NURSES' KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS CANCER PAIN MANAGEMENT IN UNIVERSITY TEACHING HOSPITAL OF KIGALI.

Bellancille NIKUZE

College of Medicine and Health Sciences

School of Nursing and Midwifery

Master of Science in Nursing, Oncology

2017

NURSES' KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS CANCER PAIN MANAGEMENT IN UNIVERSITY TEACHING HOSPITAL OF KIGALI.

By

Bellancille NIKUZE

216339944

A dissertation submitted in partial fulfilment of the requirements for the degree of

MASTER OF SCIENCE IN NURSING/ONCOLOGY

In the College of Medicine and Health Sciences

Supervisor: Mrs. Evelyne NANKUNDWA

Co-Supervisor: Mrs. Ruth SEGO

June, 2017

DECLARATION

I declare that this Dissertation contains my own work except where specifically acknowledged.

Student Name and Index Number

Bellancille NIKUZE, 216339944

Signature:

Date: 08/08/2017

DEDICATION

I dedicate this work to my Almighty God, for He gave life and strength to accomplish it.

I'd also like to dedicate my work to my lovely husband, my children, my parents, my brothers and sisters and all my friends for their great support and encouragement all the time.

AKNOWLEDGEMENT

I would like to direct my gratitude to my co-supervisor Ruth SEGO and my main supervisor NANKUNDWA Evelyne for their infinite support, encouragement and guidance.

I am beholden to the University of Rwanda/College of Medicine and Health Sciences, School of Nursing and Midwifery for the sponsorship and daily support during my studies and clinical placement.

I can't forget to address my humble thanks to Dr Maria Kidner and Dr Nsabimana Theoneste for their help in my study by sharing with me accepted wisdom.

My sincerely thanks go to my husband Mr. Christian NTAKIRUTIMANA who played an essential role in supporting and encouraging me throughout with many kind of sacrifices. I am very grateful to him.

My special thanks go also to my colleagues and everyone who cares about me.

ABSTRACT

Background: Management of cancer pain is complex mostly due to the lack of knowledge of healthcare providers, and patient education on how to actively participate in pain management. Nurses remain the first responders when it comes to the management of patients with cancer pain.

Study aim: To investigate nurses' knowledge, attitudes and practice regarding cancer pain management at University Teaching Hospital of Kigali.

Methods: A cross sectional quantitative design was used with a proportionate systematic sampling strategy which consisted of 140 nurses in the emergency, medical and surgical ward respectively in the UTHK after their consent to participate. Data were collected using a questionnaire called Nurses Knowledge and Attitudes Survey regarding pain (NKAS) and analyzed using both inferential and descriptive statistics by SPSS version 23. The theoretical framework that guided this study was Katharine Kolcaba Comfort Theory.

Results: The study revealed a deficit in knowledge regarding opioid use, whereby less than a half (37.1%) of the respondents mentioned that it takes an estimate of 1-2 hours to reach peak effect and (61.1%) knew that knew that if the source of pain is unknown, opioids are contraindicated. It revealed negative attitudes regarding cancer pain management whereby the majority (64.3%) accepted that a nurse can determine the pain intensity without asking the patient and only 10.7% assessed pain regularly (six times per day). Alarmingly, (60.7%) the mainstream accepted that placebo injection of distilled water is useful to determine if the patient has real pain.

Conclusion: There are some knowledge deficits and misconceptions about pain assessment and management in cancer patients suggesting that pain is being inappropriately managed in this setting.

KEY WORDS

Pain: Pain is defined by the International Association for the Study of Pain, as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (International Association for the Study of Pain, 2012).

Cancer: National Cancer Institute define cancer as a group of related diseases whereby body cells are dividing without stopping and can spread to nearby tissues (National Cancer Institute, 2015).

Knowledge: understanding processes used to manage cancer pain.

Attitudes: personal view of nurses regarding cancer pain control

Practice: putting into action all procedures prepared for managing cancer pain by nurses.

Nurses: in this study is defined as being a registered nurse in NCNM (National Council of Nurses and Midwives) as professional nurse who is working in emergency, medical and surgical services.

LIST OF SYMBOLS AND ACRONYMS

CMHS: College of Medicine and Health Sciences

CNS: Central Nervous System

DN4: Neuropathic Pain in 4 questions

Dr: Doctor

ESMO: European Society for Medical Oncology

IASP: International Association for Study of Pain

IM: Intramuscular

IT: Intrathecal

IV: Intravenous

JCO: Journal of Clinical Oncology

MOH: Ministry of Health

NAISDs: Non-Steroid Anti-inflammatory Drugs

NCNM: National Council for Nurses and Midwives

NKAS: Nurses Knowledge and Attitudes Survey

NRS: Numerical Rating Scale

PAT: Pain Assessment Tool

PCA: Pain Controlled Analgesia

PQRST: Provoking, Quality, Region/Radiation, Severity, Time

QOL: Quality Of Life

RNAO: Registered Nurses' Association of Ontario

S/C: Subcutaneous

SHIP: Stepwise for Healthcare Interventions for Pain

SNRI: Serotonin Noradrenaline Reuptake Inhibitors

SPSS: Software Package for Statistical Analysis

TENS: Transcutaneous Electrical Nerve Stimulation

UR: University of Rwanda

UTHK: University Teaching Hospital

VAS: Visual Analogue Scale

VRS: Verbal Rating Scale

WHO: World Health Organization

TABLE OF CONTENTS

DECLARATION i
DEDICATION ii
AKNOWLEDGEMENT iii
ABSTRACT iv
KEY WORDS v
LIST OF SYMBOLS AND ACRONYMS vi
TABLE OF CONTENTS viii
LIST OF TABLES xi
LIST OF FIGURES xii
CHAPTER ONE: INTRODUCTION 1
1.0. Introduction 1
1.1. Background of the study 1
1.2. Problem statement 3
1.3. The aim of the study 4
1.4. Research objectives 4
1.5. Research questions 4
1.6. Significance of the study 4
1.7. Organization of the study 5
CHAPTER TWO: LITTERATURE REVIEW 6
2.1 Introduction 6
2.2 Pain and its types 6
2.3. Complications of pain 7
2.4. Nurses knowledge and practices on cancer pain management 7
2.5 Pain assessment and treatment 9
2.6 Barriers toward cancer pain management 12
2.7 Theoretical/conceptual framework 12
CHAPTER THREE: RESEARCH METHODOLOGY 15
3.1. Introduction 15

3.2. Research design and approach 15
3.4. Research setting 15
3.5. Population 15
3.6. Sampling 15
3.6.1 Sampling criteria 15
3.6.1. Sample size 16
3.6.2. Sampling strategy 16
3.7. Data Collection 17
3.7.1. Data Collection instruments 17
3.7.2. Data collection procedure 18
3.8. Data analysis 18
3.9. Ethical considerations 18
3.10. Data management 18
3.11. Data Dissemination 19
CHAPTER 4: PRESENTATION OF RESULTS AND THEIR INTERPRETATION 20
4.1 Demographic information 21
4.2 Knowledge of nurses towards cancer pain management 25
4.3 Attitude of nurses towards cancer pain management 27
4.4 Practice of nurses towards cancer pain management 29
4.5 Relationship between in-service experience and attitudes 29
4.6 Conclusion 30
CHAPTER 5: DISCUSSION 31
5.1. Introduction 31
5.2. Demographic data of respondents 31
5.3. Knowledge and attitudes of nurses towards cancer pain management 32
5.4. Practices of nurses regarding cancer pain management 33
CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS 34
5.1. Conclusion 34
5.2 RECOMMENDATIONS 34
5.2.1. To the MOH/RWANDA 34
5.2.2. To the hospital (UTHK) 35

5.2.3. Implication for nursing education 35
5.2.4. To other researchers 35
5.3 LIMITATIONS OF THESTUDY 36
REFERENCES 37
APPENDICES ..... A
1. QUESTIONAIRE ..... A
CONSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY ..... G

LIST OF TABLES

Table 3.1 The proportion of the sample by department…….16

Table 4.2 Knowledge of nurses towards cancer pain management……....25

Table 4.3 Attitudes of nurse towards cancer pain management…….27

Table 4.4 Practices of nurses towards cancer pain management……29

Table 4.5 Association between in service experience and practices……..29

LIST OF FIGURES

Figure 1. Validated rating pain scales……..10

Figure 2. Pain rating steps and its possible interventions……11

Figure 3. Applied comfort theory……13

Figure 4.1.1 Gender……21

Figure 4.1.2. Department……22

Figure 4.1.3 Level of education…….23

Figure 4.1.4 In service experience……..24

CHAPTER ONE: INTRODUCTION

1.0. Introduction

Around 12.7 million patients are diagnosed with cancer each year, 7.6 million of clients die from cancer, 29 million are cancer survivors, then one out of three of adult patients are in inactive therapy, and finally, one out of three of cancer survivors report pain (Foley, 2013).

Although pain is the most common symptom of cancer, it is a severe problem that a patient often has along their journey of the disease. It affects the patients quality of life by disturbing physical , psychological, and social wellbeing (Shute, 2013).

1.1. Background of the study

Pain related to cancer is a complex phenomenon whereby its prevalence in cancer patients varies depending on numerous factors including type of cancer, its extent and treatment. About 33-59% of people on cancer treatment have chronic pain and considerably 64-74% in patients with advanced diseases (Portenoy and Dhingra, 2016). Patients with advanced stage of life-threatening illnesses experience multiple symptoms and among them pain is the most common(Victor, 2016). Pain is also considered as one of the most common symptoms of patients with cancer. Among newly diagnosed client with malignant tumor, one third of those receiving treatment and three quarter with advanced stage of cancer have pain (Yu *et al.*, 2015).

Globally, since about 30 years ago, pain management in cancer patients has become a top priority in oncology, so failure to do so means failure to improve quality of life among cancer clients. Still, cancer pain management remains a challenge among healthcare professionals with the over 1.5 million people diagnosed each year with cancer, over 12 million cancer survivors, and the over 570,000 annual deaths (Paice and Ferrell, 2011). Poor pain assessment is understood to be the leading barrier to effective pain management. Pain should be recognized at pre-diagnosis and its assessment should involve a detailed patient history and physical examination (Shute, 2013).

Pain is subjective, with means that it is the patient who experiences and feels it. By that, its evaluation will depend on patient verbalization. Health care providers who do not use

recognized pain assessment tools will fail to discover severe pain in 30% of patients, and moderate pain in one half of all patients (Koch, 2012). This leads to inadequate pain management. Unrelieved pain cause suppression of immune function ally natural killer (NK) cells which play an important role in prevention of tumor growth and control of metastasis. In this regard, pain relieve is important especially for patients with metastatic cancers.(Wells, Pasero and Margo, 2016)

Furthermore studies have shown that physicians have more understanding about management of pain caused by cancer than nurses. Hence, nurses lack also knowledge about side effects and pharmacology of opioids (Jho *et al.*, 2014). In addition a current study carried out in Addis Ababa revealed that nurses' practice was poor (33.3%) and their attitude toward cancer pain management reported as negative (Kassa and Kassa, 2014).

