KNOWLEDGE, PRACTICES AND BARRIERS OF PREOPERATIVE PATIENTS TEACHING AMONG NURSES WORKING IN OPERATING THEATRES AT REFERRAL TEACHING HOSPITALS IN RWANDA.

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DECLARATION

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

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Date: June 10th, 2019

DEDICATION

This work is highly dedicated to:

The Almighty God for his always guidance and protection.

My beloved Husband for his care, encouragement, financial and moral support.

My lovely Daughter for her patience and love

My lovely Mother for her special love shown since my conception till now

My lovely sister for her social support in this journey

All my classmates for the moments shared together

Finally,to all my relatives and friends.

Your love, patience, and support helped me through this entire Master's studies.

May the Almighty God richly bless you all.

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ABSTRACT

Background: The preoperative teaching is very important to surgical clients in freeing them from anxiety and post-operative complications. Fear and anxiety are more common physiological and psychological responses in clients waiting for anesthesia and surgery.

Aim of the study: The aim of this study to assess knowledge, practices and barriers of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda.

Methods of the study: A quantitative analytical cross-sectional study design was used. It was conducted among 90 nurses working in operating theatres at referral teaching hospitals in Rwanda by using a stratified random sampling strategy for reaching the sample size of 74 nurses. The data were analyzed through the descriptive and inferential statistics such as bivariate and linear regression models in SPSS program version 21. The results from the study were presented in tables.

Results: The findings from this study revealed that the highest percentage 32 (43.2%) of the participants were in the age group of 35-44; half 37 (50%) of respondents had advanced diploma in nursing and out of 70, 58 (83.0%) of participants received the informal training. The majority 67(93.0%) of nurses working in operating theatres at referral teaching hospitals had high level of knowledge on preoperative patients teaching while 72(97.3%) of nurses working in operating theatres had poor practice of preoperative patients teaching. The bivariate analysis revealed a significant correlation between knowledge and practice with P-value of 0.023 while regression analysis revealed the significant association between working period in theatre and knowledge score of participants with P-value of 0.001. The main barriers to practice of preoperative patients teaching were lack of time 53 (71.6%), close-fitting operation in theatre 45(60.8%), daily workload 48(64.9%) and shortage of theatre nursing staff 57(77%).

Conclusion: This study revealed that nurses working in operating theatres at referral teaching hospitals in Rwanda have good knowledge about the preoperative teaching but the practice is very poor. There is a need to continue to train officially the perioperative nurses in Rwanda for improving the practices in perioperative nursing field.

Key words: Preoperative patients teaching, Nurses working in operating theatres,Surgical patients, Knowledge and practices.

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LIST OF ACRONYMS AND ABBREVIATIONS

IRB: Institutional Review Board

UR: University of Rwanda

CMHS: College of Medicine and Health Sciences

SPSS: Statistical Package for Social Sciences

%: Percentage

UTHK: University Teaching Hospital of Kigali

UTHB: University Teaching Hospital of Butare

KFH: King Faisal Hospital

LMICs: Low Income Countries

HMIS: Health Measurement and Information System

HCP: Health Care Providers

Cont'd: Continued

P: P-value
X^2: Chi-square

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CHAPTER ONE. INTRODUCTION TO THE STUDY

1.1.INTRODUCTION

This chapter details the information about the study and it includes the background of the study, the problem statement, objectives of the study, significance of the study and definition of key terms used in this study.

1.2. BACKGROUND TO THE STUDY

Globally, more than 234 million surgeries are mandatory each year to encounter the global need and among 143 million annual surgeries, 6% occur in LMICs and 16.9 million individuals pass away from surgically curable conditions each year (Rose et al.,2015).The estimated need for surgical procedures worldwide is large and it varies between regions of the world. Surgical need ranged from 447,554 in Oceania to 72,919,681 in Southern Asia. Minimum rates of surgical need per population also varied between regions. The lowest rate of surgical need was in Central Latin America with 3,384 operations per 100,000 inhabitants and the highest rates of surgical need were in Western Sub-Saharan Africa with 6,495 operations per 100,000 inhabitants, Central Sub-Saharan Africa with 6,255 operations per 100,000 inhabitants, and Eastern Sub-Saharan Africa with 6,145 operations per 100,000 inhabitants. The median rate of need per capita at the regional level was 4,669 operations per 100,000 in Australia (Rose et al.,2015).

There were 114,561 surgeries in Rwanda performed in 2016; out of all the surgical procedures done, 57% were emergency while 43% remaining were scheduled. There is also a total of 36054 and 36325 different surgeries performed in Rwanda at referral hospitals in 2015 and 2016 respectively (National HMIS database, 2016) and there are about 7,682 operations per year at University Teaching Hospital of Kigali (UTHK) while 80% surgical procedures take place at district hospitals (Abahuje,sebuuju, aney, 2016).

The universally acknowledged importance of preoperative nurse patient rapport to the provision of perioperative nursing care to surgical patients, its implementation especially in developing countries is low. This is largely detailed to be associated with unawareness and inadequate knowledge among perioperative nurses on the concept of preoperative teaching to patients (Aliyu *et al.*, 2015).Most perioperative nurses have correctly developed knowledge and positive attitude about preoperative clients teaching but there is an important gap

between knowledge and practice. The nurses have good knowledge but the practice is not effective at all (Grossweiler, 2012).

