
3. To determine the association between knowledge and practice of post-operative pain management among nurses working in surgical ward at Rwanda military hospital and Kigali university teaching hospital

1.6. Research questions

1. What is the knowledge of registered nurses working in Surgical Ward regarding post-surgery pain management at Rwanda military hospital and Kigali university teaching hospital?
2. What is the practice of nurses working in Surgical Ward towards postoperative pain management at Rwanda military hospital and Kigali university teaching hospital?
3. What is the association between knowledge and practice among nurses working in Surgical Ward at Rwanda military hospital and Kigali university teaching hospital?

1.7. Significance of the study

This study will inform nursing practice of the knowledge and practice level of nurses towards pain management and in-service training should be planned based on evidence from this study findings.

Also The knowledge level of nurses working in post-anaesthesia care unit and Surgical Ward will be assessed and when there is deficient, we will recommend nursing curriculum to be adjusted and include postoperative pain management in the curriculum which will be based on evidence.

The findings of this study will also inform nursing research as the new research information is gathered and can be the basis of further experimental researches in the field of pain management

The research findings will help in decisions making regarding when to organize CPDs if there is a gap in knowledge, and availing staffs to attend .hence improving the care to the patient as these two hospitals: RMH and KUTH, undergo the process of accreditation.

1.8. Definition of key terms

1.8.1. Assessment

Assessment is any systematic method of obtaining evidence from posing questions to draw inferences about the knowledge, attitudes and other characteristics of people for a specific purpose.(“outcomes” rather than “”, 2004). In this study, it is quite similar to the definition mentioned above, as we will obtain response to our research questions by collecting information on knowledge and practice of people for improving nursing practice and knowledge in the future.

1.8.2. Knowledge

Knowledge is the “state of knowing about something” as defined by the Cambridge Dictionaries (Cambridge University Press 2016). In this study, knowledge means the level of understanding of nurses regarding postoperative pain management.

1.8.3. Practice

According to the Cambridge Dictionaries online, Practice is something that is usually or regularly done, often as a habit, tradition or custom (Cambridge University Press 2016). In this study, practice stand for the level of pain management practice of nurses in postoperative period.

1.8.4. Pain

The Oxford Dictionaries (2016) defines pain as “highly unpleasant physical sensation caused by illness or injury. In this study, the definition of pain by International association for the study of pain (IASP, 2008) will be considered, which defines pain as “an unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage”.

1.8.5. Pain management

Pain management is pharmacological, non-pharmacological and other approaches to prevent reduce or stop pain sensations”. (Medical dictionary, 2016). In this study, pain management relates to pharmacological and non-pharmacological actions that are done by nurses to alleviate post-operative pain in surgical ward.

1.8.6. Nurse

A licensed health care professional who practices independently or is supervised by a physician, surgeon or dentist and who is skilled in promotion and maintaining health (Merriam-Webster, 2016). In this study a nurse is a health care provider who is licensed by the national council of nurses and midwifery of Rwanda.

CHAPTER II: LITERATURE REVIEW

2.1. Introduction

Literature review is defined as an assessment report of studies found in books in relation to your study area.(Scholars, 2005). A literature review is a text of a scholarly paper which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources, and do not report new or original experimental work. Most often associated with academic-oriented literature, such reviews are found in academic journals, and are not to be confused with book reviews that may also appear in the same publication (*Lamb, David, 2016*)

2.2. Theoretical literature

Pain is defined as “an unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage” (IASP, 2008).This theory described the pain in terms of its 3 components:

- ✓ Sensory, discriminative: This component of pain allows injury to be identified in time and space, and its exact extent to be determined. (IASP, 2008).
- ✓ Motivational, affective: This component produces somatic (bodily) and autonomic activity result in various protective processes such as moving away from pain, immobilization of damaged tissue or preparation from fight (IASP, 2008).
- ✓ Cognitive ,evaluation: This is a complex component in which response to the painful stimulus is influenced by anxiety, attention and many other factors.(Ojong, Ojong-alasia and Nlumanze, 2014)

Management of pain encompasses pharmacological, non-pharmacological or other management. Worldwide pain can be managed in many different ways, by using either pharmacological treatment or non-pharmacological treatment. In pharmacological management we can use different types of drugs which includes; non-opioids, opioids, and adjuvant (Abdalrahim, 2009). Non-opioid pain medications are no narcotics analgesics such as acetaminophen and no steroidal anti-inflammatories (NSAIDs). Opioids are the narcotics medications which give total relief of pain if they were given appropriately(Abdalrahim, 2009).Adjuvant analgesics are medications

whose primary indication is not for pain management but which have demonstrated analgesic effects such as the use of tricyclic antidepressants and anticonvulsants (Abdalrahim, 2009).

Non-pharmacologic strategies to pain management can enhance comfort, promote sleep and enhance the quality of life. Such strategies may include: altering the patient's environment, distraction, cutaneous stimulation, massage, acupuncture, heat and cold application, biofeedback, therapeutic touch, hypnosis, and education (Abdalrahim, 2009).

2.3. Empirical literature

2.3.1. Global prevalence

Around 20% of population globally suffer from pain, about 80 percent of them are from low income countries many of this pain is generated from postoperative not well managed pain ('2012 June Pain Management). Globally a big progress have been made in matter of controlling Postoperative pain, nowadays it is well known that well managed postoperative pain is a key in rapid postoperative recovery, a study conducted in Colombia showed an increased prevalence of not well managed postoperative pain at 4 hours, was done on 20000 subjects in which 11% had postoperative pain (Journal *et al.*, 2013).

2.3.2. Continental prevalence

In low income countries pain management is a problem where many patient postoperatively they pain is half controlled or not at all, study conducted in Uganda showed that only 45% had opioids, 21% do not have postoperatively ('2012 June Pain Management). In our continent pain management it still a challenge in many of its countries especially is sub-Saharan Africa, The study conducted in Kenya to evaluate post-operative pain using a prospective cross sectional survey revealed the prevalence of 58% in first thirty minutes after surgery, 55.3% after 24 hours and 34.7% after 48 hours post operation (Mwaka, Thikra and Mung'ayi, 2013). Another study (Masagati and Chilonga, 2014) done in another country of East Africa, Tanzania revealed that among 124 patients who participated in the study, a high percentage (85.5%) of the patients had post-operative pain within the first 24 hours after surgery even when they are at rest stipulating that 45.2%, 26.6% and 13.7% had mild, moderate and severe pain respectively within the first 24 hours after the surgery when patients were at rest and analgesia given intravenously controlled pain most effectively than those given using intramuscular route .

2.3.3. Rwanda

In Rwanda like other from low resourced countries, pain is still a problem and some has data poorly documented but for available data, post-operative pain is still not well managed. but Rwanda is doing a lot in training skilled personnel to manage intra operative and postoperative pain efficiently,(Enright, 2007).Data on prevalence of post-operative pain management is not easily accessible in Rwanda.

2.3.4. Knowledge of nurses towards post-operative pain management

Nowadays it is well known that well managed postoperative pain is a key in rapid postoperative recovery, many specialist around the world on knowledge are being trained for covering the gap which exist in postoperative pain management(Journal *et al.*, 2013).A survey conducted in different parts of Jordan using self-administered questionnaire on a sample of 439 nurses revealed that there is deficit in knowledge regarding pain and its management with a mean correct score of 13.39 ± 4.31 over 32 knowledge questions (D *et al.*, 2016). Descriptive cross sectional study done in Zimbabwe revealed inadequate knowledge regarding pain management among practising nurses (Manwere et al, 2015). . A study conducted in Malaysia in 2013 in urban hospital this study was to determine the knowledge level and attitudes of nurses related to pain management the study was descriptive.