In Rwanda, there are elaborated pain management protocols, including for cancer (Ministry of Health, 2012) but little is known about knowledge, attitudes and practice of nurses toward cancer pain management. This study aims at investigating the nurses' knowledge, attitudes and practice toward pain control in clients with cancer at the University Teaching Hospital of Kigali.

1.2. Problem statement

Despite guidelines and protocols availability about pain management, analgesia issues are less prioritized than other kind of care, where comprehensive data on pain management is lacking(Size, Soyannwo and Justins, 2010). Nurses focus on opioids' side effects which negatively influences patients' holistic care involving pain control and causes ineffective treatment of pain, which is a problem worldwide that health care providers should address(Yuen-Ching, 2007). This is supported by a study conducted in Asia in 10 countries which revealed that there was a need of training for better pain management due to observed inadequate pain assessment practices leading to reduced quality of life (QOL) for the majority of cancer patients. This study addressed also the fear of opioid use(Yong-Chul *et al.*, 2015). More than 80% of patients with cancer at advanced metastasis have pain caused by the tumor itself. Pain damages quality of life considerably and is an sign of tumor evolution (Jost & Roila 2010).

Particularly nurses were selected because they are most in contact with the patient also are in the best position to assist and improve the patient healthcare (Nuseir, Kassab and Almomani, 2016). To date no national statistics about nurses' knowledge, attitudes and practices towards cancer pain management in Rwanda has been published and nurses have an important role in managing patients on treatment of pain. In their daily activities, they are closer to patients, administrating and monitoring the effectiveness of drugs, including side effects. They have a role of assessment, management, and education. Educating patients and families about usage and side effects of analgesics can reduce fear of addiction. Many of Rwandan patients with cancer have pain and this lead to major health problems if not well managed due to lack of physical assessment, knowledge, appropriate cancer pain management and other barriers.

1.3. The aim of the study

To investigate nurses' knowledge, attitudes and practice towards cancer pain management at Kigali University Teaching Hospital.

1.4. Research objectives

1. To assess nurse's knowledge towards cancer pain management at Kigali University Teaching Hospital.
2. To investigate nurses' attitudes towards pain management in client with cancer at Kigali University Teaching Hospital.
3. To explore nurses' practices towards cancer pain management at Kigali University Teaching Hospital.

1.5. Research questions

1. What is the nurses' knowledge towards cancer pain management at Kigali University Teaching Hospital?
2. What are the nurses' attitudes towards cancer pain management at Kigali University Teaching Hospital?
3. What are the nurses' practices towards cancer pain management at Kigali University Teaching Hospital?

1.6. Significance of the study

In nursing practice, this study will produce useful information that will help nurses to improving their practice of cancer pain management. It will lead to development of pain educational package for nurses which may lead to improve cancer pain management at various settings. In nursing education, they will also help the nurse educators to improve and strengthen nursing curriculum by emphasizing cancer pain management.

In nursing research, the results may serve as reference for future researchers to work on cancer pain management in other specialties even countrywide.

In nursing leadership and management, the findings from this study will be used to influence policy and guideline development in improving cancer pain management.

Finally, the feedback will be given to the MOH and UTHK to assess how they can strengthen the elaborated protocols and increase in-service trainings.

1.7. Organization of the study

This dissertation is subdivided into the following main categories:

Chapter 1: Introduction
Chapter 2: Literature review
Chapter 3: Methodology
Chapter 4: Results
Chapter 5: Discussion
Chapter 6: Conclusions and Recommendations
References
Appendix

CHAPTER TWO: LITTERATURE REVIEW

2.1 Introduction

The main point of managing cancer pain is the use of pharmacological interventions with opioids. Although up to 50% of clients with cancer have chronic pain related to the treatment, such as chemotherapy (peripheral neuropathy), radiotherapy (induced brachial plexus neuropathy), or surgery (mostly post breast, head and neck surgical operations). However, the Ministry of Health recommendations state that the stepped approach is core in managing cancer pain, that pain should be treated throughout investigation process, the oral route is the best, and that regular pain assessment and pain medication lead to better outcome (Ministry of Health, 2012).

2.2 Pain and its types

Pain is an important symptom in patients with cancer who are receiving treatment and in long-term cancer survivors. It is one of the most dreaded aspects of cancer, and it can have a major negative impact on the quality of life of patients. It has long been documented that untreated or undertreated pain is common in patients with cancer, with little evidence of recent improvement (Goodwin, Bruera and Stockler, 2014).

More than 80% of cancer patients with advanced metastasis suffer pain caused by direct tumor access. Pain damages quality of life significantly and is a clinical indicator of tumor progression. Cancer pain may be acute or chronic and should be addressed immediately. Almost 20% of pain in cancer patients may be credited to the effects of surgery, radiotherapy or chemotherapy (Jost and Roila, 2010).

Cancer pain has the same neuro-pathophysiological paths as pain not related to cancer. It is a varied mechanism which can present as neuropathic, visceral, or somatic pain syndrome. Cancer pain also can involve inflammatory mechanisms at several locations. The treatment of choice with tolerance is opioids (Jost and Roila, 2010 ; Ministry of Health, 2012)

Neuropathic pain is caused by lesion in the somatosensory nerve system. It is divided in peripheral (from peripheral nerves) and central (from brain or spine). Neuropathic pain is always described as burning, tingling, electrical, stabbing, or pins and needles. Nociceptive

pain results from pain receptors of tissues which are injured or involved in an inflammatory process. It may be: somatic (local to location of injury or by stimulation of peripheral nociceptors without injury to peripheral or central nervous system (CNS); visceral, from stimulation of nociceptors of pelvic, abdominal organs and thoracic. It is poorly localized by aching and cramping; or mixed pain due to combination of both primary and secondary effect (Foley, 2013).

2.3. Complications of pain

Some evidence states that patients who have pain experience more distress and depression than those without pain. In the cancer journey from diagnosis throughout the course of the treatment, survivorship, and end of life; emotional distress, depression, anxiety and hopelessness interrelate with pain. About 38% of cancer survivor has mood disorders and other psychological problems related to cancer pain. Unrelieved pain can accelerate death (Syrjala *et al.*, 2014).

Pain causes or aggravates patient discomfort, insomnia, fatigue and loss of appetite. It seriously affects patient ability to self-care, communication and activities of daily living. Still, unrelieved pain cause physical and psychological effects on endocrine, metabolic, cardiovascular, gastro-intestinal, and immune systems. It causes stress which produces an excessive hormones and carbohydrate, protein, fat catabolism, and poor glucose use. All those combined with inflammatory responses yield weight loss, tachycardia, tachypnea, fever and shock. If acute it can be complicated in chronic pain. (Wells, Pasero and Margo, 2016; Yu *et al.*, 2015, p. 1164)

2.4. **Nurses knowledge and practices on cancer pain management**

A study conducted in Ethiopia showed that the majority of nurses involved in the study (61%) did not use pain assessment tools to evaluate the severity of pain for their patients. Yet, only 13% used the required time for pain assessment which is every 4 hours of 6 times a day. Only 29.3% of nurses in that study were using non-pharmacological interventions for pain management. The respondents addressed barriers that influence adequate pain management such as lack of pain management sessions in their education, confusion of roles, lack of in-service training, lack of motivation, and fear of side effects of cancer

treatment. Therefore it is required to train nurses on cancer pain control (Kassa and Kassa, 2014). This is supported by the study conducted in Kenya where nurses showed a gap in the management of cancer pain due to poor pre- and in-service training (Kimeto and Odhiambo, 2011). Similarly, another study revealed the same gaps in Qatar and recommended also the emphasis of strengthening curriculum of nurses mainly to improve their knowledge which will later power their practices (Hassan *et al.*, 2014).

Another study done in Iran showed that the majority of nurses believed that opioids have significant effects of addiction to clients receiving them. However, it has been reported that the addiction related to opioid use is less than 1%. Also less nurses' knowledge reported to be a major barrier to effective pain control in patient with cancer(Shahnazi *et al.*, 2012)

A quasi-experimental study done in Blekinge, Sweden revealed that a theory based educational intervention has a positive impact in nurses' knowledge and attitudes toward cancer pain (Gustafsson and Gunilla, 2013)

Urgent pain relief for severe pain should be done using opioids via parenteral route such as S/C or IV, considering that IM is not only painful but also do not have pharmacokinetic benefits. However, a combination of opioids and non-opioids analgesics is important such as addition of steroids in case of nerve compression, and NSAIDs, in case of bone metastasis.(Jost and Roila, 2010; Goodwin, Bruera and Stockler, 2014). This is supported by Registered Nurses Association of Ontario (RNAO), 2013 confirming the use of multimodal analgesic approach to maximize analgesic effect and minimize side effects. They encourage use of opioids with non-opioids to manage moderate to severe pain and use of advanced modalities, among others: patient controlled analgesia (PCA) and nerve blocks for persistent, non-malignant, or cancer pain, and acute pain resulting from major surgical procedure or damage. There are many methods used, like nerve stimulation with transcutaneous electrical nerve stimulation (TENS), neuroleptic blocks (intrathecal drugs), and epidural steroids with or without anesthetic. and acupuncture (American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine, 2010; Registered Nurses' Association of Ontario, 2013, p. 30).

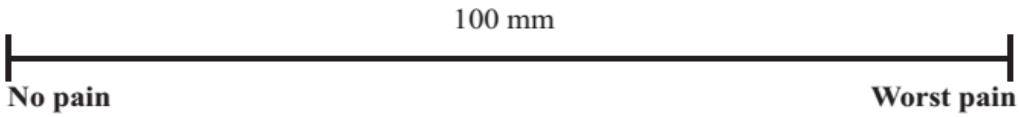
2.5 Pain assessment and treatment

Principles of cancer pain management are: prolonging survival, optimizing comfort, optimizing function, and pain relief. The main barrier to pain management is inadequate pain assessment. Another challenge is that cancer pain has multiple pain mechanisms. Pain genetics could be used to categorize pain and predict its response to treatment. Computer-based assessment tool could provide more precise assessment by rapid calculation of pain scale score. Quantitative electro-physiological techniques could help to assess neurological dysfunction for neuropathic pain assessment. All those techniques are not in use because of lack of experts, and they are expensive. However, they could improve significantly pain assessment, then its adequate management (Jonathan, 2014; Paez *et al.*, 2013)

Chronic pain in patients on cancer treatment is about 33-59%. The assessment of cancer pain starts by history-taking. Pain report should include onset, intensity, location, radiation, quality, factors exacerbating or alleviating pain, duration, and ability to perform activities of daily living. Because pain affects quality of life, emphasize on physical, psychosocial and spiritual wellbeing is essential. (Portenoy and Dhingra,2016).

Current guidelines recommend the use of one of 3 validated assessment tools among others the Visual Analogue Scale, Verbal Rating Scale or the most commonly used Numerical Rating Scale (NRS).