Preoperative teaching practice is very important to surgical clients in freeing them from anxiety and post-operative complications (Lee C & Lee I, 2012)**.** Surgical patients are at risk of evolving complications associated with surgical operation and anaesthesia (Omondi, 2016). The provision of health education before surgical operation permit the client and family to build up an idea and understanding of what to expect when the surgery or procedure has been accomplished (Ablan, 2016). It is recommended that when a client is planned for surgical operation, the client has to be visited before the procedure and received the information regarding the preparation to surgery (Bastable,et. al., 2011).Perioperative nurse work as a leader and as well as educator in charge for assessing and teaching of the clients before experiencing surgical operation (Ali, Lalani and Malik, 2012).

In Ethiopia at Jima university hospital and in Gondar hospital the surgery is perceived as a life threatening event that leads to experience a significant anxiety among surgical clients and the clients recognize the day of operation as the chief and the greatest menacing moment in their lives; the fear and anxiety are more common physiological and psychological responses in clients waiting for anesthesia and surgery. About 59.6% of surgical clients have preoperative anxiety related to fear to overcome from anesthesia; 53.9% have fear to death, dependency and disability; (51.7%) have fear related to post-operative pain while 43.3% perceived their family worries (Nigussie et.al, 2014; Woldegerima et.al,2018). It has been reported that in hospitalized clients, 60%-80% of them waiting for surgery may develop anxiety and 5% of them may not accept the surgical procedure (Gursoy et al.,2016)

Despite different studies done about the perioperative teaching, there is still a gap in discovering how nurses perceive the importance of providing preoperative client teaching. In Rwanda, the number of nurses' specialist in perioperative nursing is still low and the majority of general nurses are these working in theatres at referral teaching hospitals due to that the perioperative nursing specialty was not yet established since 2015 (Ryamukuru *et al.*, 2018); so that there is no studies done about the preoperative patient teaching, hence the researcher plans to conduct the study assessing knowledge, practices and barriers of preoperative patients teaching among nurses working in operating theatres of referral teaching hospitals in Rwanda.

1.3 PROBLEM STATEMENT

Worldwide, more than 234 million surgeries are mandatory each year to encounter the global need and among 143 million annual surgeries, 6% occur in LMICs with the highest rate of surgical need in Western Sub-Saharan Africa with 6,495 operations per 100,000 inhabitants (Rose et al.,2015). In Rwanda, between the years 2016-2017, there was a total of 21,374 surgical procedures performed across the tertiary hospitals such as UTHK, UTHB and RMH excluding the procedures performed in private health facilities while the perioperative death rate is with a maximum of 30% due to inadequate quality of surgical care provided (MOH, 2018).

However, fear and anxiety are more common in clients waiting for anesthesia and surgery (Nigussie et.al, 2014). About 59.6% of surgical clients have fear to overcome from anesthesia; 53.9% have fear to death, dependency and disability ; 51.7% are fearful to the post-operative pain while 43.3% perceived their family worries (Woldegerima et.al,2018). Most clients need much preoperative information for being satisfied and feel ready and well prepared for surgery (Poland *et al.*, 2017). Preoperative client teaching decreases anxiety and postoperative complications among surgical clients (Kalogianni et al., 2016).

Despite the several studies done for determining knowledge, practice and barriers to preoperative patient teaching in many areas, there are still gaps in how nurses develop and provide preoperative clients teaching. The number of nurses' specialist in perioperative nursing is still very low due to the fact that the perioperative nurses were informally trained in Rwanda until 2015 at masters' level and the majority of general nurses are these working in operating theatres at referral and teaching hospitals in Rwanda (Ryamukuru *et al.*, 2018). In addition to that, according to the observation made by the researcher during her clinical practices in these teaching hospitals during the period of 3 months, there is no clear available protocol or guideline to preoperative patients teaching for nurses working in operating theatres of teaching hospitals in Rwanda for proper nursing practice. Therefore, there are no known studies done about preoperative teaching practices in Rwanda, hence the motivation of the researcher to conduct the study assessing knowledge, practices and barriers of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda.

1.4 OBJECTIVES OF THE STUDY

1.4.1 Main Objective

To assess knowledge, practices and barriers of the preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda.

1.4.2 Specific objectives

1. To assess operating theatres nurses' level of knowledge on preoperative patients teaching before undergoing surgery at referral teaching hospitals in Rwanda.
2. To determine the level of practices of preoperative patients teaching among nurses working in operating theatres of referral teaching hospitals in Rwanda.
3. To identify the relationship between knowledge and practice of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda
4. To determine the association between demographic characteristics, knowledge and practices of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda.
5. To identify the barriers to the practices of preoperative patients teaching among nurses working in operating theatres of referral teaching hospitals in Rwanda.

1.5 RESEARCH QUESTIONS

1. What is the level of knowledge do nurses working in operating theatres at referral teaching hospitals in Rwanda have on preoperative patients teaching?
2. What is the level of practices of preoperative patients teaching do have nurses working in operating theatres at referral teaching hospitals in Rwanda?
3. What is the relationship between knowledge and practices of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda?
4. What is respectively the association between demographic characteristics, knowledge and practices of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda?
5. What are the barriers to the practices of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda?

1.6 SIGNIFICANCE OF THE STUDY

1. To nursing practice

The results from this study will contribute to the strengthening of the existing body of nursing knowledge and practices about preoperative patient teaching among nurses. With the identified gaps and barriers to the practices regarding preoperative patients teaching, the referral hospitals of Rwanda will establish policies and strategies to support the areas of weakness among nurses working in operating theatres at the referral teaching hospitals.