A total of 84 registered nurses were recruited using a modified version of questionnaire of Knowledge and Attitudes Survey Regarding Pain. Fifty five respondents (66%) responded as positive to cultural beliefs affecting their pain management and 65 respondents (77%) viewed that their personal experiences had influenced their practice in pain management (pang Yuen H, 2013). A study done by Irene in 2012 regarding 170 nurses caring for critically ill patients at Mulago Hospital. Majority (90%) of the participants reported to assess pain among critically ill patients but almost all of them (96%) do not use pain assessment tools. More than three quarters (79.1%) of the participants who assessed for pain documented findings after assessment. Majority of the participants (91.2%) had adequate knowledge.

Almost half lacked knowledge on key pain assessment principles ; 43.5% mentioned people other than the patient as the most accurate in rating the pain intensity for the patient, and 44% do not always agree with patients' statements about pain. Barriers to pain assessment included; nursing workload (84.1%), lack of availability of assessment tools (74.1%), lack of education on

assessment tools (82.4%), lack of familiarity with tools (78.2%) , lack of protocols and guidelines on pain assessment and management (74.1%), poor documentation of pain assessment and management (77.6%) and poor communication of pain assessment priorities at the unit (74.7%) (Irene Betty kizza, 2012).

2.3.5 Practice of nurses towards post-operative pain management

A study has been conducted by Kituyi and colleagues (2011) in Kenya to assess clinicians' knowledge and practices on assessment and measurement of postoperative pain; it involved 170 nurses, 38 doctors and 28 clinical officers working in post-operative wards and revealed that 88% of the participants had knowledge. The study further revealed that 54%, 43% and 41% of doctors, clinical officers and nurses respectively felt to have sufficient knowledge to assess and manage post-operative pain and 57% of all participants showed that their knowledge was inadequate regarding pain assessment tools (Kituyi *et al.*, 2011). In our study we will assess knowledge and practice of nurses working in SW as we are assuming that their knowledge is not enough to manage successfully patients post operatively.

2.4. Critical review and Research gap identification

Postoperative pain is a common clinical condition that, when poorly controlled, can result in a number of significant negative consequences.

The American pain society report identifies evidence gaps including optimal methods and timing of preoperative patient education, no pharmacological modalities, combinations of analgesic techniques, monitoring of patient response to treatment, techniques for neuraxial and regional analgesia, and organizational care delivery models. Recommendations to help guide the design of future perioperative studies are offered. Researchers are encouraged to work together to produce strong evidence to help guide clinical decisions in perioperative pain management (American Pain Society, 2016).

2.5 Conceptual framework

2.5.1. Knowledge-to-action framework

Knowledge generation from different evidence-based literature is followed by implementation of existing guidelines and new evidence-based solutions (World health organization, 2016). The Graham and colleagues (2006)'s knowledge-to-action framework is a cyclical process which assess and monitor knowledge use and evaluate the outcomes of knowledge which should be the applied practice or action.

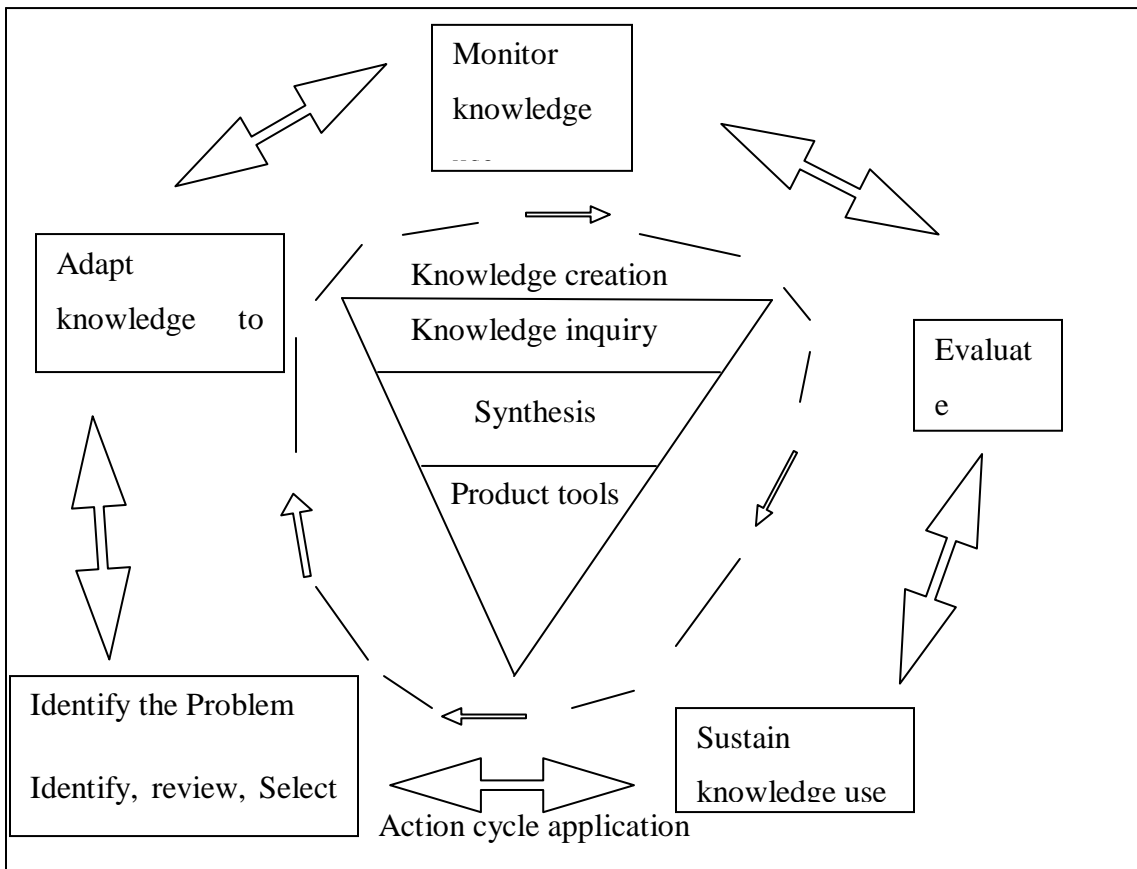


Figure 1: 2.5.1 Knowledge-to-action framework (Graham and colleagues, 2006)'

The components of the framework to be used in the study are explained as follows:

- Identify the problem, Identify, review, select knowledge: Its consist of steps used in trying to handle the problem, by showing it out, Trying to review the literature to tackle it and try to rule out the answer.

- Adapt knowledge to local context: Step which consists of trying to apply the gathered knowledge to the area concerned for changes.
- Monitor Knowledge: is when the knowledge has been applied to the ground and elaborates some guidelines to keep them in place and keep evaluating if the theory is working and being kept in daily working activities.
- Evaluate outcome: when the knowledge has been applied to the ground, the following step is to monitor and evaluate if it has been with a positive or negative impact to the service.
- Sustain knowledge: If the knowledge has been with a positive impact, then the policy to be maintained and sustained on the ground for further improvement.

In this study, knowledge about pain management should be generated from the learned module at school or from additional courses and training about pain management, and to ensure knowledge, guidelines are available for implementation of pain management. As the cycle shows that knowledge use should be monitored, this study will assess knowledge and practice of postoperative pain management among nurses working in surgical using knowledge-to-action as a framework.

CHAPTER III: METHODOLOGY

3.1. Introduction

The methodology is the general research strategy that outlines the way in which research is to be undertaken and, among other things, identifies the methods to be used in it (Franklin, M.I. 2012) it has a main purpose of providing work plan to the research. This chapter includes the study approach and design which will be used in the study, the study area, the study population and sampling, data collection tool and procedures, data analysis, management and dissemination. It also contains the ethical considerations and the challenges and limitations of the study.