Visual analogue scale (VAS)

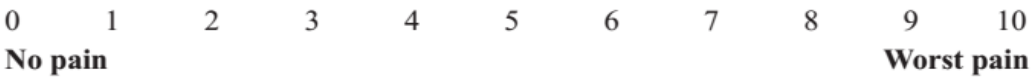


Verbal rating scale (VRS)

•	No pain	1
•	Very mild pain	2
•	Mild pain	3
•	Moderate pain	4
•	Severe pain	5
•	Very severe pain	6

Numeric rating scale (NRS)

No pain	0
Mild pain	1-3
Moderate pain	4-6
Severe pain	7-10



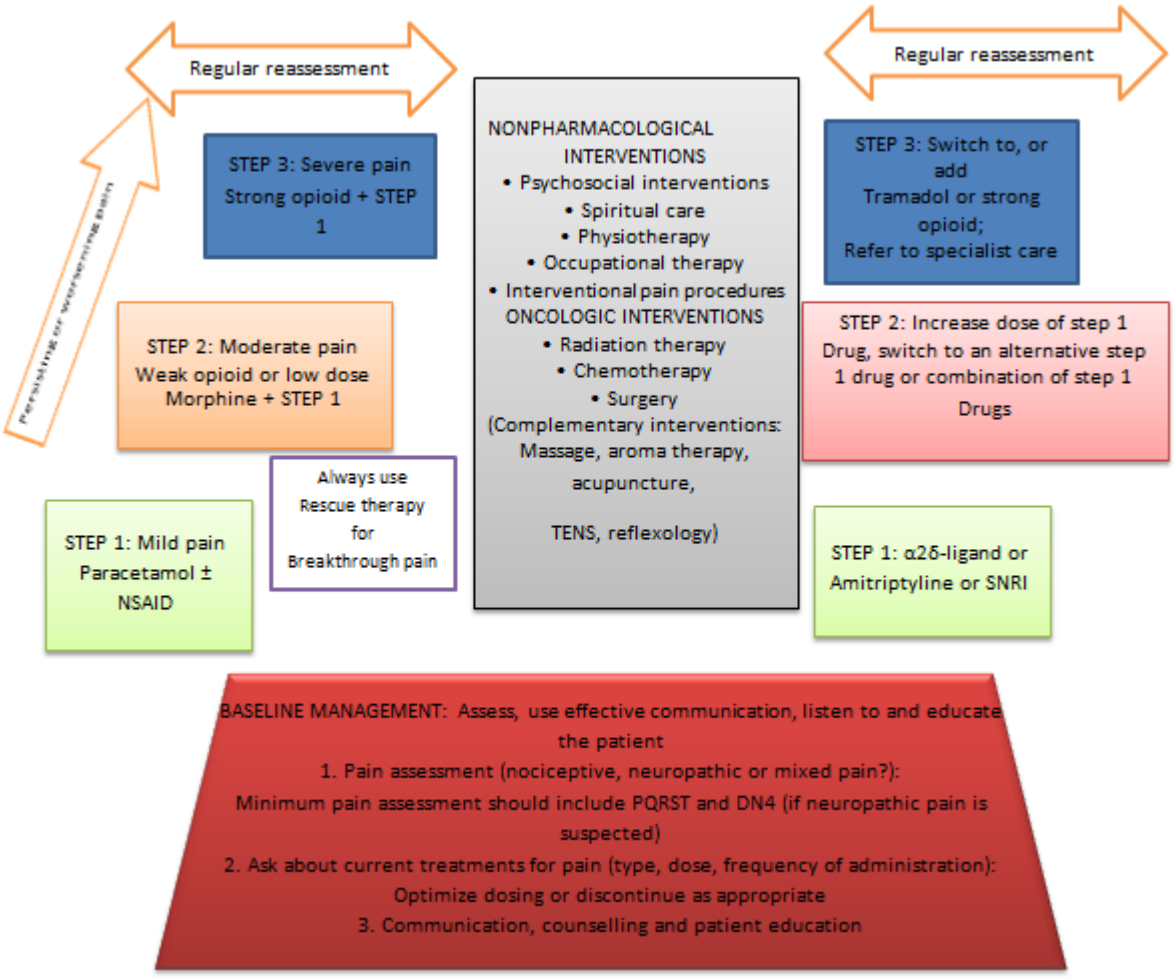
(Ripamonti *et al.*, 2012)

Figure 1. Shows validated rating pain scales.

A study conducted in ten countries of Asia showed that 49.5% of clients complained that their pain is quantified without using any pain scale (Chao *et al.*, 2015). A review of published literature on prevalence of under-treatment of cancer pain showed that about one in two patients were under-treated and proposing need of improvement in cancer pain management (Deandrea *et al.*, 2008)

Figure 2. Pain rating steps and possible interventions

STEPWISE HEALTHCARE INTERVENTIONS FOR PAIN (SHIP)



(South African Cancer Pain Working Group, 2015)

2.6 Barriers toward cancer pain management

A study done in Australia showed that almost 50% of patients with cancer have pain which is undertreated. This is due to some factors, such as low social economic status, older age than 65 years, perception about pain killers and their side effects, health professional knowledge deficit and inadequate pain assessment. Conversely, it also showed overtreatment adverse effects in cancer settings, like difficulty concentrating, sedation, hypogonadism, and opioid misuse, or addiction. This must be reduced by overcoming barriers in cancer pain management which are relate to health care professionals 'poor pain assessment, lack of knowledge and skill, hesitancy to prescribe opioids, to patients 'cognitive factors, affective factors, and adherence; as well as the health care systems 'limited access to opioids, availability of pain and palliative care specialists (Goodwin, Bruera and Stockler, 2014).

There are differences in countries 'management of pain due to barriers faced. For example, the study done by Human Rights Watch in Senegal showed that, in Dakar; accessibility to palliative care is a struggle related to limited supply and shortages of drugs. The researchers found that oral morphine was available in only three national hospitals and some private clinics. During the time of their research, there was a shortage of oral morphine that lasted several months, and some patients were dying in severe pain (Human Right Watch, 2013)

Regarding to these researchers finds, showing gaps mostly in pain assessment which is core in effective management of cancer pain, knowledge deficit about the use of opioids, misconceptions on opioids side effects and subjectivity of patient's pain; little is known about nurses' knowledge, attitudes and practices toward cancer pain management in the University Teaching Hospital of Kigali.

2.7 Theoretical/conceptual framework

This study used Kolcaba's Theory of Comfort that has been developed by Katharine Kolcaba in the 1990s. This theory was chosen because in nursing the patient's comfort is very crucial when nurses are caring for them (Kolcaba, 2001b). Comfort has been defined in the literatures as a state of being strengthened when the human needs for relief, ease, and transcendence (forms of comfort) are experienced in the four contexts: physically, psycho-

spiritually, socio-culturally, and environmentally (Wilson and Kolcaba, 2004). Relief is a state in which client's pain is relieved, ease means that the client is calm and transcendence means that the client rises above pain (Kolcaba, 2001a).

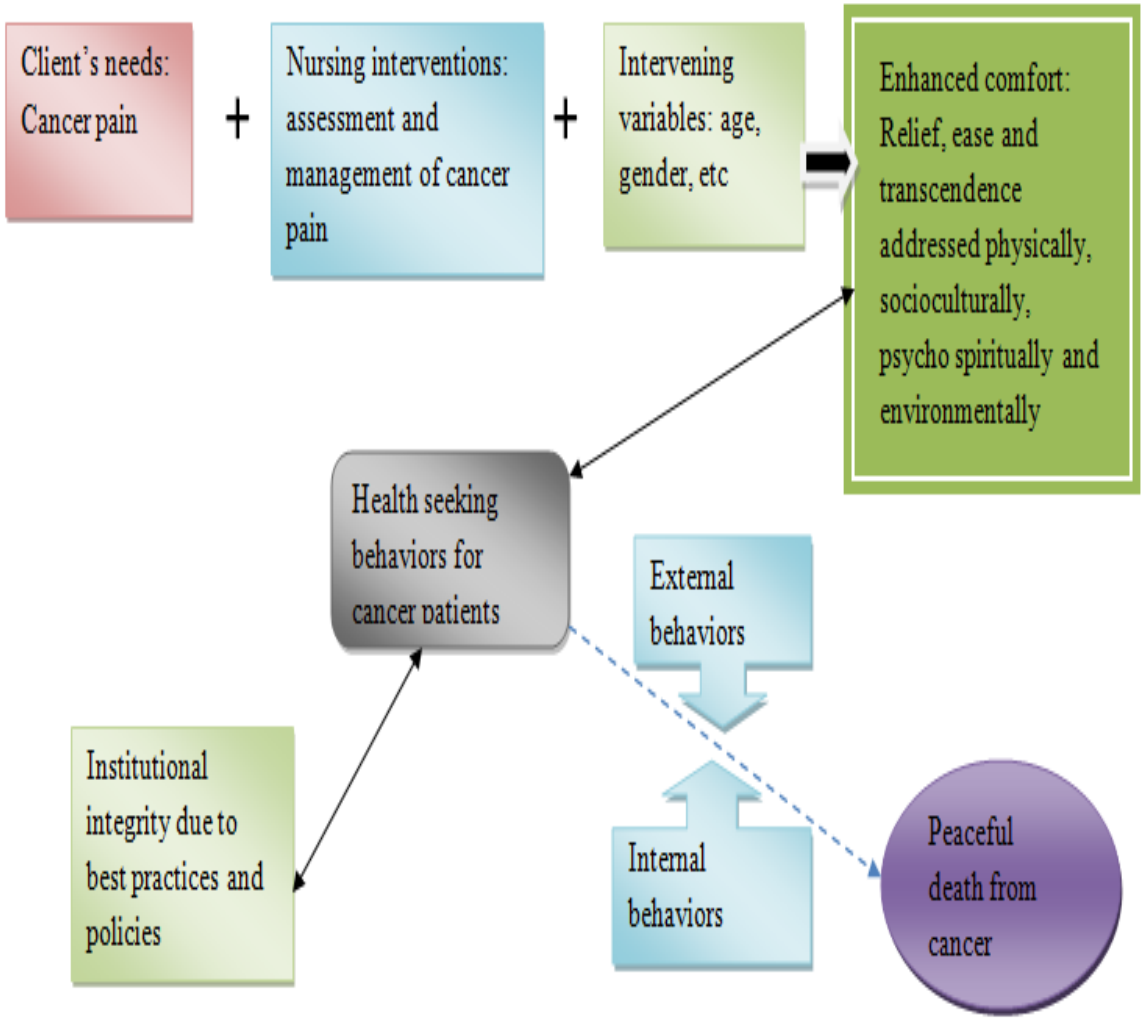


Figure 3. Applied comfort theory

Adapted from Theory of Comfort (Kolcaba, 2001a)

Client's needs are those needs identified by the family or patient in a particular practice setting(Krinsky *et al.*, 2014). Which is represented as client's chief complains such as cancer pain. Those needs are responded by nursing interventions to alleviate pain. This may be influenced by some factors like sex, age, and social support may influence patient's status. All those together will lead to enhanced comfort, relieved pain considering physical,

social cultural, psycho-spiritual and environmental factors. The behaviors and reasons for seeking care depend to institutional integrity whereby best practices and policies are considered by the clients. And finally all those will lead to peaceful death of cancer patient with dignity and free of pain.