2. To nursing research

The results from this study will be a basic for developing a bigger nursing research in knowledge and practice of perioperative patient teaching by using a large population from other hospitals in Rwanda.

3. To nursing education

The study findings will be used by Ministry of education through the University of Rwanda /School of nursing and midwifery authority to increase the training of nurses specialist in perioperative nursing for improving surgical client quality of care.

4. To administration

The Ministry of Health will focus on the results from this study for planning and enhancing the training of general nurses currently working in theatres. Also with the coming time and with the continuous training of the specialised nurses in perioperative nursing care, the trained theatre nurses should be these only to work in theatre for improving perioperative nursing care in order to reduce and prevent the anxiety and post-operative complications related to poor practices of preoperative surgical patients teaching.

1.7 DEFINITIONS OF CONCEPTS

Knowledge: is a process of knowing about something (Cambridge University Press, 2016).

In this study, knowledge is defined as the process by which theatre nurses express their understanding and belief regarding the preoperative education through actions, movements, sounds and apply to a specific situation in the domain of health.

Practice: is something that or a repetition of action or conduct to do or to achieve to some degree routinely or frequently (Cambridge University Press, 2016).

In this study, practice is defined as the process in which nurses working in operating theatres of referral teaching hospitals provide the preoperative information repeatedly to surgical clients in order to assist them and their related support persons for attaining a level of wellness equivalent to or larger than that which they had before their surgical operation or other invasive procedures.

Preoperative teaching is a process of educating surgical clients before undergoing surgical operation and it helps in relieving them from anxiety and supporting them in their postoperative recovery (Lee C & Lee I, 2012)

In this study, the preoperative teaching is the process by which nurses provide the standard preoperative information to patient before surgery in order to reduce patient anxiety, post-operative pain control and overall satisfaction for enhancing post-operative recovery.

Surgery: is a curative management for somebody in which the unhealthy or injured body part is cut and exposed to doctors for being repaired, removed or replaced (English dictionary, 2010).

In this study, surgery is an invasive procedure that usually necessitates the opening of the body by incision, manipulation of surgical materials and involves local, regional or general anesthesia.

Nurse: is a licensed health 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 Rwanda National council of nurses and midwifery and works independently and interdependently with the surgical team for the better outcome of surgical patients.

Operating theatre also called an operating room, operating suite, operation suite is a facility within a hospital where surgical operations are carried out in a sterile environment (ACI, 2014)

In this study, theatre is defined as the appropriate area in hospital in which health care providers perform surgical procedures to the surgical clients.

1.8. STRUCTURE OF THE STUDY

This study contains 6 main parts. The first part is the introduction to the study that contains background, problem statement, objectives and significance of the study. The second part is the literature review that details the theoretical and empirical studies related to this study, critical identified gaps. The third part is the research methodology that deals with the research approach, research design, study site, study population, sampling methods, sample size, data collection instrument ,data analysis, limitation of the study, data management and data dissemination. The fourth part is the results of the study that presents the demographic characteristics of participants, findings about knowledge, practices and barriers of preoperative patients teaching. The fifth part is discussion of the findings that compare and contrast the results of this study with the other similar studies done previously. The last part is the conclusion and recommendations of this study.

1.9. CONCLUSION TO CHAPTER ONE

In general, this chapter gives information about the study and it includes the background of the study, the problem statement and objectives of the study, significance of the study, definition of key terms and structure of the study.

CHAPTER TWO.LITERATURE REVIEW

2.1. INTRODUCTION

This chapter describes different studies done in different areas and it contains four main parts. The first part is theoretical literature such as definition of patient teaching, time of preoperative teaching, teaching about the post-operative complications, importance of preoperative patients teaching, standard preoperative information. The second part is empirical literature such as methods to deliver preoperative patients teaching, causes of preoperative anxiety, need of preoperative patients teaching, role of nurses in preoperative patients teaching, knowledge of nurses on preoperative patients teaching, practices and barriers to preoperative patients teaching. The third part is critical review and gaps identification while the last part is the theoretical framework of this study.

2.2. THEORETICAL LITERATURE

2.2.1 Definitions of patient teaching

Patient teaching is the way of manipulating patient behaviour and creating the changes in knowledge, attitudes and skills required to maintain or improve health (Oyetunde and Akinmeye, 2015).The preoperative patient teaching is the important duty of health care providers in reducing the risk that may occur in the period of operation and enable to reach to the appropriate outcomes of the clients(Ali, Lalani and Malik, 2012).

Preoperative teaching might be a multi-disciplinary method that necessitates coordination of knowledge or information between nurses, doctors, anesthesiologists, dieticians and physiotherapists to organize care for patients. The general components of the preoperative education comprise patient education and preparation, decreasing surgical stress response, preserving postoperative physiological function, reducing pain and discomfort and promoting patient independence (Gerlitz, 2010). Also, as preoperative teaching has a tendency to decrease. Post-operative complications, consequently reduces also the expenses of hospitalization (Jonathan, 2014).