3.2. Study approach

This study used quantitative study approach. Quantitative research is a kind of research that is explaining phenomena by collecting numerical data that are analysed using mathematically based methods in particular statistics. (Franklin, M.I. 2012) 'The researcher used quantitative approach to describe the knowledge and practice of nurses with regards to post-operative pain management.

3.3. Study design

A descriptive correlation study design was used and data was collected only once without repetition of data collection or follow up. In the correlation study design, the research examines the differences between the two characteristics of the study group (Williams, 2007). In this study, the researcher described the level of knowledge and practice towards pain management among nurses in surgical ward. Thereafter, the relationship between knowledge and practice regarding post-operative pain management was examined.

3.4. Study setting

The study was conducted in Rwanda Military Hospital (RMH) and Kigali University Teaching Hospital (KUTH), which are two teaching and referral hospitals among several others we have in Rwanda the two hospitals was chosen due to many shared similarities, as being both public hospital at the same level of practice and they have the same services. They all located in Kigali City but in different district one in Kicukiro, other One in Nyarugenge District. Number of the bed at RMH were 234 and at KUTH were 512

3.5. Study population

3.5.1. Entire population

The entire population is the whole population of the study (Philip cowen, 2014). In this study the entire population was all nurses worked in the two hospitals (RMH and KUTH).

3.5.2. Target population

The target population defines those units for which the findings of the survey are meant to generalize (Paul j.lavrakas, 2014). In this study target population was, Nurses worked in Surgical Ward in RMH and KUTH who was registered and licensed by Rwanda Nursing and Midwife Council, to carry out nursing procedures. In this study the target population was 131 nurses.

3.5.3. Accessible population

The accessible population is the population in research to which the researchers can apply their conclusions (Paul j.lavrakas, 2014) in this study the accessible population was all nurses worked in the two hospitals specifically in SW available for the Research.

3.6. Sampling

3.6.1. Sampling strategy

A non-probability convenient sampling was used to obtain the sample. Every nurse working in SW who will consent to participate will be included in the sample until the sample size of 131 people is reached. Non probability Sampling involves the selection of a portion of the finite population being studied (Etikan, Musa and Alkassim, 2016). This sampling technique it does not use a random sample, it just use subjective manner in selecting different subject to include in sample. Convenience sampling is researching subjects of the population that are easily accessible to the researcher(Etikan, Musa and Alkassim, 2016). The researcher used this technique due to the limited and small number of people working in SW, and for this purpose one hospital would not be enough, reason why we used two hospitals.

3.6.2. Sample size

The sample was estimated using the formula of Kish Leslie (1965)

$$No = \frac{Z^2 \cdot Q \cdot P}{D^2}$$

$$D^2$$

Z = standard normal variant corresponding to 95% confidence interval (1.96)

P = prevalence is estimated at 50% since no similar study has been done in Rwanda.

D = the required precision of the estimate (0.05)

Q = (100-P)%

N=population (200 people).

$N_0 = (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 = 384.16 = 384$ people

Finite population correction for proportion

$n = N_0 / 1 + (N_0 - 1) / N$

N=200 population

$n = 384 / 1 + (384 - 1) / 200 = 384 * 200 / 583 = 131$

n=131 people which will correspond to our sample size

Therefore, a sample size of 131 was used for the study.

3.7. Data collection

3.7.1. Data collection instrument

The Brief pain survey of Ferrell and McCaughey (1996) was used to assess knowledge and practice of nurses towards pain management subdivided into three categories which are; sociodemographic, knowledge and practice category. The highest score for assessing level of knowledge of post-operative pain management was 24 and the lowest score was 9. With regards to performance rating scales, high level of knowledge was from 90 to 100 percent. Moderate and low levels of knowledge to post-operative pain management was 80 to 89 percent and below 70 percent respectively.

The highest attainable score in assessing level of practice toward post-operative pain management among nurses was 44 and the lowest was 12. With regard to scales with level of

practice, highest was from 80 to 100 percent and moderate was from 70 to 79 and below 70 was low level of practice towards post-operative management.

Validity of the instrument

Validity of the instrument, is the extent to which a concept, conclusion or measurement is well founded and correspond accurately to the really world (Paul j.lavrakas, 2014). The validity of this instrument was evaluated in terms of face, construct and content validity. Face validity refers to the transparency or relevance of a test as it appears to test participants. In this study, Face validity was considered and achieved through structuring the research tool into three separate instruments. Each instrument had valid items pertaining to the variable under study. With regards to content validity, each item in each research instrument was analyzed with assistance from the research advisor in the college of medicine and health Science. Experts in perioperative track also assisted in examining the validity of the items included in the research instrument. Again, Inclusion of items obtained from literature ensured that the research tool had content validity.

Reliability of the instrument

Reliability refers to consistency, accuracy and dependability with which the instrument measures data (Burns & Grove, 1995). Translating the research tool from English to Kinyarwanda ensured collection of reliable data, free from misinterpretation. Before the main data collection session, the instrument was pretested on eighty participants who met the sampling criteria. Consistency of responses and lack of ambiguities during the pretest gave the investigator confidence that the instrument was reliable. No adjustments on the instruments were necessary after the pretest.

A reliability analysis was performed on the instrument. The normal range of coefficient alpha values is between 0.00 and + 1.00. Higher values closer to +1 reflect higher reliability and higher

degree of internal consistency. The Cronbach's alpha for the present study instrument was 0.70. This means that the instrument is a very good measure of knowledge and practice on post-operative pain management.

3.7.2. Data collection procedures.

After getting permission of Institutional review Board (IRB) and getting permission from hospitals authorities, data collection started. On the first day, nurse working in sw in the two hospitals was explained the purpose of the study and those who wanted to participate has sign the consent form before filling the questionnaire. The questionnaire was self-administered and after answering the questions it was collected by the researcher.

3.8. Data analysis

Data was entered in a computer and was analysed using SPSS. Descriptive statistics of knowledge and practice of postoperative pain management was used and data was presented in tables, and frequencies and percentages was generated and inferential statistics of correlation to examine relationship between knowledge and practice as well as Inferential statistics of chi square test to examine association between demographic data and knowledge and practice.

3.9. Data management

Data was stored in a computer after being collected and analysed and all questionnaires used were kept in a private place to ensure the confidentiality. A personal computer password was used to protect data stored in the computer, after data analysis questionnaire was also kept in secured cupboard locked with key and the research had keep the key to avoid unauthorized use of Data.

3.10. Data dissemination

After obtaining the findings from this study, they will be communicated to study participants and authorities and presented during dissertation. The study disseminated using poster presentation in conference.

3.11. Ethical considerations

The permission to collect was guaranteed by Institutional review board (IRB) of the college of medicine and health sciences, University of Rwanda after reviewing the study proposal. Also the

institutional review board of Rwanda military hospital and Kigali university teaching hospital offered permission to collect data. The participants were sign the consent forms before data collection and the participation in the study will be fully voluntary. No name of the participant was appearing on the questionnaire to respect the principle of anonymity and data was kept confidential. Participants were explained that they could withdraw from the study any time they want without punishment. The study was not cause harm to participants and the knowledge or practice score had not any impact to the performance of the employees or their salary.

CHAPTER .IV PPRESENTATION OF RESULTS

4.1 INTRODUCTION

This chapter presents the findings of the study, which include: a description of demographics data, assessment of knowledge of nurses on postoperative pain management, total on knowledge scores on post-operative pain management, assessment of practice on post-operative pain management, practice scores on post-operative pain management, the relationship between knowledge and practice of post-operative pain management among nurses working in surgical ward. The purpose of the study was to give a picture of knowledge and practice of postoperative pain management among nurses working in Surgical Ward in referral hospitals case of RMH and KUTH. The study aimed to answer the following questions:

1. What is the knowledge for registered nurses working in Surgical Ward about post-surgery pain management?
2. What is the practice of nurses working in Surgical Ward towards postoperative pain management?
3. What is the association between knowledge and practice among nurses working in Surgical Ward?