Summary: Interventions are successful if enhanced comfort is achieved by patients compared with previous baseline. The immediate patient outcome of enhanced comfort is directly and positively related to patients engaging in health seeking behaviors. When he or she engages in health seeking behaviors, they report high satisfaction in health care. Then, patient high satisfaction leads to greater institutional outcomes and better institutional integrity. Also in order to gain institutional integrity we have to apply best policies and practices which are developed by the institution.

The comfort theory has been proven to be important in nursing practice and also beneficial to set relevant interventions in cardiac patients(Krinsky et al.,2014). Similarly, another study has concluded that nursing care based on comfort theory also improves comfort needs to post caesarian women (Derya and Pasinlioğlu, 2015).

Finally, physical touch to the client increases more trust, family centered care, leisure activities, relationship between client and family. Promoting Comfort, self- esteem, sexuality, self- concept, and faith in God may also be part of the combination of mental, emotional and spiritual support for comfort (Ponte and Da Silva, 2015).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter will be composed by study design, study setting, study population, sampling criteria, sampling method, sample size, data collection instruments, reliability and validity of data collection tools, data analysis and ethical considerations.

3.2. Research design and approach

The study was a cross-sectional, descriptive, quantitative study which investigated nurses' knowledge, attitudes and practices regarding cancer pain management.

3.4. Research setting

This research was conducted at University Teaching Hospital of Kigali (UTHK) which is a referral hospital located in Rwanda, Kigali City, Nyarugenge district, Nyarugenge Sector. This hospital started in 1918. This area was chosen because it is the national referral hospital where cancer patients are referred for diagnostic workup and symptom management.

3.5. Population

The study population was the nurses working in UTHK, from Emergency, Surgical and Medical departments.

3.6. Sampling

3.6.1 Sampling criteria

The study included all registered nurses working in emergency, medical and surgical services with 6 months and more of experience. Every k^{th} consenting nurses to participate.

Then, the study excluded nurses who didn't consent to participate in the study, nurses who have working experience of less than 6 months in the mentioned services and nurses on annual, or sick leave at the time of data collection.

3.6.1. Sample size

- To get the sample size for this study the following formula by (Israel, 1992) will be used:

$$n = \frac{N}{1 + N(e)^2}$$

Therefore,

$$n = \frac{187}{1 + 187(0.05 * 0.05)} = \mathbf{128.08 \cong 128\ nurses}\ \text{(round up)}$$

Non response rate of 10% = 12.8≈13

Adding a 10 % non-response rate gave the required minimum sample size 141 of participants.

3.6.2. Sampling strategy

A proportionate systematic sampling technique was used to select participants. The list of them was taken advantage. Choosing of a study unit (nurses), the starting point was randomly identified then every k^{th} item from the list was selected where "k" refers to the sampling interval. In this case, *k*= (population size/sample size).

The proportions of the sample by department are distributed as follow:

Table 3.1.The proportion of the sample by department

Department	Population	Sample
Emergency	37	28
Medical	83	63
Surgical	67	50
Total	187	141

3.7. Data Collection

3.7.1. Data Collection instruments

This study used a structured interview questionnaire adopted with permission from the pain audit tool developed basing on current standards of pain management such as the American Pain Society, the World Health Organization, and the National Comprehensive Cancer Network Pain (Ferrel and McCaffery, 2014).

This questionnaire is composed of 39 questions and their correspondent responses measuring knowledge and attitudes survey regarding pain which helped the investigator to measure the levels of knowledge, attitudes and practices of nurses toward cancer pain management at Kigali University Teaching Hospital and the questions regarding practices were added through supervisors and expert guidance. The questionnaire was translated into French to facilitate those using French. Kinyarwanda questionnaire was not used because even nurses reported to the investigator that it is not easy for them to understand medical terms in Kinyarwanda. The questions relating to training of health professionals especially nurses, use of assessment tool, use of pharmacologic and non-pharmacologic interventions in managing cancer related pain were selected and items about practices were added for this investigation.

Validity and reliability of the instrument

To ensure validity of the tool in context of Rwanda, the tool have given to the expert in nursing to review the questionnaire in terms of visibility, clarity and if it measure what the objective of the study intended to measure. After the expert review, to ensure its reliability, the tool was given to 15 nurses to be completed. After completion the data were entered into SPSS and internal consistency reliability was computed and 0.79 Cronbach's Alpha was obtained which is acceptable value for internal consistency reliability (Andale, 2016)

3.7.2. Data collection procedure

This investigation required the institutional review board (IRB) approval from the University of Rwanda/ College of Medicine and Health sciences. The permission to conduct the investigation was obtained also from the UTHK research committee. Then, after getting those approvals, the investigator approached each department in charge informing them what is happening and ask permissions to contact nurses who they are responsible for. After this, the investigator contacted nurses and distributed questionnaires using the list whereby every k^{th} nurse was chosen. A structured questionnaire was used in collecting data.

3.8. Data analysis

Data entry was performed using software package for statistical analysis (SPSS) version 23. The analysis of the data will use descriptive statistics (frequencies, percentage, and mean standard deviation) and inferential statistics with a statistic assistant help. The results were presented in graphs and tables where necessary.

3.9. Ethical considerations

The research proposal was examined and approved by the Research Ethical Committee of the University of Rwanda College of medicine and health sciences. The permissions to conduct this study were received from the research committee of the University Teaching Hospital of Kigali.

The consent was obtained from the study participants before being included into the study and the study aim was clearly explained to those who agreed to participate. The researcher guaranteed the participants that their information was kept confidential and that there will not be harm for effects to participants.

3.10. Data management

The collected data hard copy questionnaires were safely kept in a locked cupboard; soft data were kept on computer with strong password and disseminated only to the concerned people with anonymity by assigning initials on the questionnaire. Furthermore, all documents for the study will be destroyed after 5 years of study completion.

3.11. Data Dissemination

The report will be submitted to the University of Rwanda for partial fulfillment of masters in Sciences in Nursing. The final report will also be submitted to University Teaching Hospital of Kigali and for patient care quality improvement, capacity building and acknowledgement of facilitation in this study. For MOH, it will create baseline data to health systems with the purpose to produce evidence based interventions in form of continuous training and workshops to improve nurses' knowledge, attitudes and practices toward pain management among patients with cancer

CHAPTER 4: PRESENTATION OF RESULTS AND THEIR INTERPRETATION

The purpose of this investigation was to assess nurses' knowledge, attitudes and practices towards cancer pain management in UTHK. The investigator utilized a cross-sectional quantitative design to achieve the research objectives. A validated survey called the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKAS) was the instrument used to examine the knowledge and attitudes and practices of the respondents in the area of pain and its management. The following chapter will present a comprehensive summary of the results and findings from the current research study. The first section of the results gives an outline of the demographic characteristics of the respondents within UTHK in three departments: emergency, surgical, and medical. Descriptive statistics of the respondents' demographic profile are presented. These characteristics included the respondents' gender, department, and level of education and in-service experience. Afterward, the analysis of demographic characteristics will be illustrated. Then, the results from the analysis of the NKAS tool will be examined and illustrated.

Analysis was performed to determine the results of the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKAS) with a hundred forty completed surveys (n=140). The NKAS tool is divided into three different sections consisting of a total number of 22 items.

Section 1: NKAS item numbers 1-12 comprised statements in which the respondent had to indicate by circling the believed correct statement.

Section 2: NKAS item numbers 13-19 of the tool presented questions on respondent's attitudes.

Section 3: NKAS item numbers 20-22 comprised multiple choice questions in which the respondent must choose one answer for each of the fourteen questions.

4.1 Demographic information

Demographic data in this present study consisted of gender, departments where the respondent was working in at the time of the study, his or her highest level of education, in service experience.

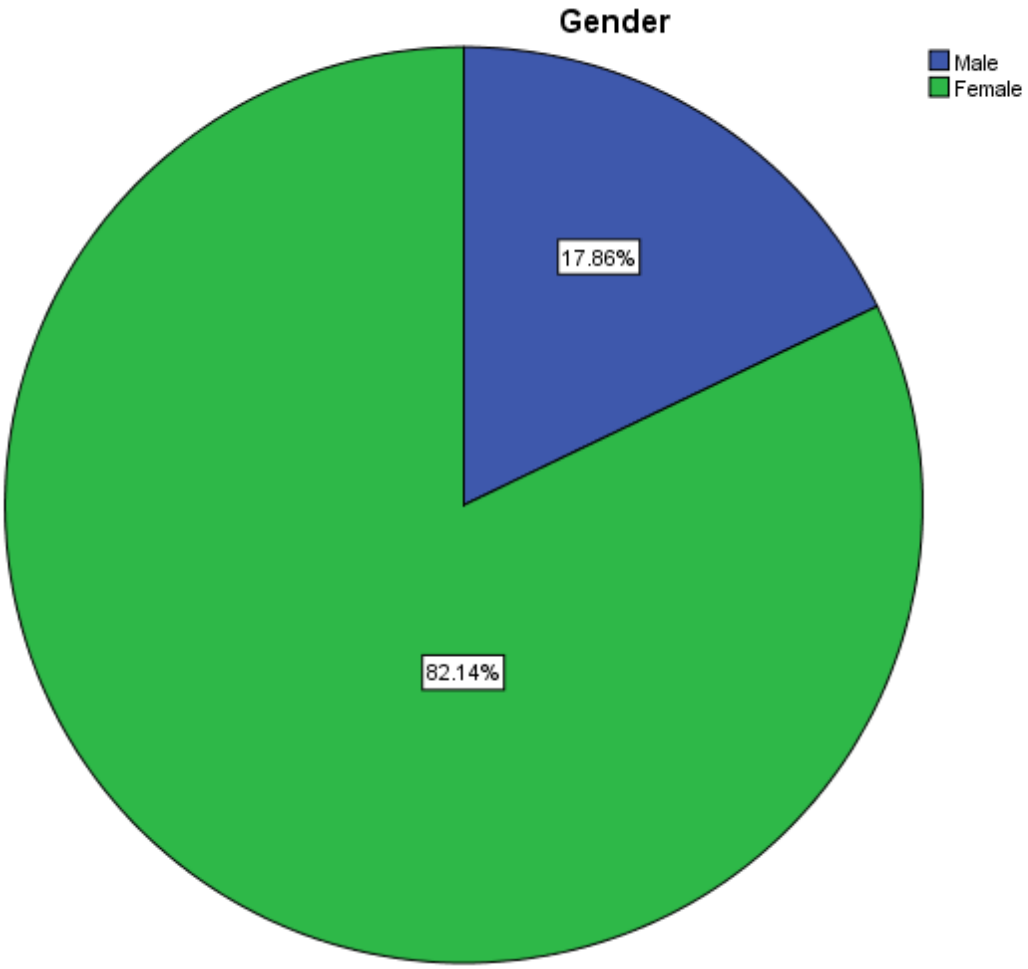


Figure 4. 1. 1 Gender

The above figure showed that among participants of emergency, medical, and surgical departments, the majority 82.14% was females and the minority was males 17.86%.