Preoperative teaching occurs before surgery to prepare surgical clients for increasing physical and psychological demands during and after the operation and it includes health information, skill training for patients on the use of pain medications and provision of psychosocial support to address patients' anxieties, needs and concerns (Papanastassiou *et al.*, 2011)

Patient teaching has been applied to assist with various aspects of patient management, including length of hospitalization, preoperative anxiety, patient compliance, pain control and analgesic use, overall satisfaction, physical coping, mobility independence, and discharge preparation(Papanastassiou *et al.*, 2011)

2.2.2 Time of preoperative patient teaching

The aim of preoperative teaching is to deliver real information and postoperative orders for patients to augment a fruitful recovery after operation. The best timing of preoperative patient teaching is between 1-3 weeks before undergoing surgery (Ali, Lalani and Malik, 2012).

Preoperational education must take place over a lengthy of time for giving occasion to patients undergo surgery for asking questions and confirming that the provided information has been integrated among them. Consequently, this education can not be provided on the daytime of surgical operation however it remains a continuing progression that start in their pre-admission visiting (Farrell & Dempsey 2013). It was supported in literature that the unsuitable preoperative patients teaching remained a significance problem to the patient outcomes (Ali, Lalani and Malik, 2012). The timing of patient education also varies before or after admission, 1 day or several days or weeks before the operation (Papanastassiou et al.,2011). Providing health education at this period permit the surgical client and family to build up an idea and understanding of what to expect when the surgery or procedure is accomplished (Ablan, 2016).

Preoperative client teaching can be delivered by Health Care Providers (HCP) in group of people or in individual education sessions. HCPs include registered nurses physicians, surgeons, physiotherapist and social workers (Mitchell,2016). The greatest important duties of the nurses in preoperative period is to provide information to the clients and their related family members (Elwin, 2012)

2.2.3. Teaching about post-operative complications

The following situations that can occur in the post-operative period are emergencies or may indicate something is seriously wrong. The nurse should teach the patient undergo surgery on the post-operative complications to notify immediately such as dehiscence that it is when a surgical incision splits open, and that the patient cannot introduce something in the incision site and to not touch into the area. The surgical patient is asked to call for immediate help and

if possible to put on the sterile gloves for covering the incision wound site with the moist sterile dressing. Secondary, nurse teach patient on prolonged vomiting that it can increase intracranial pressure, it can be dangerous for someone who has cardiac disease, and it can affect the integrity of the surgical incision site. Thirdly, the nurse inform the patient undergo surgery to consider and communicate immediately the potential presence of serious bleeding below the incision site. Lastly, a nurse should also teach about the severe pain that can cause a significant changes in vital signs or causing the patient to require the immediate attention of the physician (Guo, 2012)

2.2.4. Importance of preoperative patient teaching

Preoperative teaching provision is very important to surgical clients in freeing them from anxiety and post-operative complications(Lee C& Lee I, 2012).The importance of preoperational patients teaching is to allow the clients to understand more their surgical procedure, feeling controlled more, experience less post-operative painful and related anxiety, little time to stay at hospital and to have a quick recovery time (Tollefson et al., 2012). The importance of preoperative teaching is not only for reducing the occurring of postoperative complications however it is to permit the patients waiting surgery to be active in their recovery and to have a common sense to control the events beyond their control (Koutoukidis, G. & Stainton, K., 2016)

Pre-operative education prepares the client for all parts of operation and it can enhance recovery and aid in stopping the related complications. The greatest significant areas to focus during preoperative education are the surgical operation, the day of operation, the period of post operation and exercises to perform after surgery (Ingadóttir and Zoëga, 2017). The education sessions improved the health care worker's knowledge for evaluating all the essential components of a client before surgery. Furthermore, these sessions heightened nurses' consciousness concerning the risks the clients may experience before and after the operation and plan how to avoid them through a complete and relevant patient assessment and teaching before surgery (Ali, Lalani and Malik, 2012).

Commonly the client is anxious and possibly has difficulty understanding or recalling the instructions, consequently the clinicians can enhance the client preparation by reinforcing teachings on preoperative fasting, medications, anaesthesia and postoperative care (Ablan, 2016).Preoperative client teaching has been used by many institutions to deal with client

anxiety, pain control and overall satisfaction. It has a positive effect on client satisfaction, specifically in terms of pain management (Papanastassiou et.al,2011).

The preoperative evaluation is a compulsory during the period of surgical care of the patient. The preoperative nurse patient evaluation is one of the roles of a perioperative nurse meeting the patients to interact, assess, educate and make a link with them prior to surgery. The benefits of preoperative visit to patients and theatre nurses undertaking pre-operative visits as a way of providing pre-operative information and teaching patients have been shown that visiting patients in the preoperative period helps in post-operative recovery of patients and allow the patient the opportunity to express concerns and fears about the impending procedure (Aliyu et al., 2015).

Other benefits of preoperative teaching include; to collect data, to lessen the anxieties that the patient has towards his operation, to improve patient care by knowing the patient and his problems before operation, to help the patient to understand the procedures and the equipment needed for his care, to involve perioperative nurse more with total patient care and to re-enforce information that the patient has already been given by ward nurses and surgeons (Aliyu et al., 2015)

2.2.5. Standard protocol for preoperative patient teaching

The general components to enhance recovery after surgery comprises client teaching and preparation, reducing surgical stress response, keeping postoperative physiological function, reducing pain and discomfort and promotion of client independence (Feldman et al., 2015). Preoperative teaching for surgical clients includes the education such as expectation to surgical procedures, medication and food restriction before undergoing surgical care and gives the instructions to follow after undergone operation (Heidi Grossweiler, 2012).