The study was conducted in 2 referral hospital known as RMH and KUTH a sample size of 131 nurses working in surgical ward was selected using non-probability sampling method. A validated self-administered questionnaire assessing pain was adapted and used in data collection and questions are subdivided into three categories which are; sociodemographic, knowledge and practice category. The Brief pain survey of Ferrell and McCaughey (1996) was used to assess knowledge and practice of surgical ward nurses towards pain management. Data was entered in a computer and was analysed using SPSS. Descriptive statistics of post-operative pain management was used and data was presented in tables, and frequencies and percentages was generated and inferential statistics of correlation to examine association between knowledge and practice as well as Inferential statistics of chi square test to examine association between demographic data and knowledge and practice. the response rate was 65.5%,and only 35.5% did not answer the given questionnaire due to different reasons including that they did not have time to answer

4.2 DEMOGRAPHIQUE DATA

Table 1 display results on age, gender, marital status, educational level, working experience. 131 nurses from surgical ward participate in this study. Regarding age, 91(69.5%) nurses had age greater than 31 and 40 (30.5%) nurses had age between 26-30. Concerning gender, 108 (82.4%) of nurses were female and 23(17.6%) of nurses were male. Regarding marital status, 114 (87.4%) nurses were married, 10(7.6%) nurses were single, and 7 (5.3%) nurses were widow. Regarding educational level 101(77.1%) nurses were A1 with advanced diploma in nursing, 25(19.1%) nurses were A2 with certificate in nursing, 5(3.8%) nurses were A0 with bachelor degree in nursing. Regarding working experience, 96 (73.3%) nurses were worked more than 5 years, 22(16.8%) nurses were worked 2 to 5 years, 13(9.9%) nurses were worked less than 2 years.

Table 1: 4.1 DEMOGRAPHIQUE DATA (N=131)

DEMOGRAPHIQUE DATA	FREQUENCY	PERCENTAGE
Age		
26-30 years	40	30.5
Greater than 31	91	69.5
gender		
male	23	17.6
female	108	82.4
marital status		
single	10	7.6
married	114	87
widow	7	5.3
educational level		
certificate of nursing A2	25	19,1
advanced diploma in nursing A1	101	77.1
bachelor degree in nursing A0	5	3.8
working experience		
less than 5 years	13	9.9
2 to 5 years	22	16.8
More than 5 years	96	73.3

4.3 ASSESSMENT OF KNOWLEDGE OF NURSES ON POST OPERATIVE PAIN MANAGMENT

Table 2 display results about knowledge on post-operative pain management. Concerning knowledge about post-surgery pain management, 4 (3.1%) of nurses had inadequate knowledge, 23 (17.6%) of nurses had moderate knowledge, 104(79.4%) had adequate knowledge. Regarding the source of knowledge about post-surgery pain management, 20(15.3%) of nurses had knowledge from radio, 25 (19.3%) of nurses had knowledge from peers and 86(65.6%) of nurses had knowledge from hospital. Concerning the level of managing pain of postoperative patients in sw,56 (42.7%) of nurses had moderate knowledge about managing pain, 75(57.7%) nurses had adequate moderate knowledge about managing pain. Regarding the impact of acquired knowledge on pain management on patient outcome, 131(100%) nurses had positive impact.

With respect to knowledge on tools used in pain assessment, 56(42.7%) nurses had moderate knowledge on tools used in pain assessment, 75(57.3%) nurses had adequate knowledge on tools used in pain assessment. Regarding tools used to assess pain, 131(100%) nurses used internationally/nationally tools to assess pain. Regarding management in RMH/KUTH in supporting RNS on improving knowledge postoperative pain surgery,131(100%) nurses confirmed that there is no support of RNS from RMH/KUTH on improving knowledge which was, Regarding how RNS cope with change in post-surgery painmanagement,131 (100%)nurses cope with change in post-surgery pain management positively. Regarding level of post-surgery pain management at RMH/KUTH, 46(31.1%) nurses had no regarding level of post-surgery pain management, 85(64.9%) nurses hard yes regarding level of post-surgery pain management.

Table 2: 4.2 KNOWLEDGE OF NURSES ON POST OPERATIVE PAIN MANAGEMENT (N=131)

KNOWLEDGE OF NURSES	FREQUENCY	PERCENTAGE
Knowledge on postoperative pain management		
inadequate	4	3.1
moderate	23	17.6
adequate	104	79.4
source of knowledge on postoperative pain management		
radio	20	15.3
peers	25	19.1
hospital	86	65.6
level of managing postoperative pain management		
moderate	64	48.9
effective	67	51.1
impact of acquired knowledge on patient outcome		
positive	131	100.0
knowledge on tool used in assessment on pain		
moderate	56	42.7
adequate	75	57.3
tool used to assess pain		
international /nationally recognized	131	100.0
support from rmh/kuth on improving postoperative pain management	131	100.0
how nurses cope with change on pain management	131	100.0
positively		
the level of postoperative pain management good at rmh/kuth	85	64.9

4.4 TOTAL SCORES ON KNOWLEDGE OF POST OPERATIVE PAIN MANAGMENT

Table 3 display totals on knowledge score on postoperative pain management; total score and percentage score of each participant were computed. The total score was the sum of all questions which was 24. With regards to knowledge level scale, the highest level of knowledge was from 90-100%, the moderate score was from 80 to 89%, the lowest score was below 70. Forty eighty (48) nurses had high score in knowledge about postoperative pain management which was 37% of the study population. Sixty Seven (67) had moderate score in knowledge about post-operative pain management which was 51% of the study population. Sixteen (16) nurses had lower score in knowledge about postoperative pain management which was 12% of the study population

**Table 3: 4.3 TOTAL ON KNOWLEDGE SCORES ON POST OPERATIVE PAIN
MANAGEMENT (N=131)**

KNOWLEDGE SCORE OUT OF 24	PERCENTAGE KNOWLEDGE SCORE	FREQUENCY	% FREQUENCY
16	67	1	0.8
17	71	2	1.5
18	75	2	1.5
19	79	11	8.4
20	83	36	27.5
21	88	31	23.7
22	92	19	14.5
23	96	29	22.1

4.5 ASSESSMENT OF PRACTICE OF POST OPERATIVE PAIN MANAGMENT

Table 4.4a displays results on practice on post-operative pain management. Each participant answered 12 questions on practice such as. Concerning Vital signs are always indicators of the intensity, 131(100%) nurses agreed. Concerning Nervous system of children less than 2 years decrease pain sensitivity, 12 (9.25%) nurses don't agree and 119(90.8%) nurses agreed. Regarding patients distracted from pain do not have severe pain, 131(100%) nurses agreed. With respect to Patients sleeping in severe pain, 131(100%) nurses agreed. Concerning no steroid are not effective in pain bone metastases, 131 (100%) nurses agreed.

Regarding Respiratory depression rarely occur in stable dose of opioid, 115(87.8%) nurses agreed .16(12.2%)nurses disagreed .Concerning combining analgesics and opioid control pain than using analgesics agent .115 (87.8%)nurses agreed , 16(12.2%) nurses. Concerning duration of analgesia 1-2 mg is 4-5 hours,131 (100%)nurses agreed .Concerning opioids are not use in history of substance abuse,34 (42.5%)nurses . 87 (66%)nurses agreed .Regarding elderly patient cannot tolerate opioids for pain relief,56 (42.7%)nurses disagreed ,75(53.3%) nurses agreed .Regarding eleven years children cannot report pain so clinicians rely on the parent's assessment of the child's pain intensity ,113(86.3%) nurses disagreed 18 (13.7%)nurses agreed.