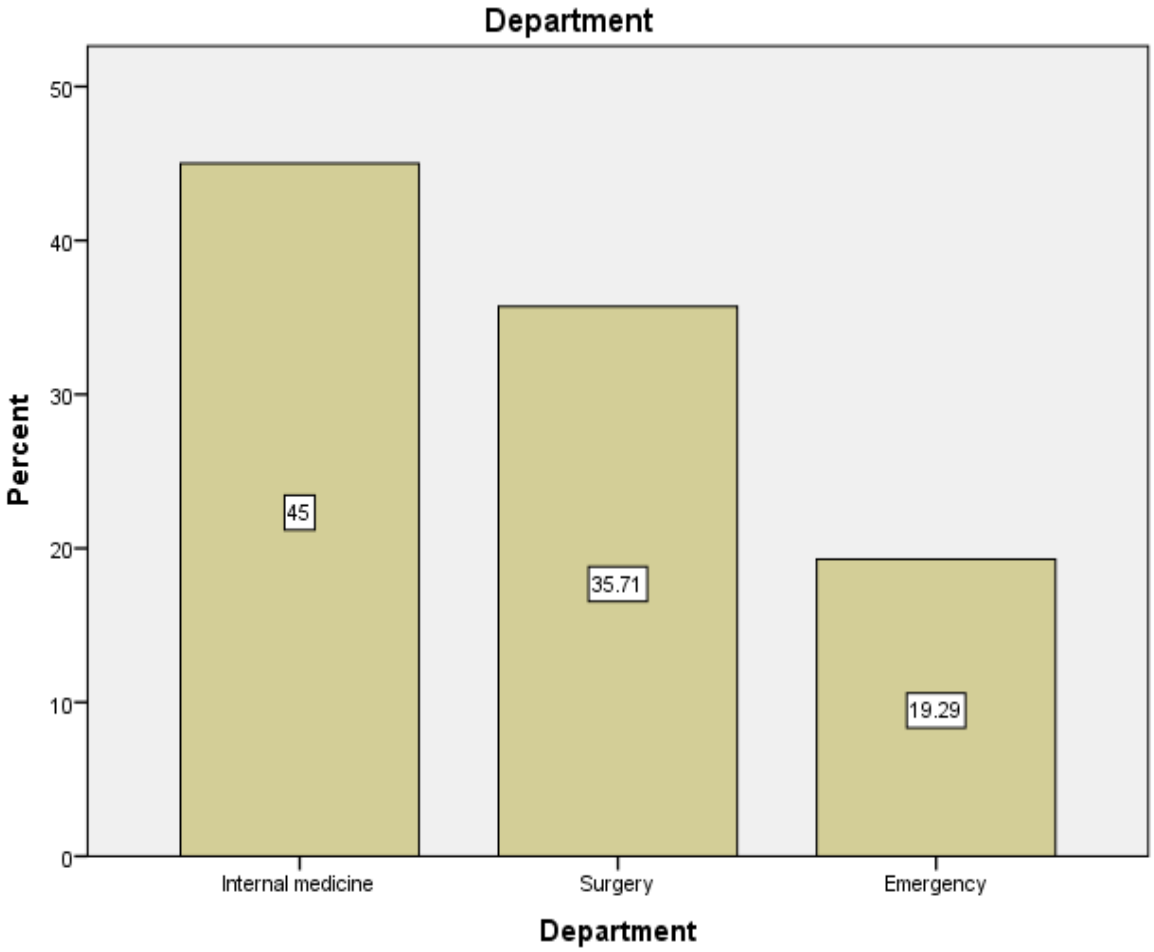


Figure 4. 1. 2. Department

This figure showed that among respondents 45.0% were in medical, 35.71% in surgery (35.71%), and 19.23% in emergency department.

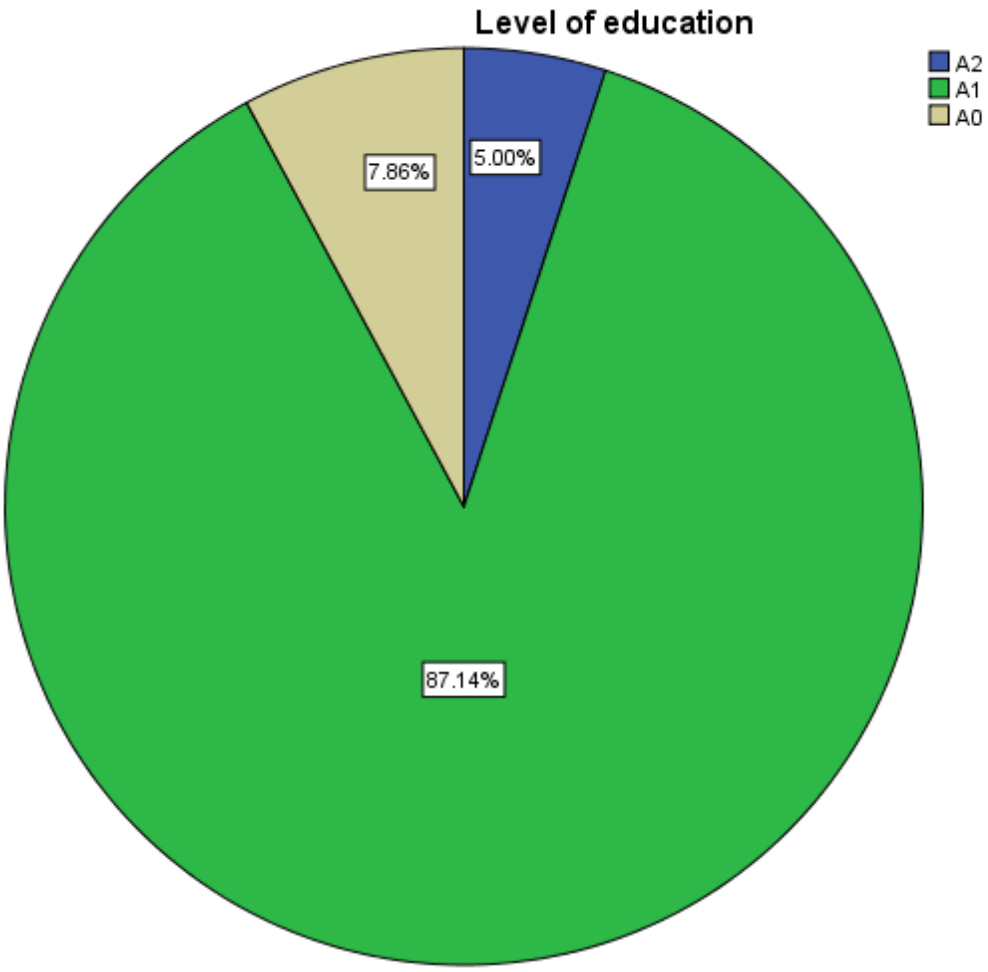


Figure 4. 1. 3 Level of Education

In UTHK, nurses have a mixture of advanced diploma 87.14%, bachelor's degree 7.86%, and those who completed secondary education 5.0%.

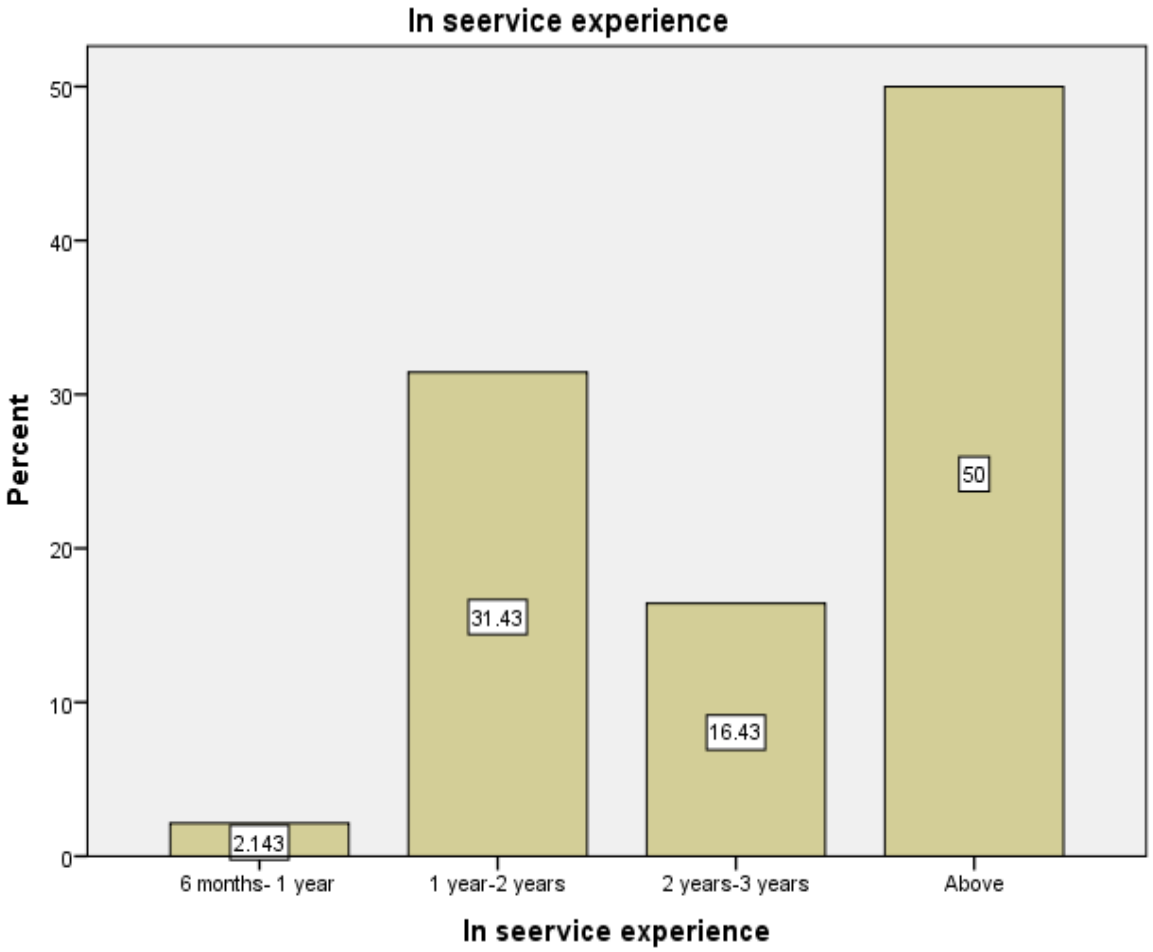


Figure 4.1.4 in service experience

About in service experience, among respondents 6 months-1 year were 2.143%, 1 year-2 years 31.43%, 2 years-3 years 16.43% and above 50.0%.