A nurse instructs the client to avoid the application of lotions, creams or make-up on the day of surgery because these substances can irritate the skin and eyes while under anesthesia. The nurse continues to inform the surgical client about the skin decontamination and medications by explaining that certain medications interfere with the surgical procedure. Instruct also the patient to take prescribed medications with only a sip of water on the day of surgery. The nurse should inform the client that before going to operating room he/she has to remove the dentures, glasses/contact lenses, appliances/prosthesis, makeup/nail polish, hairpins or hairpiece. Inform that valuables and jewelry should be given to the family member or friend

or locked in the cashier's office or patient locker. Inform patient on postoperative recovery destination and the client 's family members about the other designated waiting areas (Mitchell, 2016).

The other information that should be included in preoperative teaching are stopping anticoagulation cure; initiate the preparations required for surgery such as insertion of intravenous cannula; administer pre-medications and explain what sensations to be felt when anesthesia is induced; provide the information concerning what to expect postoperatively for example the monitoring of vital signs frequently, IV fluids and wound drains, expected postoperative activities to be performed by surgical patients such as activities restriction, deep breathing and coughing, early mobilization and first ambulation by the nursing personnel; explain that the medications are available for pain and nausea if presented; provide all other needed information specific to the planned surgery the client is undergoing (Koutoukidis & Stainton, K., 2016)

2.3. EMPIRICAL LITERATURE

2.3.1. Methods for providing preoperative patient teaching

A wide range of different approaches have been described, including group or individualized lectures, printed information such as a booklet or information sheet, audio-visual presentation, internet or a combination of these modalities. It has evidenced that one page handout that clarified anesthesia and debated common client fears allied with anesthesia and surgery resulted in a statistically important decrease in fears in over 40% of surgical clients (Ortiz et al., 2015).

The other format and resources used in provision of preoperative teaching include also verbal communication to transmit information; written materials to supplement verbal communication to support surgical clients' understanding; a specific exercise booklet; a printout of the power point presentation used in group education session. The additional materials to provision of preoperative education include the admission booklet from the hospital, a chemotherapy and radiation booklet and the pre-admission unit booklet for medication information (King *et al.*, 2014)

2.3.2. Causes of preoperative anxiety in surgical clients

Preoperative anxiety may be initiated by preoperative information on medical diagnosis, period of fasting, physical preoperative preparation, physical separation from family; little or no provision of information regarding preoperative diagnosis, surgical operation to be performed,the environment of operating room and anesthesia to be used during surgery, the results of surgical operation done, post operative pain management and all expenses of surgery (Mitchell, 2016)

Clients' knowledge deficits concerning anesthesia may contribute to the fears and anxieties. Previous study on clients reviews regarding anesthesia showed that (8-55%) clients are very fearful of death from anesthesia, awakening from anesthesia (5-54%), experiencing postoperative pain (5-65%) and (5-48%) experiencing postoperative nausea (Ortiz et al., 2015). The provision of preoperative teaching decreases anxiety and postoperative complications among surgical clients (Kalogianni et al., 2016).

Previous studies regarding anesthesia said that during the period of anesthesia, surgical clients are more fearful of death (8-55%), awakening from anesthesia (5-54%), facing post-operative pain (5-65%) and suffering from post-operative nausea (5-48%). Client have little knowledge about the anesthesia and the theatre staff's role in caring them could focus on these fears and anxieties (Ortiz *et al.*, 2015). Having a support people present at the time of preoperative teaching period facilitate the surgical patients with reminding on an ongoing basis following the nurse appointment (Friedman et al., 2015)

However a study on prevalence and factors associated with preoperative anxiety among 178 elective surgical patients at the University of Gondar Hospital, Northwest Ethiopia reported that preoperative anxiety was high in hospital; 59.6% of clients have preoperative anxiety related to the fear of recovery from anesthesia 53.9% (death, dependency and disability), post-operative pain (51.7%) and family worries (43.3%) (Woldegerima et.al, 2018). It has been evidenced that the occurrence of preoperative anxiety among surgical clients in South Western Ethiopia was between 60-92% while the preoperative concern differs between 11% to 80% in Nigeria among adult clients (Nigussie et al.2014, Akinsulore et al.,2015).

The predictors of preoperative anxiety among 239 surgical patients in Jima University Specialized Teaching Hospital, South Western Ethiopia revealed that 70.3% have

preoperative anxiety and that the greatest factors leading to that anxiety were fear of death 38.1% and fear of unidentified origin 24.3% (Nigussie, Belachew and Wolancho, 2014)

2.3.3. Need of preoperative patient teaching

A study conducted in UK among 2331 said that most clients needed much preoperative information as possible regarding the life changes they exposed on. The needed information includes the detail about their disease and treatment received for improving their understanding of what to expect when entering hospital, following surgery and postoperative recovery processes (Poland et al., 2017).

The other study showed that there is an inconsistency between information provided to clients in period of preoperative education sessions and the information clients appreciate as significant. Clients reported that the greatest helpful parts of the preoperative teaching are the surgical details and the importance of exercises after operation and postoperative pain management. Generally, clients reported that they are satisfied with the information provided and they feel ready and well prepared for surgery after receiving preoperative information (King et al.,2014)

2.3.4. The role of nurses in preoperative patient teaching

A qualitative descriptive study done in Northeast United States on the nurse 's role during preoperative evaluation in surgical patient reported that the nurses role is to identify the clients' needs and risk factors that may be affected by the surgical experience, communication with team members, handling clients' expectations and remunerating for nursing gaps. It proposes that the nursing preoperative evaluation can be beneficial in recognizing clients 'risk issues not just for operation, but also for the whole perioperative care route (Ann Malley et al., 2015).