Table 4: 4.4 a ASSESSMENT OF PRACTICE ON POST OPERATIVE PAIN MANAGEMENT

PRACTICE ON POST OPERATIVE PAIN MANAGEMENT	FREQUENCY	PERCENTAGE
Vital signs as indicators of the pain intensity	131	100.0
children under 2 years decrease pain sensitivity	119	90.8
patients distracted from pain do not have severe pain	131	100.0
patients sleep In severe pain	131	100.0
effectiveness of non steroid in pain bone metastases	131	100.0
respiratory depression in stable dose of opioid	68	51.9
effectiveness in combining analgesics and opioid to control pain	115	87.8
duration of analgesia	131	100.0
opioids are not use as substance abuse	87	66.4
elderly patient cannot tolerate opioids or pain relief	101	77.1
patients encouraged to endure much pain before using opioid	75	57.3
reporting of pain in eleven years children	113	86.3

Table 4.4b continues to show the level of practice among nurses. Concerning patients spiritual beliefs may lead them to think pain and suffering are necessary, 68(51.9%) nurses agreed, (63 48.2%) nurses disagreed. Regarding after initial dose of opioid analgesic subsequent doses should be adjusted in accordance with individual patient's response, 83(63.4%) nurses agreed, 48 (36.6%)nurses disagreed. Concerning giving patient's water by injection is a useful test to determine if the pain is real, 131(100%) nurses agreed.

Regarding Vicodin pot is approximately equal to 5-10mg of morphine po, 20(15.3%) nurses disagreed ,111 (84.7%)nurses Regarding opioids should not be used if the cause of pain is unknown during the period of pain evaluation as this could correct diagnose the cause of pain,131(100%) nurses agreed .Regarding antinconvulsivant drug such as gabapentin produce optimal pain relief after a singledose,131(100%) nurses agreed .Concerning benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.80(61.1%) nurses agreed ,51(38.9%) nurses disagreed. Regarding narcotic opioid addiction is defined as a chronic neurobiological disease characterized by behaviors' that include one or more of the following: impaired control over drug use, compulsive use, compulsive use, continued used despite harm, and craving,51(38.9%) nurses disagreed which was 38.9%,80(61.1%)nurses agreed. Equianalgesia means approximately equal analgesia and is used when referring to the doses of various analgesic that provide approximately the same amount of pain relief,118(90.1%) nurses agreed , 13(9.9%) nurses agreed.

Table 5: 4.4b ASSESSMENT OF PRACTICE ON POST OPERATIVE PAIN MANAGEMENT (N=131)

PRACTICE ON POSTOPRATIVE PAIN MANAGEMENT	FREQUENCY	PERCENTAGE
Patients spiritually beliefs relating to pain	68	51.9
Administration of opioid analgesic	83	63.4
Determine level of pain using water injection	131	100.0
vicodin po is approximately equal to 5-10mg of morphine po	111	84.7
using opioids with unknown pain	131	100
anticonvulsivant drug such as gabepentin produce optimal pain relief after a single dose	131	100
benzodiazepine in pain relievers	80	61.1
definition of narcotic/opioid addiction	80	61.1
definition of equianalgesia provide approximately the same amount of pain relief	118	90.1
when to do sedation assessment	99	75.6

4.6 PRACTICE SCORES ON POST OPERATIVE PAIN MANAGMENT

Table 5 display results on practice scores on post-operative pain management; total score and percentage score of each participant were computed. The total score was the sum of all questions which was 44. The minimum score was 30 and the maximum was 36 out of total possible score of 44. The researcher used the scale of 80-100% for high level of practice, the moderate was from 70 t079% and the lowest level of practice was below 70%. Using this scale, Twenty six (26) of nurses had high level practice score on post-operative pain management which was 20% of study population ,106 nurses had moderate level practice score on post-operative pain management which was 79% of study population ,2 nurses had lower level of practice on post-operative pain management which was 1% of study population.

Table 6 4.5 PRACTICE SCORE ON POST OPERATIVE PAIN MANAGEMENT

PRACTICE SCORE OUT OF 44	PERCENTAGE KNOWLEDGE SCORE	FREQUENCY	% FREQUENCY
30	68	2	1.5
31	70	12	9.2
32	73	18	13.7
33	75	30	22.9
34	77	43	32.8
35	80	21	16
36	82	5	3.8

4.7 The relationship between knowledge and practice of post-operative pain management among nurses working in SW

According to the result on table 6, the correlation coefficient (0.379, p=0.000) shows a weak positive correlation between knowledge and practice. This means that as the level of knowledge increases, the level of practice regarding post-operative pain management also increases. The correlation result was significant at 0.01 levels, meaning that 99 out of 100 the results were correct and there was only one percent chance that the results were incorrect

Table 7: Pearson correlation matrix of knowledge and practice of post-operative pain management among nurses working in sw

		Knowledge	Practice
Knowledge	Pearson Correlation	1	.379**
	Sig. (2-tailed)		.000
	N	131	131
Practice	Pearson Correlation	.379**	1
	Sig. (2-tailed)	.000	
	N	131	131

** . Correlation is significant at the 0.01 level (2-tailed).

Since the relationship between knowledge and practice of post-operative pain management among nurses was significant, the researcher did a regression analysis to see the contribution of the independent variable (Knowledge) on dependent variable (practice). According to the result on table 7, R^2 is 0.144. The significant F- test (21.630 p<.01) indicates a linear relationship and that R^2 is significant. The effect of knowledge on practice was 14.4%, meaning that knowledge is contributing 14.4 percent of increase practice towards post-operative pain management.

Table 8: Regression analysis of level of knowledge

Model	R	R Square	R Square Change	F Change	Sig. F Change
1	.379 ^a	.144	.144	21.630	.000

a. Predictors. Constant; Knowledge

Conclusion of the findings

Forty eighty (37%) nurses had high score in knowledge about postoperative pain management. Sixty Seven (51%) had moderate levels of knowledge and 16 (12%) of nurses had low knowledge regarding post-operative pain management. Twenty six (20%) of nurses had high level practice, 106 nurses (79%) had moderate level practice and only 2 (1%) of nurses had lower level of practice on post-operative pain management. The correlation coefficient (0.379, $p < 0.01$) shows a weak positive correlation between knowledge and practice. The effect of knowledge on practice was 14.4%.

CHAPTER FIVE RESULTS

5.0 Discussion of results

Introduction

The purpose of the study was to assess knowledge and practice of postoperative pain management among nurses working in Surgical Ward in referral hospitals case of RMH and KUTH. A descriptive correlation study was conducted in two of the central hospitals in Rwanda. Thirty seven percent had high score in knowledge, 51% had moderate score in knowledge and 12% had lower score in knowledge about postoperative pain management. Twenty percent of nurses had high level practice, 79% of nurses had moderate level practice and one percent had lower level of practice on post-operative pain management which was 1% of study population.

The correlation coefficient (0.379, $p < 0.01$) shows a weak positive correlation between knowledge and practice. The effect of knowledge on practice was 14.4%. Therefore, this chapter discusses knowledge and practice of post-operative pain management among nurses working in surgical ward in Rwandan referral hospital case of RMH and KUTH. The recommendations of the study were discussed in relation to nursing practice, nursing education and nursing research. Limitations of the study were also outlined and lastly the summary of the study was presented.

5.1 Demographic characteristics

The demographic data described the personal characteristics of the study population. One hundred and thirty one (131) nurses from surgical ward participate in this study and 69 percent had age greater than 31. These findings are similar to study done at Mulago hospital by Irene in 2012 where the majority (69.5%) of participants had age greater than 30. The findings are also consistency with the findings of Kizza (2015) who revealed 84 percent of the population being older than 30. The majority (82.4%) of nurses were female and this is similar in the study done by Mona abed el-rahman in Jordan in 2013 where 71.9% of the study population was female, The high percentage of female nurses is due to the dominance of female in nursing profession as mentioned by Irene (2012).