4.2 Knowledge of nurses towards cancer pain management

Table 4.2 Knowledge of nurses towards cancer pain management

Variables	Frequency	Percent
Formal training on pain management		
Yes	97	69.3
No	43	30.7
If the source of the patient's pain in unknown, opioids are contraindicated		
Yes	86	61.1
No	54	38.6
Participant who asses pain using numerical scale		
Yes	131	93.6
No	9	6.4
Recommended route of administration of opioid for cancer patients pain		
Intravenous	42	30.0
Intramuscular	22	15.6
Oral	76	54.3
Analgesic of choice for prolonged, moderate severe pain for cancer patients		
Codeine	6	4.3
Morphine	97	69.3
Meperidine	6	4.3
Tramadol	31	22.1
The likelihood of developing respiratory depression in the absence of new comorbidity while receiving morphine IV		
Less than 1%	45	32.1
1-10%	56	40.0
11-20%	14	10.0
21-40%	23	16.4
Don’t know	2	1.5
The time to peak effect for morphine given IV		
15 minutes	96	68.6
45 minutes	18	12.9
1 hour	22	15.7
2 hours	4	2.9
The time to peak effect for morphine given orally is		
5 minutes	4	2.9
30 minutes	77	55.0
1-2 hours	52	37.1
3 hours	7	5.0

The table 4.2 above summarizes the participant knowledge toward cancer pain management. The results show that out of 140 interviewed 97(69.3%) was trained on cancer pain management. When looking at the source of pain, participants responded that when the source of pain is unknown, 61.8% of them responded that opioids should not be used during pain evaluation period. While 131(93.6%) assess pain using numerical scale reporting that 0= no pain and 10= worst pain/ discomfort. Regarding the recommended route of administration of opioid analgesics for patients with persistent cancer-related pain, more than a half 76(54.3%) responded oral route. Concerning the analgesic medications which is considered as the most choices 97(69.3%) to treat the prolonged, moderate to severe pain for cancer patients, are morphine.

Study participants were also asked the likelihood of developing respiratory depression in the absence of new comorbidity while receiving morphine IV, only 45(32.1%) reported less than 1%.In terms of pharmacological cancer pain the question about how to estimate time in which it takes for opioid morphine to reach peak its effect if administered intravenously (IV) most of the participant 96(68.6%) respond that it takes approximately 15 minutes. About morphine oral administration only 52 (37.1%) identified that it takes an estimated 1-2hours to attain peak effect.

4.3 Attitude of nurses towards cancer pain management

Table 4.3 attitude of nurses towards cancer pain management

Variables	Frequency	Percent
Pain relief is an essential part of care for patients with cancer		
Strongly agree	87	62.1
Agree	25	17.9
Disagree	20	14.3
Strongly disagree	8	5.7
Moderate or severe pain can be relieved with non-opioid medicine		
Strongly agree	15	10.7
Agree	39	27.9
Disagree	60	42.9
Strongly disagree	26	18.6
Severity of patients' pain can be determined without asking the patient		
Strongly agree	53	37.9
Agree	37	26.4
Disagree	32	22.9
Strongly disagree	18	12.8
Distracted patients from pain usually do not have severe pain		
Yes	87	62.1
No	53	37.9
Frequency of assessment of pain in patient with cancer		
Once a day	6	4.3
Three times per day	50	35.7
Four times per day	29	20.7
Six times per day	15	10.7
When called by the patient or care taker	40	28.6
The accurate judge of patient's pain intensity		
The treating physician	16	11.4
The patient's primary nurse	39	27.9
The patient	79	56.4
The patient spouse or family member	6	4.3
Treatment of pain in cancer patients with constant pain		
I treat only when patient complains of pain	25	17.9
I give pain medication on regular basis	83	59.3
I use other nondrug modalities	24	17.1
No treatment, only reassurance	8	5.7
A combination of opioids and NSIAD is better for pain control and fewer side effects?		
Yes	92	65.7
No	48	34.3
Sterile water by injection (placebo) is useful to determine real pain		
Yes	85	60.7
No	55	39.3

In table 4.3, regarding attitude of respondents towards cancer pain management, responses were rated using a 4-point Likert scale. Pain relief is an essential part of care for patients with cancer, the majority strongly agreed to that 87(62.1%) and agree was 25 (17.9%). 60(42.9%) disagreed that moderate or severe pain usually can be relieved adequately with non-opioid medicine. Although, 53(37.9%) of participant strongly agreed that they can determine the severity of patient's pain without asking the patients and 87(62.1%) agreed that the patient who can be distracted from pain usually do not have severe pain.

As regard on how often the nurse assesses pain in patient with cancer, only 15(10.7%) do it six times per day and the majority three times a day 50(35.7) Among respondents 87(62.1%) reported that usually patients who can be distracted from pain usually do not have severe pain while 53(37.9%) did not report it. Furthermore, 79(56.4%) responded reported that the most accurate judge of the intensity of the patient's pain is the patient, and surprisingly the patient spouse or family member was reported by 6 (4.3%). Reassurance is made by that 83(59.3%) treat cancer pain on regular basis and erroneously 8(5.7%) reported no treatment, only reassurance. Then Only 48(34.3%) respondents did not accept the combination of analgesic agents for optimal effectiveness with fewer side effects. Though, a big number of respondent 92(65.7%) correctly identified that the approach of combining analgesics that work by different mechanisms may result in better for pain control with fewer side effects than using a single analgesic agent. Among respondents, those who reported that giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real, were 85(60.7%).

4.4 Practice of nurses towards cancer pain management

The below table 4.4 describe participants response regarding cancer pain management.

Table 4.4 Practice of nurses towards cancer pain management

Variables	Frequency	Percent
Use of pain assessment tool in daily practice in assessing pain		
Yes	107	76.4
No	33	33.6
Re-evaluate pain after giving pain medication		
Yes	135	96.4
No	5	3.6
Give education about pain medication and their side effects		
Yes	122	87.1
No	18	12.9

The above table showed that 107 (76.4%) of respondents accepted that they use pain assessment tool in their daily practice while assessing for pain. However, almost all 135 (96.4%) re-evaluate pain after giving pain medication. And 122(87.1%) of participants educate patients with cancer pain about the use of pain medication and their side effects.

4.5 Relationship between in-service experience and attitudes

Table 4.5 Association between experience and giving patients sterile water by injection (placebo)

Variable	chi-square test	P-values	OR	CI95%	P-value
experience service (6months-1 years)			1		
experience (2-3 years)	14.422	0.001	0.101	0.022-0.463	0.003

Results of the association between experience and giving patients sterile water by injection showed that those who reported a working experience of two to three years have 89.9% reduction in the odd of giving patient sterile relative to those who reported having an experience of 6 months-1 year.

4.6 Conclusion

This chapter has presented the research findings on the analysis of data collected from this present study undertaken in UTHK. This study has revealed areas of weaknesses with regard to nurses' knowledge, attitudes, and practices regarding cancer pain management. Misconceptions and knowledge deficits with regard to some basic principles of pain management were identified and will be further discussed in detail in the next chapter. An account of the limitations of this study and recommendations for practice and future research will also be presented.

CHAPTER 5: DISCUSSION

5.1. Introduction

This study sought to establish the baseline level of knowledge, attitudes and practices regarding cancer pain of nurses working in UTHK. This chapter will present a detailed discussion of the findings originating from the present research analysis. An evaluation of findings of the study will be long-drawn-out on, making reference and comparisons to previously published work. The implications of the research findings and recommendations for future research and educational initiatives will be made.

The findings of this study will be presented in light of previously published work conducted by other researchers in order to purposefully discover and compare this phenomenon from a broader perspective.

5.2. Demographic data of respondents

This study involved 140 nurses working in emergency, surgical and medical departments of UTHK with response rate of 99.3%. A majority of the participants were females representing 82.14%, followed by males representing 17.86%. These findings contrast a study conducted in Korea among physicians and nurses with a nationwide multicenter survey, which revealed that among physicians the majority were males (61.5%) and surprisingly the total number of nurses who participated in that study were females (100%) (Jho *et al.*, 2014) . However, a study carried out in a tertiary hospital of Nepal by (Man and Shakya, 2016) assessing Knowledge and Attitude of Nurses on Pain Management showed that a big number of respondents were holding advanced diploma(Certificate Nursing) (45.9%). This is similar to our study demographic data of level of education whereby the majority of our participants were holding advanced diploma (87.1%) also.

5.3. Knowledge and attitudes of nurses towards cancer pain management

This study showed that there is knowledge deficit regarding opioid use 52 (37.1%) of the respondents mentioned that it takes an estimate of 1-2 hours for oral morphine. This result agrees with a study conducted by (Man and Shakya, 2016) in Nepal which states that most of the nurses had even less knowledge of the peak effect of oral morphine (20%). Therefore, they should be well oriented on pharmacology and safe use of opioids because this may be cause of using intravenous rout only and the preferable route for cancer patients is oral as they have persistent pain. Similar to this, another study carried out in Saudi Arabia reported inadequate knowledge and attitudes regarding pain management with the target of improving pain management practices in one region (Hail Region Hospitals) of Saudi Arabia and nursing health care to (Hamdan, 2012) and another one conducted in Jordanian Nurses concluded that there was a deficit in knowledge and attitude and showed nurses underestimation and under-treatment of patients' pain. For example, in that study the participants who reported that the most accurate judge of pain is the patient, represented 28.5% (D'emeh *et al.*, 2016). But a study done by (Alexander, 2016) showed that the mean scores of the participants' knowledge and attitudes were improved.

The findings showed that the mainstream (61.1%) of the respondents knew that if the source of pain is unknown, opioids are contraindicated as this could mask the ability to diagnose the cause of pain. These results contrast with the findings of a study conducted by (Jost and Roila, 2010) which revealed that patient's pain has to be managed during diagnosis process, and patients with cancer must accomplish adequate pain relief.

A substantial number of respondents in this study incorrectly answered the item where 87(62.1%) mistakenly thought patients who can be distracted from pain usually do not have severe pain. This was similar to (Craig, 2014) study which showed that 89.2% of nurses believe like that also. This study revealed a negative attitude of nurses regarding pain management. Above a half of them (56.4%) correctly accepted that the accurate judge of pain intensity is the patient himself. Yet, the majority of them 64.3% incorrectly agreed that a nurse can determine the severity of patient's pain without asking him or her. This is supported by (Jost and Roila, 2010) who stated that the severity of patient's pain is best

evaluated by his or her self-report. Also (Kassa and Kassa, 2014) noted that only 13% used the required time for pain assessment, which is every 4 hours of 6 times a day. Similarly this study discovered that only 10.7% of respondent are assessing pain regularly for cancer patients.

Furthermore, 60.7% in this research agreed that placebo injection is a useful tool to decide whether patient on pain or not. This is similar to a study of (Hasan and Ali, 2015) which found that 66.7% of their respondents agreed that also; But unlike results Craig (2014), who showed that 86.3% disagreed the use of placebo in assessing real pain. This is considered as negative attitude because the accurate judge of pain is the patient.

5.4. Practices of nurses regarding cancer pain management

In this study respondents (76.4%) reported that they use pain assessment tool in their daily practice while assessing pain. This is different from a study done in Ethiopia by (Kassa and Kassa, 2014) which showed that the majority of nurses (61%) were not using pain assessment tool to evaluate the intensity and severity of pain for their patients. Though, pain is well assessed using pain assessment tool. If pain is inadequately assessed, this may lead to ineffective pain management (Koch, 2012).