Other study done in Pakistan showed that the other role of preoperative nurse is to work as a teacher. Being an educator, nurse has to recognize the client's need for information on each aspect of surgical procedure. Moreover, the nurse should evaluate the mode and level of clients' communication and understanding respectively before teaching in order to assist him/her in management of their anxiety and stress. However, this study concluded that the clients do not receive any explanation regarding the process of surgery (Ali, Lalani and Malik, 2012).

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2.3.5. Knowledge and practices of nurses on preoperative patients teaching

Perioperative nurses necessity to conduct preoperative patient visit for identifying and relieving the possible complications and plan how to provide quality perioperative care (Omondi, 2016). The previous studies done on preoperative patient assessment and education revealed that perioperative nurse work as a leader and as well as a teacher in charge for assessing and teaching the clients before experiencing surgical operation (Ali, Lalani and Malik, 2012). It enhanced nurses' alertness about the risks the clients could experience before and after the operation and how to prevent those risks through a complete preoperative teaching to patient undergoing surgery (Ali, Lalani and Malik, 2012).

A cross-sectional descriptive survey among Nigerian perioperative nurses on knowledge, attitude and practice of preoperative teaching and related barriers showed that about two-third (63%) of the respondents stated that they perform preoperative client visit, however 53 (37%) did not (Aliyu *et al.*, 2015). Main issues affecting the practice of preoperative teaching involve lack of time (89%) and work overload (66%). It is in the same way important to note that 27 (18%) of the respondents recognized shortage of perioperative nurses, workplace, work experience and age were related to the poor practice of preoperative teaching and it concluded that most perioperative nurses in Nigeria have correctly developed knowledge about preoperative patient's visit and teaching but there is an important gap between their knowledge and practice towards it (Aliyu et al., 2015)

A descriptive stratified simple random sampling study exploring factors influencing the practice of patient education among nurses at the University College Hospital, Ibadan in 200 nurses concluded that nurses have good knowledge and positive attitude towards patient teaching but the practice was not effective (Oyetunde and Akinmeye, 2015)

2.3.6. Barriers to preoperative patients teaching

The previous cross-sectional study done in China Hong Kong among nurses about the consistency between nurses opinions, the actual practice and factors affecting the preoperative client teaching revealed that the top factors affecting the practice of preoperative teaching were time availability, language barriers, close-fitting operation programs, professional trainings and their daily workload in the clinical setting and this study conclude that the preoperative clients teaching was not entirely completed by nurses, and the results

indicated that there is the conflicting matter related to the executing process(Lee C & Lee I, 2012).

Other study in Safety Net Hospital in Huston, revealed that there is a confusion about the duty to deliver information to clients and about 60% of nurses thought that doctors were primarily responsible to provide pre-operative information to clients (Alawadi et al., 2016) and a study exploring factor affecting the practice of patient education among nurses at the University College Hospital at Ibadan concluded that (70% - 90%) of nurses reported the nurses' experiences, cultural barriers, work place culture, lack of time, heavy workload, insufficient staffing and the complexity of clients' status were chief factors that influencing the practice of clients teaching and while the study conducted at two Southern Alberta hospital settings indicated that insufficient preoperative teaching resulted in increased anxiety, bigger risk of complications, extended hospital stays, and greater incidence for readmissions (Gerlitz, 2017).

Although, the other descriptive cross-sectional design conducted in two public Hong Kong hospitals about Nurses' perceptions of preoperative teaching for ambulatory surgical patients showed that there were limited teaching aids, tight surgical procedure plans and language barriers affected the provision of preoperative education to ambulatory surgical clients and the other factors influencing preoperative teaching that nurses perceived themselves as not often provide complete information to clients are due to the related time, workload, patient feedback, doctors 'responsibility ,language barriers, limited teaching aids and tight operation plans were barriers delayed the provision of preoperative education to ambulatory surgical clients (Gilmartin and Wright, 2008)

In Rwanda there are no known studies done about the preoperative teaching practices hence the researcher to conduct the study assessing knowledge, practices and barriers of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda.

2.4. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION

It has been approved that the preoperative patient teaching is helpful to the patient before surgery but its practice is very low. Perioperative nurses must performing the preoperative patients visit for identifying and preventing the possible complications and plan how to provide quality perioperative care to them (Omondi, 2016).

Despite the universally acknowledged importance of preoperative nurse patient rapport to the provision of perioperative nursing care to surgical patients, its implementation especially in developing countries is low (Aliyu *et al.*, 2015). This is largely detailed to be associated with unawareness/ inadequate knowledge among perioperative nurses on the concept of preoperative teaching to patients, shortage of perioperative nurses in many hospitals, lack of time, fear of passing wrong information to the patient, unwillingness by the surgeons and anaesthetists to allow the perioperative nurses to visit and teach patients and fear of information overload to the patient (Aliyu *et al.*, 2015).

The efficacy of preoperative teaching can be improved by adopting a variety of approaches of information provision, provided in service training, recognizing staff efforts in clients teaching and creating a multi-disciplinary education team. Most perioperative nurses have correctly developed knowledge and positive attitude about preoperative clients teaching but there is an important gap between this knowledge and practice. The nurses have good knowledge but the practice is not effective at all (Grossweiler, 2012).