Regarding education, 77.1% of nurses were A1 with advanced diploma in nursing, 19.1% of nurses were A2 with certificate in nursing and only 3.8% had bachelor degree in nursing. The majority of nurse's had advanced diploma due to the settings of ministry of education in 2007 was school of nursing delivered advanced diploma instead of certificate in nursing (Ministry of education, 2012). Concerning work experience, 73% of nurses were worked more than 5 years, 16.8% of nurses were worked 2 to 5 years and approximately 10 % of nurses worked less than 2 years (9.9%). In study done by waddah Mohammad (2016), the participants were predominantly have (1 - 5) years of experience (n = 213, 48.5%) and this contrary to this study were majority worked more than 5 years.

5.2 ASSESSMENT OF KNOWLEDGE AND PRACTICE OF NURSES OF POST OPERATIVE PAIN MANAGEMENT

Concerning knowledge about post-surgery pain management, 4 (3.1%) of nurses had inadequate knowledge, 23 (17.6%) of nurses had moderate knowledge, 104(79.4%) had adequate knowledge. The study conducted by Irene at mulago hospital in 2102 showed that very few nurses (26%) indicated that their current knowledge on pain assessment is adequate and this confirms the findings of the study. Adequate knowledge is important as shown in the study conducted by Madenski in 2011 which confirmed that Nurses have an important role in management of patient's pain from advocacy to administration of analgesics and evaluation of outcome in surgical ward. The findings are contrary to the findings study done by waddah in Jordan in 2016 who revealed the majority of nurses as having inadequate knowledge.

Regarding tools used to assess pain, 131(100%) nurses used internationally/nationally tools to assess pain. A study conducted in Canada by rose and colleagues (2011) reported that all nurses (98%) used a tool to assess for pain this support our study were (100%) used tool to assess pain and this confirms the findings of the present study. The study further revealed that 54%, 43% and 41% of doctors, clinical officers and nurses respectively felt to have sufficient knowledge to assess and manage post-operative pain and 57% of all participants showed that their knowledge was inadequate regarding pain assessment tools(Kituyi *et al.*, 2011) this support our study regarding knowledge, and tools regarding pain assessment 75(53.3%).

A study conducted in Malaysia in 2013 in urban hospital this study was to determine the knowledge level and attitudes of nurses related to pain management the study was descriptive. Fifty five respondents (66%) responded as positive to cultural beliefs affecting their pain management and 65 respondents (77%) viewed that their personal experiences had influenced their practice in pain management (pang Yuen H, 2013) and this study support our study where 51% support that cultural beliefs influence practice in pain.

Concerning Vital signs are always indicators of the intensity, 131(100%) nurses agreed which. A study done in Jordan by waddah in 2016 contrary our study because 28.5% of the sample answered that patient's statement and perception as the most accurate judge of pain intensity. Concerning patients spiritual beliefs may lead them to think pain and suffering are necessary, 68(51.9%) nurses agreed and 63 48.2% of nurses disagreed. A study conducted in Malaysia in 2013 in urban hospital. Fifty five respondents (66%) responded as positive to cultural beliefs affecting their pain management and 65 respondents (77%) viewed that their personal experiences had influenced their practice in pain management (pang Yuen H, 2013). This study support our study where 68 (51%) support that cultural beliefs influence practice in pain.

Sixty Seven (67) had moderate score in knowledge about post-operative pain management which was 51% of the study population. Sixteen (16) nurses had lower score in knowledge about postoperative pain management which was 12% of the study population. Forty eighty (48) nurses had high score in knowledge about postoperative pain management which was 37% of the study population. A study has been conducted by Kituyi and colleagues (2011) in Kenya to assess clinicians' knowledge and practices on assessment and measurement of postoperative pain; revealed that 88% had high level of post-surgery pain management and this is in contrast with study results.

Twenty six (26) of nurses had high level practice score on post-operative pain management which was 20% of study population ,106 nurses had moderate level practice score on post-operative pain management which was 79% of study population ,2 nurses had lower level of practice on post-operative pain management which was 1% of study population. The study conducted at mulago hospital by Irene in 2012 showed the lack of practice in tools which

waslack of availability of assessment tools (74.1%), lack of education on assessment tools (82.4%) , lack of familiarity with tools (78.2%). The correlation coefficient (0.379,p<0.01) shows a weak positive significant correlation between knowledge and practice towards post-operative pain management. A study done by Prashant kumar singh,2016 reveals a weak correlation between the intensity of pain and level of satisfaction with pain management and this is similar to the findings of this study.

5.5 Recommendations

For nursing practice

The study provided an opportunity for the nurses of surgical ward RMH/KUTH, to evaluate themselves in the area of knowledge and practices related to pain management. The results of the study will facilitate innovation in pain management thereby improving the levels of knowledge and practice in clinical area.

For research

The correlation coefficient (0.379,p<0.01) shows a weak positive correlation between knowledge and practice regarding post-operative pain management among nurses. The effect of knowledge on practice was 14.4%. This means that 85.6 percent of the level of practice is accounted by other factors. In this regard, there is need for research inquiry to identify more factors that contributes to varying level of practice on post-operative pain management.

For nursing education

In this study, knowledge about pain management should be generated from the learned module at school or from additional courses and training about pain management. To ensure knowledge, guidelines are available for implementation of pain management. Continuous professional education program on management and practicing nurses on post-operative pain management is needed.

For administration

The level of knowledge and practice towards post-operative pain management is predominantly low. Therefore, there is need for nursing management to implement a team that will run inservice training for management of postoperative pain, in order to improve the knowledge and practice of nurses. Furthermore, management needs to set more protocols in services as memo to reinforce continuous professional education.

5.7 Study limitations

- Our study had many limitations which need considerations, first of all this study was conducted in two public Hospitals which are Rwanda Military Hospital and Kigali University Teaching Hospital, even though they are teaching and referral hospitals, there are many other hospitals, health centres and clinics in which are doing surgical operations. Therefore, the results may not be generalizable in the whole country.
- Convenience sampling was used and it's also difficult to generalize the result as the researcher used the available population only.

Conclusions

This study was done in Rwandan referral hospital which is RMH/KUTH surgical ward service. It is appropriate that this study may be done in different hospital of Rwanda in order to gain more on postoperative pain management. Policies in different hospital regarding management on post-operative pain management should be implemented. Periodic staff training and allocation in appropriate services of staff trained is recommended.

BUDGET

I. Preparation for the study

N°	Item	No. of Persons	No. of Days	No. Person-days	Cost/Unit(RWF)	Total RWF
1	Research proposal writing	1	90	90	30000	2700000
	SUB- TOTAL 1					2700000

II.The survey

N°	Item	Persons/Materials	No. of days	Person-Days	Unit Cost (RWF)	Total (RWF)
1	research participation	131	1	131	10000	1310000
2	Tools	131	1	131	3000	393000
	Sub-total 2					1703000

III.Study supplies

N°	Item	Quantity	Unit Price RWF	Total RWF
1	Pencil	1	100	100
2	Bic	5	100	500
3	Rubber eraser	1	1000	1000
4	Papers	3	4500	13500
5	Computer	1	350000	350000
6	Airtime	100	1000	10000
7	Modem	1	13000	13000
8	externa disk	1	50000	50000
9	Printer	1	100000	100000
10	Markers	4	500	2000
	SUB – TOTAL 3			540100

IV. Production of the report and publication

N°	Item	Quantity	No. of days	Pers.- days	Unit Price RWF	Total RWF
1	Entering Data	1	10	10	25000	25000
2	Data analysis	1	10	10	25000	25000
3	Analysis of Data supervision	1	10	10	25000	25000
4	Report supervision	1	10	10	25000	25000
5	Report Presentation	4	1	4	25000	25000
6	report publication	1	1	1	50000	50000
	Sub – total 4					175000

VI. BUDGET SUMMARY

N°	DESCRIPTION	TOTAL
1	Preparation for the Study	2700000
2.	The survey	1703000
3	Study supplies	540100
4.	Production of the Report and publication	175000
	Total	5118100

Timeline

Study timetable	
Period	Activity
November	Research topic
December	Write research
January	Present proposal to the panel
February	Data collection
March	Data entry
April	data analysis
May	Data analysis
June	Thesis presentation

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Appendix 1: Questionnaire

QUESTIONNAIRE FOR PARTICIPANTS IN ENGLISH

I am UMUHOZA Odile students at UR/CMHS-School of Nursing and Midwifery in Masters Programs of Peri operative Nursing, Level II. The aim of my research is to assess knowledge and Practice of postoperative pain management among nurses working in PACU and surgical ward in referral hospitals case of RMH and KUTH.