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

This study provides insight into knowledge, attitudes and practices regarding cancer pain management among nurses at UTHK. It is the study of its kind conducted in this setting. The findings revealed some knowledge deficits and misconceptions about pain assessment and management in cancer patients, suggesting that pain is being inappropriately managed in this setting. In this study, the majority of nurses who responded had been trained about pain management. They lack positive attitudes and ability to apply the training received. Therefore, the findings of this study identified knowledge gaps, misconceptions and bad practices regarding cancer pain management.

The following have revealed areas of particular weaknesses regarding pharmacological knowledge, whereby the item stating that respiratory depression in the absence of new comorbidity while receiving morphine IV, only 32.1% responded less than 1%, which is the correct answer. And knowledge deficits of less than half of the respondents 37.1% identified that it takes an estimated 1-2hours for oral morphine to attain peak effect. Then the majority of respondents believe that nurses can determine the severity of patients' pain without asking him or her whereby 64.3% agreed to that. Again, 62.1% mistakenly thought that patients who can be distracted from pain usually do not have severe pain and only 10.7% assess pain six times per day. This determines a negative attitudes regarding pain management.

5.2 RECOMMENDATIONS

5.2.1. To the MOH/RWANDA

This study should be simulated nationwide in order to create baseline data at all levels of our health system with the purpose to produce evidence based interventions in form of continuous training and workshops to improve nurses' knowledge, attitudes and practices toward pain management among patients with cancer. Moreover, we advocate for the foundation of hospice and palliative care settings where cancer patients can benefit from complete palliative care, among others: adequate pain and symptom management because a negative attitudes toward cancer pain management might also be due to many duties with

many different patients with different needs to reply to. This is supported by Jonathan, 2014 reporting that hospices are reflected as chosen in cancer pain management which has many strategic goals in which one is to provide patients with pain a free death.(Jonathan, 2014)

5.2.2. To the hospital (UTHK)

Departments and hospital administrators should be committed to effective pain management by developing and monitoring standard and guidelines for pain management for staff nurses mostly by enhancing their competences. In addition, they should improve the process of assessing and treating pain.

5.2.3. Implication for nursing education

The existing nursing curriculum should be modified and should incorporate topics on pharmacologic and non-pharmacologic methods of cancer pain management. Nurses in mentioned wards should be familiar with updated information on cancer pain management from the WHO, cancer societies and other health related organizations.

5.2.4. To other researchers

Given that this study used a cross-sectional design, there is need for other researchers to undertake the same study at several points in time in order to conclude whether there are any factors which may influence nurses' knowledge, attitudes, and practices regarding pain management.

Moreover, the discoveries of this study propose the following further studies:

The same study might be done involving nurses from different settings so that the findings may be generalizable.

Research should be done to assess the knowledge, attitude and practices of nurses on cancer pain management, and the barriers to observe possible improvement in the hospital.

Replication of this study using qualitative approach in order to deeply explore nurses' attitudes regarding cancer pain management.

5.3 LIMITATIONS OF THESTUDY

The researcher met the problem of language where it was necessary to translate the tool in French. There were also a problem of financial support for transport and printing issues. Even though, like others, this study has some limitations among others:

Use of cross-sectional design, though it was the best mean for approaching phenomenon under investigation, small sample size to generalize the findings, study done in one hospital with mainly descriptive statistics than inferential.

REFERENCES

Alexander, S. (2016) ‘A Project to Improve Nurses ’ Knowledge of , and Attitudes Towards , Pain Management at End of Life’, pp. 1–43. Available at: http://digitalcommons.gardner-webb.edu/cgi/viewcontent.cgi?article=1008&context=nursing_etd.

American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine (2010) ‘Practice Guidelines for Chronic Pain Management’, *Anesthesiology*, 112(4), pp. 1–24. doi: 10.1097/00000542-199704000-00032.

Andale (2016) ‘Internal Consistency Reliability: Definition’. Available at: http://www.statisticshowto.com/internal-consistency/.

Chao, T. C., Ho, K. Y., Tho, L. M., Xia, Z., Ward, L. and Moon, H. (2015) ‘Current practices in cancer pain management in Asia: a survey of patients and physicians across 10 countries’, *Cancer Medicine*, 4(8), pp. 1196–1204. doi: 10.1002/cam4.471.

Craig, J. A. (2014) ‘Nursing Knowledge and Attitudes toward Pain Management’, pp. 1–71. Available at: http://digitalcommons.gardner-webb.edu/cgi/viewcontent.cgi?article=1008&context=nursing_etd.

D’emeh, W. M., Yacoub, M. I., Darawad, M. W., Al-Badawi, T. A. and Shahwan, B. (2016) ‘Pain-Related Knowledge and Barriers among Jordanian Nurses : A National Study’, 8, pp. 548–558. doi: doi.org/10.4236/health.2016.86058.

Deandrea, S., Montanari, M., Moja, L. and Apolone, G. (2008) ‘Prevalence of undertreatment in cancer pain. A review of published literature’, *Annals of Oncology*, pp. 1985–1991. doi: 10.1093/annonc/mdn419.

Derya, Y. A. and Pasinlioğlu, T. (2015) ‘The Effect of Nursing Care Based on Comfort Theory on Women’s Postpartum Comfort Levels After Caesarean Sections’, *International journal of nursing knowledge*. doi: doi:10.1111/2047-3095.12122.

Ferrel, B. R. and McCaffery, M. (2014) ‘Knowledge and Attitudes Survey Regarding Pain’, pp. 1–10. doi: 10.1089/jpm.2007.9828.

Foley, K. M. (2013) 'The Problem of Mixed Pain in Patients with Cancer', pp. 1–64.

Goodwin, P. J., Bruera, E. and Stockler, M. (2014) 'Pain in patients with cancer', *Journal of clinical oncology*, 32(16), pp. 1637–1639. doi: 10.1200/JCO.2014.55.3818.

Gustafsson, M. and Gunilla, B. (2013) 'Can a theory-based educational intervention change nurses ' knowledge and attitudes concerning cancer pain management ? A quasi-experimental design', pp. 5–10. doi: doi:10.1186/1472-6963-13-328.

Hamdan, A. (2012) 'Nurses ' Knowledge Regarding Pain Management in Hail Region Hospitals , Saudi Arabia', pp. 41–46. Available at: https://www.westeastinstitute.com/wp-content/uploads/2012/10/ZG12-149-Hamdan-Albaqawi-Full-Paper.pdf.

Hasan, Y. S. and Ali, N. H. (2015) 'Nurses ' knowledge and attitudes toward pain assessment and management for adult sickle cell disease patients during sickling crisis', 3(4), pp. 1–8. doi: 10.5430/cns.v3n4p36.

Hassan, A., Allam, A., Kindi, S. A., Zeinah, G. A., Eziada, S. and Bashir, A. (2014) 'Knowledge , Attitudes and Practices of Oncology Nurses towards Complementary and Alternative Medicine for Cancer Care in Qatar', *J Anesth Clin Res*, 5(12). doi: 10.4172/2155-6148.1000477.

Human Right Watch (2013) *Abandoned in agony Cancer and the Struggle for Pain Treatment in Senegal*. Available at: https://www.hrw.org/sites/default/files/reports/senegal1013_forinsert_ForUpload.pdf.

International Association for the Study of Pain (2012) 'IASP Taxonomy'. Available at: https://www.iasp-pain.org/Taxonomy.

Israel, G. D. (1992) *Determining Sample Size*. University of Florida.

Jho, H. J., Kim, Y., Kyung, A. K., Hyun, K. D., Young, C. J., Jeong, N. E., Sujin, K., Hwang, K. O., Kyung, B. S. and Jung, P. E. (2014) 'Knowledge, practices, and perceived barriers regarding cancer pain management among physicians and nurses in Korea: A nationwide multicenter survey', 9(8), pp. 1–7. doi: 10.1371/journal.pone.0105900.

Jonathan, S. (2014) 'The Challenges of Cancer Pain Assessment', *Ulster Med J*, 83(1), pp. 44–46. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3992093/pdf/umj0083-0044.pdf.

Jost, L. and Roila, F. (2010) 'Management of cancer pain: ESMO Clinical Practice Guidelines', *Annals of Oncology*, 21(5), pp. 1–4. doi: 10.1093/annonc/mdq224.

Kassa, N. R. and Kassa, M. G. (2014) 'Nurses' Attitude, Practice and Barriers toward Cancer Pain Management, Addis Ababa, Ethiopia', *Journal of Cancer Science & Therapy*, 6(12), pp. 483–487. doi: 10.4172/1948-5956.1000312.

Kimeto, P. and Odhiambo, E. (2011) 'Nurses' attitudes and perceptions towards pediatric oncology patients in relationship to the quality of nursing care they provide: a case study of Kenyatta National Hospital.', *Baraton Interdisciplinary Research Journal*, 1(2), pp. 31–44.

Koch, K. (2012) 'Neuropathic pain in primary care', *South African Family Practice*, 54(1), pp. 21–24. doi: 10.1080/20786204.2013.10874344.

Kolcaba, K. (2001a) 'Evolution of the mid range theory of comfort for o...: Full Text Finder Results', *Nursing outlook*, 49(2), pp. 86–92. doi: 10.1067/mno.200L.

Kolcaba, K. (2001b) 'Kolcaba's Theory of Comfort.', in *Core Concepts of advanced nursing practice*. St. Louis: Mosby, pp. 418–422.

Krinsky, R., Murillo, I. and Johnson, J. (2014) 'A practical application of Katharine Kolcaba's comfort theory to cardiac patients', *Applied Nursing Research*, 27(2), pp. 147–150. doi: http://dx.doi.org/10.1016/j.apnr.2014.02.004.

Man, S. B. and Shakya, S. (2016) 'Knowledge and Attitude of Nurses on Pain Management in a Tertiary Hospital of Nepal', *International Journal of Nursing Reasearch and Practice*, 3(1), pp. 3–8. Available at: https://www.researchgate.net/profile/Sujata_Shakya/publication/313478880_Knowledge_and_Attitude_of_nurses_on_pain_management_in_a_Tertiary_Hospital_of_Nepal/links/589c5e75458515e5f4583932/Knowledge-and-Attitude-of-nurses-on-pain-management-in-a-Tertiary-Hospital-of-Nepal.pdf.

Ministry of Health (2012) ‘Pain management guidelines’, pp. 1–49. Available at: www.moh.gov.rw%0APain.

National Cancer Institute (2015) ‘What is Cancer?’ Available at: https://www.cancer.gov/about-cancer/understanding/what-is-cancer.

Nuseir, K., Kassab, M. and Almomani, B. (2016) ‘Healthcare Providers ’ Knowledge and Current Practice of Pain Assessment and Management’, 2016, pp. 1–8. doi: org/10.1155/2016/8432973 Research.

Paez, B. A., Charnay-Sonnek, F., Fonteyne, V. and Papaioannou, E. G. (2013) ‘Guidelines on Pain Management & Palliative Care’, *European Association of Urology*, pp. 1–96. Available at: https://uroweb.org/wp-content/uploads/24_Pain_Management_LR.pdf.