It seems that the preoperative client teaching is not entirely done by theatre nurses due to the following different factors such as time availability, language barriers, close-fitting operation programs, professional trainings, heavy workload in the clinical setting, experiences, work place culture, used techniques among nursing staff, level of learning of the patient and his/her family, various amounts of education provided to the patient and insufficient staffing (Lee C& Lee I, 2012; Oyetunde & Akinmeye, 2015)

Therefore, by focusing on recent studies and information reviewed in various articles, it appears that there are gaps in how nursing staff provides preoperative information and the participant's perception from teaching related to a surgical procedure. Currently, there is the poor preoperative teaching practice strategy which poses possible threats to the way of effective information and education provision to the patients before surgery.

2.5. CONCEPTUAL FRAMEWORK

This study will be guided by the model of professional perioperative nursing practice. This model indicates the interactional roles depicted by the professional nurse in the stages of perioperative period. The model declares that nurses have several roles in every stage of

perioperative nursing. This model increases the nurses' awareness about the risks the clients could experience before and after the operation and how to prevent those risks through a complete preoperative evaluation and teaching of patient undergoing surgery(Ali, Lalani and Malik, 2012).

In this model, the task and responsibilities of a nurse have been shown through each phase of perioperative nursing care such as preoperative phase, intraoperative phase and post-operative phase. Therefore by basing on this model phases, the researcher will focus on the part of preoperative phase where nurses works as a teacher in which teaching involves the capacity of an individual to know and perform something at a certain level for improving the surgical patients understanding of their planned surgery.
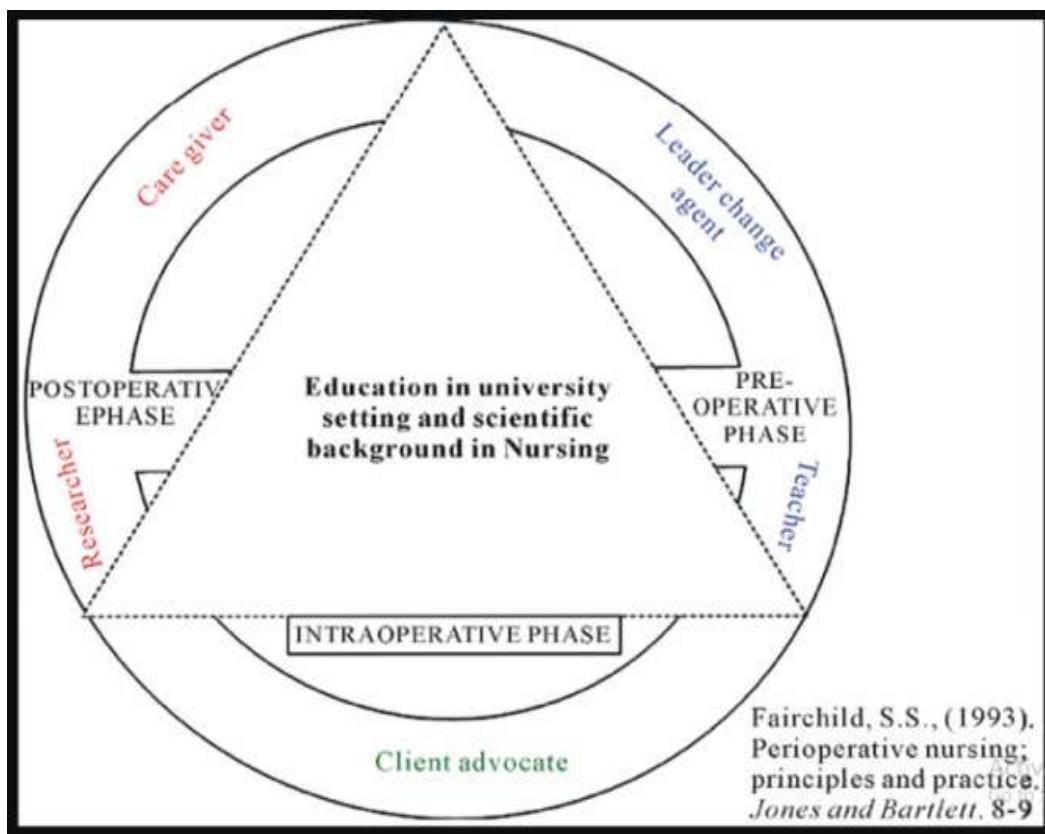
Figure 1: Model of professional perioperative nursing practice

The researcher developed the conceptual framework basing on this model. In the following

developed framework,the subject of the study was nurses working in operating theatres at