This questionnaire will serve as a tool to collect the necessary data in our research,

We guarantee you the confidentiality of data provided, don't write your name.

Fill questionnaire with all honesty.

Tick the right answer.

N.B: There are more than two options for each statement. Read the statement carefully and

Encircle all correct responses for each statement. Each correct response will get a score of one

(1) And a wrong response a score of zero (0).

Section A : Socio demographic data

1. Age in years

1. 21-25

2. 26 -30

3. 31and above

2. Sex:

1. Female

2..Male

3. Marital status:

1. Single

2...Married

3. Widow

4.Separated

5. Divorced

4. Education level:

1. A1

2. A0

3.Masters

4.Others

5. Working experience of staff nurses In PACU or SW

1. Less than 2 years

2. 2 to 5 years

3. More than 5 years

Section B : Assessment of knowledge (Questions Adopted from Knowledge and Practice Survey Regarding Pain” developed by Betty Ferrell, RN, PhD, FAAN and Margo McCaughey, RN, MS, FAAN, (<http://prc.coh.org>), revised 2014.)

6. Knowledge about Post surgery Pain management

- 1. Inadequate
- 2. Moderate
- 3. Adequate

7. Source of knowledge about Post surgery Pain management (if any):

- 1. Radio
- 2. Peers
- 3. Hospital

8. What is the level of managing pain of Postoperative Patients in PACU/SW?

- 1. Fair
- 2. Moderate
- 3. Effective

9. What is the Impact of acquired knowledge on Pain management on Patient outcome?

- 1. None
- 2. Negative
- 3. Positive

10. Any Knowledge on tools used in Pain Assessment:

- 1. Inadequate

2. Moderate

3. Adequate

11. Which tools do you use in assessing Pain?

1 None

2 Local (hospital Developed)

3. Internationally/Nationally recognized

12. Does RMH/KUTH supports RNs on improving knowledge on post-operative pain Management in PACU/SW

2. Yes

1. No

13. How does RNs cope with changes In Post-surgery Pain management?

2. Positively

1. Negatively

14. Do you think post-surgery pain management is at good level in RMH/KUTH

2. Yes

1. No

Section C : Assessment of Practice (Questions Adopted from Knowledge and Practice Survey Regarding Pain” developed by Betty Ferrell, RN, PhD, FAAN and Margo McCaughey, RN, MS, FAAN, (<http://prc.coh.org>), revised 2014.)

True/False-Circle the correct answer

T -1 F 0. Vital signs are always reliable indicators of the intensity of a patient’s pain.

T 0 F 1. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.

T 1 F 0. Patients who can be distracted from pain usually do not have severe pain.

T1 F 0. Patients may sleep in spite of severe pain.

T1 F 0. Aspirin and other non-steroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.

T0 F 1. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.

T 1 F 0 . Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent.

T1 F 0. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.

T1 F 0. Opioids should not be used in patients with a history of substance abuse.

T 1 F 0. Elderly patients cannot tolerate opioids for pain relief.

T 1 F 0. Patients should be encouraged to endure as much pain as possible before using an opioid

T 1 F 0 . Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity.

T 1 F 0.

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

T1 F 0.

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

T 0 F 1. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.

T 0 F 1. Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5-10 mg of morphine PO.

T 0 F 1 If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.

T 0 F 1. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.

T 0 F 1. Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regimen.

T 1 F 0. Narcotic/opioid addiction is defined as a chronic neurobiological disease, characterized by behaviours that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.

T 1 F 0. The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.

T 1 F 0 Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.

Multiple Choice – Place a check by the correct answer.

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

a. Intravenous ,T 1 F 0

b. intramuscular ,T 0 F 1

c. subcutaneous,T 0 F 1

d. oral ,T 0 F 1

e. rectal,,T 0 F 1

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

- a. intravenous ,T 1 F 0
- b. intramuscular,T 0 F 1
- c. subcutaneous,T 0 F 1
- d. oral ,T 0 F 1
- e. rectal,T 0 F 1

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

- a. codeine ,T 0 F 1
- b. morphine ,T 1 F 0
- c. meperidine ,T 0 F 1
- d. tramadol,T 0 F 1

26. A 30 mg dose of oral morphine is approximately equivalent to:

- a. Morphine 5 mg IV, T 0 F 1
- b. Morphine 10 mg IV ,T 1 F 0
- c. Morphine 30 mg IV ,T 0 F 1
- d. Morphine 60 mg IV, T 0 F 1

27. Analgesics for post-operative pain should initially be given

- a. around the clock on a fixed schedule ,T 1 F 0
- b. only when the patient asks for the medication,T 0 F 1
- c. only when the nurse determines that the patient has moderate or greater discomfort, T 0 F 1

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

Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is

- a. less than 1%, T 0 F 1
- b. 1-10% ,T 0 F 1
- c. 11-20% ,T 0 F 1
- d. 21-40% e. > 41%,T 1 F 0

29. The most likely reason a patient with pain would request increased doses of pain medication is

- a. The patient is experiencing increased pain. T 1 F 0
- b. The patient is experiencing increased anxiety or depression. ,T 0 F 1
- c. The patient is requesting more staff attention. ,T 0 F 1
- d. The patient's requests are related to addiction.T 0 F 1

30. Which of the following is useful for treatment of cancer pain?

- a. Ibuprofen (Motrin) ,T 0 F 1
- b. Hydromorphone (Dilaudid) , T 0 F 1
- c. Gabapentin (Neurontin) ,T 1 F 0
- d. All of the above

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

- a. the treating physician ,T 1 F 0
- b. the patient's primary nurse ,T 0 F 1

c. the patient ,T 0 F 1

d. the pharmacist , T 0 F 1

e. the patient's spouse or family, T 0 F 1

32. Which of the following describes the best approach for cultural considerations in caring for patients in pain: ,T 0 F 1

a. There are no longer cultural influences in the U.S. due to the diversity of the population. , T 1 F 0

b. Cultural influences can be determined by an individual's ethnicity (e.g., Asians are stoic, Italians are expressive, etc). T 0 F 1

c. Patients should be individually assessed to determine cultural influences. T 1 F 0

d. Cultural influences can be determined by an individual's socioeconomic status (e.g., blue collar workers report more pain than white collar workers). T 0 F 1

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

< 1% , T 1 F 0, 5 – 15% , T 0 F 1, 25 - 50% ,T 0 F 1, 75 - 100%,T 0 F 1

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

_____ a. 15 min.,T 1 F 0

_____ b. 45 min., T 0 F 1

_____ c. 1 hour ,T 0 F 1

_____ d. 2 hours, T 0 F 1

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

_____ a. 5 min. ,T 1 F 0

_____ b. 30 min., T 0 F 1

_____ c. 1 – 2 hours, T 0 F 1

_____ d. 3 hours, T 0 F 1

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

_____ a. sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued., T 0 F 1

_____ b. Impaired control over drug use, compulsive use, and craving. ,T 0 F 1

_____ c. The need for higher doses to achieve the same effect.,T 0 F 1

_____ d. a and b ,T 1 F 0

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

_____ a. More common several nights after surgery due to accumulation of opioid.T 0 F 1

_____ b. Obstructive sleep apnea is an important risk factor. T 0 F 1

_____ c. Occurs more frequently in those already on higher doses of opioids before surgery T 0

F 1. _____ d. Can be easily assessed using intermittent pulse oximetry. T 1 F 0

Appendix 2: Consent form

INFORMED CONSENT FORM

This informed consent form is for Nurses Working in SW, case of Rwanda Military hospital and KUTH, and who we are invited to participate in research on Pain management. The title of our research project is “Assessment of knowledge and practice of post-operative pain management among nurses working in sw in referral hospital case of RMH and KUTH”.