Paice, J. A. and Ferrell, B. (2011) ‘The Management of Cancer Pain’, *A Cancer Journal for Clinicians*, 61(3), pp. 157–182. doi: 10.3322/caac.20112.

Ponte, K. M. D. A. and Da Silva, L. D. F. (2015) ‘Ponte, K.M.D.A. & Da Silva, L.D.F., 2015. Comfort as a result of nursing care: an integrative review.’, *Journal of Research Fundamental Care*, 7(2), p. 2603. doi: 10.9789/2175-5361.2015.v7i2.2603-2614.

Portenoy, K. R. and Dhingra, K. L. (2016) ‘Assessment of cancer pain’, pp. 1–5. Available at: http://www.uptodate.com/contents/overview-of-cancer-pain-syndromes.

Registered Nurses’ Association of Ontario (2013) ‘Assessment and Management of Pain’, pp. 1–105. Available at: http://rnao.ca/sites/rnao-ca/files/AssessAndManagementOfPain.

Ripamonti, C. I., Santini, D., Maranzano, E., Berti, M. and Roila, F. (2012) ‘Management of cancer pain : ESMO Clinical Practice guidelines’, *Annals of Oncology*, 23(Supplement 7). doi: 10.1093/annonc/mds233.

Shahnazi, H., Saryazdi, H., Sharifirad, G., Hasanzadeh, A., Charkazi, A. and Moodi, M. (2012) ‘The survey of nurse ’ s knowledge and attitude toward cancer pain management : Application of Health Belief Model’, 1(July), pp. 1–4. doi: 10.4103/2277-9531.98573.

Shute, C. (2013) ‘The challenges of cancer pain assessment and management’, *Ulster*

Medical Journal, 82(1), pp. 1–6. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3632849/pdf/umj0082-0040.pdf.

Size, M., Soyannwo, O. A. and Justins, D. M. (2007) 'Pain management in developing countries', 62, pp. 38–43. doi: 10.1111/j.1365-2044.2007.05296.x.

South African Cancer Pain Working Group (2015) *Guide to the Treatment of Cancer Pain in South Africa*. Available at: https://painsa.org.za/wp-content/uploads/2016/02/A5-Guide-to-treatment-of-Cancer-Pain-2015.pdf.

Syrjala, K. L., Jensen, M. P., Elena, M. M., Yi, J. C., Fisher, H. M. and Keefe, F. J. (2014) 'Psychological and behavioral approaches to cancer pain management', *Journal of Clinical Oncology*, 32(16), pp. 1703–1711. doi: 10.1200/JCO.2013.54.4825.

Victor, T. C. (2016) 'Approach to symptom assessment in palliative care', pp. 1–17. Available at: http://www.uptodate.com/contents/approach-to-symptom-assessment-in-palliative-care.

Wells, N., Pasero, C. and Margo, M. (2016) 'Chapter 17 . Improving the Quality of Care Through Pain Assessment and Management', in *Evidence-Based Handbook for Nurses*. Available at: https://www.ncbi.nlm.nih.gov/book/NBK268/.

Wilson, L. and Kolcaba, K. (2004) 'Practical application of comfort theory in the perianesthesia setting', *Journal of Perianesthesia Nursing*, 19(3), pp. 164–173. doi: 10.1016/j.jopan.2004.03.006.

Yong-Chul, K., Jin, S. A., Maria, M. P. C., Ta, C. C., Kok, Y. H., Lye, M., X, Z.-J., Lois, W., Hanlim, M. and Bhagat, A. (2015) 'Current practices in cancer pain management in Asia: a survey of patients and physicians across 10 countries', pp. 1196–1204. doi: 10.1002/cam4.471.

Yu, Y., Zhou, J., Li, Q., Cao, C., Jin, X. and Liu, Y. (2015) 'The preliminary application of assessment system for cancer pain management', pp. 1164–1169. doi: 10.3969/j.issn.1000-8179.20141853.

Yuen-Ching, K. (2007) 'Medical Nurses' knowledge , attitudes and barriers in pain

management.', pp. 1–92. Available at: https://hub.hku.hk/bitstream/10722/13138/FullText.pdf.

APPENDICES

1. QUESTIONAIRE

INVESTIGATION OF NURSES' KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS CANCER PAIN MANAGEMENT IN UNIVERSITY TEACHING HOSPITAL OF KIGALI.

SECTION A: IDENTIFICATION

1. Department:

1. Internal medicine
2. Surgery
3. Emergency

2. Level of education:

1. A2
2. A1
3. A0
4. MSc

3. In service Experience:

    1. 6 months- 1 year
    2. 1 year-2 years
    3. 2 years-3 years
    4. Above

4. Gender:

1. Male
2. Female

CIRCLE THE RIGHT ANSWER

SECTION B: KNOWLEDGE

1. Have you ever had formal training on pain management?

   1.Yes

   2.No

2. 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.
   1. Yes
   2. No
3. While assessing pain using numerical scale a nurse must know to record what the client reported considering that on a scale of 0 to 10 (0= no pain/discomfort, 10 = worst pain/discomfort).
   1. Yes
   2. No
4. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is :

1. intravenous
2. intramuscular
3. oral
4. rectal

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

1. codeine
2. morphine
3. meperidine
4. tramadol

6. 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:

1. less than 1%
2. 1-10%
3. 11-20%
4. 21-40%

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

1. 15 min.
2. 45 min.
3. 1 hour
4. 2 hours

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

1. 5 min.
2. 30 min
3. 1 – 2 hours
4. 3 hours

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

1. The patient is experiencing increased pain.
2. The patient is experiencing increased anxiety or depression.
3. The patient is requesting more staff attention.
4. The patient's requests are related to addiction.

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

1. Ibuprofen

2. Codeine
3. Morphine
4. All of the above

11. Pain relief is an essential part of care for patients with cancer.
    1. Strongly agree
    2. Agree
    3. Disagree
    4. Strongly disagree

12. Moderate or severe pain usually can be relieved adequately with non- opioid medicine.
    1. Strongly agree
    2. Agree
    3. Disagree
    4. Strongly disagree.

SECTION C: ATTITUDES

13. How often do nurses assess pain in patient with cancer?
    1. Once a day
    2. Two times per day
    3. Three times per day
    4. Four times per day
    5. Six times a day
    6. When called by the patient or care taker.

14. The most accurate judge of the intensity of the patient's pain is :
    1. the treating physician
    2. the patient's primary nurse
    3. the patient
    4. the patient's spouse or family member

15. When would you treat pain in patient with cancer who reports constant pain?
    1. I treat only when patient complains of pain
    2. I give pain medication on regular basis
    3. I use other non-drug modalities
    4. No treatment, only reassurance.

16. Nurses usually can determine the severity of patient's pain without asking the patient.

1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree

17. Usually patients who can be distracted from pain usually do not have severe pain.

1. Yes
2. No

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

1. Yes
2. No

19. While treating cancer pain, 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.

1. Yes
2. No

SECTION D: PRACTICES

20. Are you using pain assessment tool in your daily practice while assessing for pain?

1. Yes
2. No

21. Do you re-evaluate pain after giving pain medication?

1. Yes
2. No

22. Do you educate patients with cancer pain about the use of pain medication and their side effects?

1. Yes
2. No

CONSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY

Title of Study: INVESTIGATION OF NURSES' KOWLEDGE, ATTITUDES AND PRACTICETOWARDS CANCER PAIN MANAGEMENT IN UNIVERSITY TEACHING HOSPITAL OF KIGALI.

Description of the research and your participation

You are invited to participate in a research study conducted by **Mrs. NIKUZE Bellancille**. The purpose of this research is to investigate nurse's knowledge, attitudes and practice toward pain management in patient with cancer at Kigali University Teaching Hospital.

Your participation will involve only giving information by answering questions mentioned on the questionnaire with the researcher's guidance.

Risks: There are no risks associated with this research.

Potential benefits

There are no known individual participant benefits to you that would result from your participation in this research. This research will be able to design education for nurses to become patient advocators for pain management among patients with cancer from acute care to home or hospice as nurses' responsibility.

Protection of confidentiality

I will do everything we can to protect your privacy and your identity will not be revealed in any publication resulting from this study.

Voluntary participation

Your participation in this research study is voluntary. You may choose not to participate and you may withdraw your consent to participate at any time. You will not be penalized in any way should you decide not to participate or to withdraw from this study.

Contact information

If you have any questions or concerns about this study or if any problems arise, please contact Mrs. NIKUZE Bellancille on Tel No: +250788275617 or Email:nibellasheja@gmail.com

Consent

I have read this consent form and have been given the opportunity to ask questions. I give my consent to participate in this study.

Participant's signature_____ Date: _____

CENTRE HOSPITALIER UNIVERSITAIRE
UNIVERSITY TEACHING HOSPITAL

Quality Health Care
Training & Research

Ethics Committee / Comitéd'éthique

February 24th, 2017

Ref.: EC/CHUK/278/2017

Review Approval Notice

Dear Bellancille Nikuze,

Your research project: ***"Investigation of nurses' knowledge, attitudes and practice toward cancer pain management in University Teaching Hospital of Kigali."***

During the meeting of the Ethics Committee of University Teaching Hospital of Kigali (CHUK) that was held on 24/02/2017 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,

COMMITTEE
CHUK

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>>.

B.P. :655 Kigali- RWANDA www.chk.rw Tél. Fax : 00 (250) 576638 E-mail :chuk.hospital@chukigali.rw

Generated by CamScanner

UNIVERSITY OF RWANDA

COLLEGE OF MEDICINE AND HEALTH SCIENCES

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 16/01/2017
Ref: CMHS/IRB/082/2017

NIKUZE Bellaneille
School of Nursing and Midwifery, CMHS, UR

Dear NIKUZE Bellaneille

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled ***"Investigation Of Nurses Knowledge Attitudes And Practice Toward Cancer Pain Management In University Teaching Hospital Of Kigali".***

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

Prof. JB Gahutu
IRB Vice-Chair

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

Generated by CamScanner

UNIVERSITY OF RWANDA

COLLEGE OF MEDICINE AND HEALTH SCIENCES

Kigali, on 07 / 02 /2017

Ref. No: 117/ UR-CMHS/SoNM/17

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

Re: Request to collect data

Referring to the above subject, I am requesting for permission for **NIKUZE Bellancille**, a final year student in the Masters of Science in Nursing at the University of Rwanda/College of Medicine and Health Science to collect data for his/her research dissertation entitled **Investigation Of Nurses Knowledge, Attitude And Practice Toward Cancer Pain Management.**

This exercise that is going to take a period of 2 months starting from 13th February 2017 to 12th April 2017 will be done at **University Teaching Hospital Of Kigali (UTHK/CHUK)**

We are looking forward for your usual cooperation.

Sincerely,

Dr. Donatilla MUKAMANA, RN, PhD
Dean, School of Nursing and Midwifery
College of Medicine and Health Sciences

Email: schoolofnursingandmidwifery@ur.ac.rw, P.O.Box: 3286 Kigali-Rwanda, Website: www.ur.ac.rw

Generated by CamScanner