Name of Principal Investigator: UMUHOZA Odile

Name of Organization: School of Nursing and Midwifery

Name of Proposal and version : Assessment of knowledge and practice of post-operative pain management among nurses working in sw in Rwanda Military Hospital and Kigali teaching hospital

This Informed Consent Form has two parts:

Information Sheet (to share information about the research with you)

Certificate of Consent (for signatures if you agree to take part)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

I am UMUHOZA Odile, student at school of nursing and midwifery .I am doing research on post-operative Pain management, among nurses working in Surgical Ward. I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. There may be some words that you do not

understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them.

Purpose of the research

The purpose of this study was to give a picture about knowledge and practice of postoperative pain management among nurses working in Surgical Ward at Rwanda military hospital and Kigali university teaching hospital this will facilitate innovation in pain management and improving the levels of knowledge and practice in clinical area.

Type of Research design

The study is a descriptive correlational design.

Participant selection

We are inviting Registered and licensed nurses who work in surgical ward in Rwanda Military Hospital for the purpose of caring for postoperative patients to attend in order to express and shows their knowledge on post-operative pain management.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. Whether you choose to participate or not, all the services you use to carry in this hospital will continue and nothing will change. And we will tell you more about it later. You may change your mind later and stop participating even if you agreed earlier.

Benefits

If you participate in this research, there may not be any benefit for you but your participation is likely to help us find the answer to the research question. There may not be any benefit to the society at this stage of the research, but future generations are likely to benefit.

Confidentiality

With this research, something out of the ordinary is being done in your community. It is possible that if others in the community are aware that you are participating, they may ask you questions. We will not be sharing the identity of those participating in the research. The information that we collect from this research project will be kept confidential. Information about you that will be collected during the research will be put away and no-one but the researchers will be able to see it. Any information about you will have a number on it instead of your name. Only the researcher will know what your number is and we will lock that information up with a lock and key.

However, absolute confidentiality cannot be guaranteed and personal information may be disclosed if required by the law. The study staff will have access to all the information collected in this study. In addition, there are organizations that may inspect or copy your research records for quality assurance and data analysis and these include the institutional review board (IRB). Furthermore, all documents for the study will be destroyed after 2 years of study completion.

Dissemination of results

The knowledge that we get from doing this research will be shared with you through community meetings before it is made widely available to the public. Confidential information will not be shared. There will be small meetings in the hospital and these will be announced. After these meetings, we will publish the results in order that other interested people may learn from our research.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so and refusing to participate will not affect your practice and wellbeing in this hospital. In any way. You will still have all the benefits that you would otherwise have at this Hospital. You may stop participating in the research at any time that you wish without losing any of your rights as a staff here. The privileges you get from this Hospital will not be affected in any way.

Alternatives to Participating

If you do not wish to take part in the research, you will proceed your work as usual, and continue to be treated as the right, policy and procedures regarding the employee of this hospital order.

Contact details

If you have any questions you may ask them now or later, even after the study has started. If you wish to ask questions later, you may contact me or my supervisor on the following address:

1. UMUHOZA Odile

Address: Kigali, Gasabo

Tel: +250788529017

E-mail: @gmail.com

2. University of Rwanda

College of medicine and Health Sciences

School of Nursing and Midwifery

Kigali, Rwanda

Dr Chironda – 00250 789924956.

For reporting of complaints or problems relating to the study, contact the IRB Administrator or Chair

Institutional Review Board

Research Office

University of Rwanda

Kigali, Rwanda

Tel : 0788490522

0783340040

Email :Gahutu@hotmail.com

Part II: Consent to participate

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction.

I consent voluntarily to participate as a participant in this research.

Print Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 16/01/2017
Ref: CMHS/IRB/110/2017

UMUHOZA Odile
School of Nursing and Midwifery, CMHS, UR

Dear UMUHOZA Odile

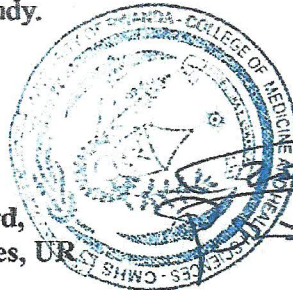
RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled "*Assessment Of Knowledge And Practice Of Immediate Postoperative Pain Management Among Nurses Working In Post Anesthesia Care Unit Surgical Ward In Rwandan Referral Hospital, Case Of RMH And KUTH*".

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

for
Professor Kato J. NJUNWA
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR



[Handwritten signature]
A. JB Gaturuka
IRB Vice-Chair

Cc:

- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR



**REPUBLIC OF RWANDA
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March 3rd, 2017

Ref.: EC/ RMH/ 113/ 2017

REVIEW APPROVAL NOTICE

Dear **UMUHOZA ODILE**
UNIVERSITY OF RWANDA

Your research project: **“Assessment of Knowledge and Practice of Immediate Postoperative Pain Management among Nurses Working in Post Anesthesia Care Unit Surgical Ward in Rwandan Referral Hospital, Case of RMH and KUTH”**.

With respect to your application for ethical approval to conduct the above stated study at Rwanda Military Hospital, I am pleased to confirm that RMH Ethics Committee has approved your study. This approval lasts for a period of **12 months** from the date of this notice, and after which, you will be required to seek another approval if the study is not yet completed.

You are welcome to seek other support or report any other study related matter to the Research office at Rwanda Military Hospital during the period of approval.

You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, you are required to present the results of your study to RMH Ethics Committee before publication.

Sincerely,



Dr. Pacifique Mugenzi
Lieutenant Colonel
Co Chair: Rwanda Military Hospital Research Ethics Committee

Email: info@rwandamilitaryhospital.rw
Tel: 0252586420

P.o Box: 3377RWANDA MILITARY HOSPITAL



**CENTRE HOSPITALIER UNIVERSITAIRE
UNIVERSITY TEACHING HOSPITAL**

Ethics Committee / Comité d'éthique

April 28th, 2017

Ref.: EC/CHUK/343/2017

Review Approval Notice

Dear Umuhoza Odile,

Your research project: "Assessment of knowledge and practice of immediate post operative pain management among nurses working in post anesthesia care unit and surgical ward in Rwanda referral Hospital, case of RMH and CHUK."

During the meeting of the Ethics Committee of University Teaching Hospital of Kigali (CHUK) that was held on 28/04/2017 to evaluate your protocol of the above mentioned research project, we are pleased to inform you that the Ethics Committee/CHUK has approved your protocol.

You are required to present the results of your study to CHUK Ethics Committee before publication.

PS: Please note that the present approval is valid for 12 months.

Yours sincerely,

John Nyirigira
The Secretary, Ethics Committee,
University Teaching Hospital of Kigali



<<University teaching hospital of Kigali Ethics committee operates according to standard operating procedures (Sops) which are updated on an annual basis and in compliance with GCP and Ethics guidelines and regulations>>

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