referral teaching hospitals in Rwanda.The knowledge,practice and barriers to preoperative patients teaching among nurses working in theatres have effect on the outcome variable such as preoperative patients teaching as demonstrated in the following figure 2.
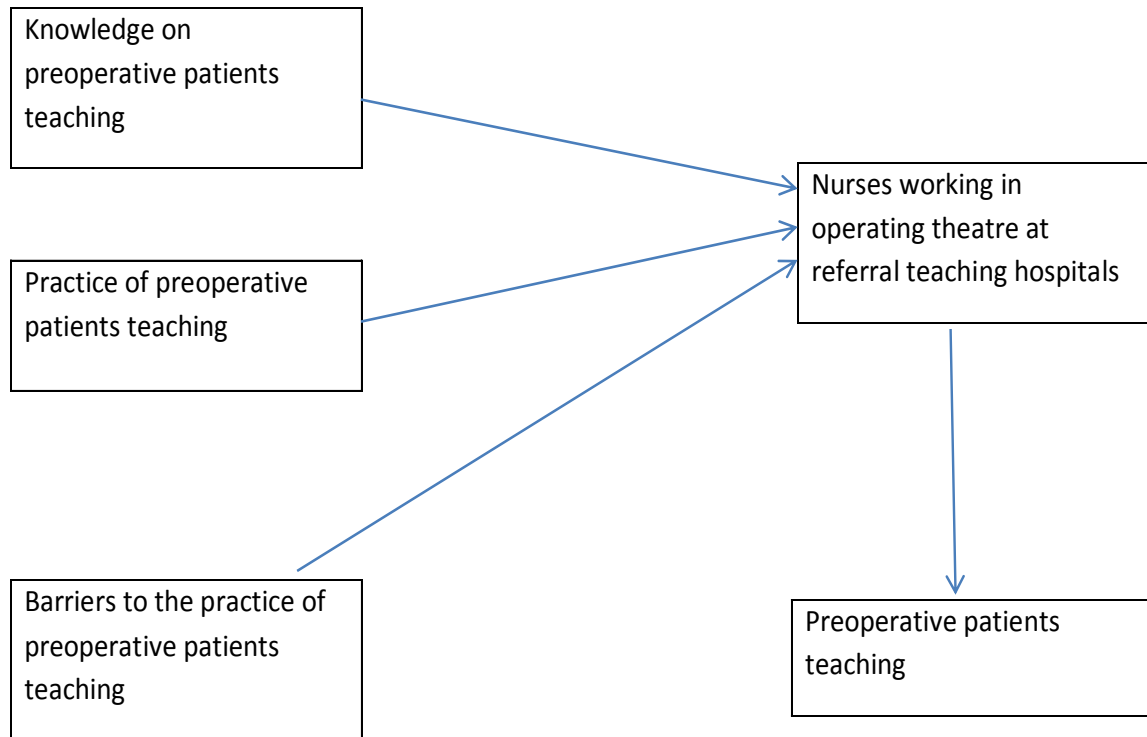
Figure 2: Developed conceptual framework of the study

Application of the conceptual framework

This model was used in the study done on preoperative patient assessment and education in Pakistan where it revealed that perioperative nurse work as a leader and as well as a teacher in charge for assessing and teaching the clients before experiencing surgical operation. It enhanced nurses' alertness about the risks the clients could experience before and after the operation and how to prevent those risks through a complete preoperative teaching to patient undergoing surgery (Ali, Lalani and Malik, 2012).

The role of preoperative nurse is to work as a leader change agent. She/he has to perform a comprehensive physical examination of client's, taking a complete history of the clients, evaluate the client for any present infectious disease, and evaluate the outcomes of diagnostic and laboratory exams. If the roles of nurse are exactly accomplished, it can result in reduction of surgeries suspension or postponement and lessen the risk to develop intraoperative and

postoperative complications. Another role of preoperative nurse is to act as a teacher. To be a teacher, the nurse necessity to identify the need of the client for getting the information regarding each aspect of surgical procedure. Additionally, the method of communication and the understanding level of the client must be evaluated before teaching the client or the relatives. This may assist the clients in handling their surgery related stress and anxiety (Ali, Lalani and Malik, 2012).

2.6. CONCLUSION TO CHAPTER TWO

More serious methods in addressing heavy workload, insufficient staffing, among others is desired to improve client teaching. Advanced studies must be carried out for developing nurses' roles as teacher for surgical clients for minimizing their experienced anxiety and complications occurring before surgery. The knowledge of perioperative nurses on preoperative teaching needs to be linked closely with the appropriate practices.

CHAPTER THREE.RESEARCH METHODOLOGY

3.1. Introduction

This chapter talks about the research approach, study design, study population, study area, sample size, sampling strategy, data collection instrument, data collection plan, data analysis, ethical considerations and limitation of the study.

3.2. Research design

This study was a cross-sectional analytical study design. A cross-sectional study is a design indicating the number of individuals affected by a situation and whether the rate of event differs across the people or population characteristics (Hemed and Tanzania, 2015)

This design was chosen because it helped the researcher to collect the data once time and determine the relationship between knowledge on preoperative patients teaching and related practices among nurses working in operating theatres at selected referral teaching hospitals in Rwanda.

3.3. Research approach

Research approach is the strategy and method for research that span the stages from general expectations to detailed ways of collecting, analysing and interpreting data (Creswell, 2013).

This study was a quantitative research approach that used to collect numerical data on knowledge and practices of preoperative patients teaching among nurses working in theatres at selected referral teaching hospitals in Rwanda.

3.4. Research setting

This study has been conducted in operating theatres at referral teaching hospitals in Rwanda such as University Teaching Hospital of Kigali (UTHK), University Teaching Hospital of Butare (UTHB), and King Faisal Hospital (KFH).

The researcher chose these teaching hospitals because these hospitals are the main referral hospitals in Rwanda that can receive and manage a large number of clients with different types of surgical operations from all district hospitals and others abroad neighbour regions of Rwanda.

The University Teaching Hospital of Kigali is a public referral and teaching hospital that located in Kigali city, Nyarugenge District, Gitega sector in Kiyovu cell. It is located near Kigali Serena hotel. Its theatre is composed of 2 changing rooms, receiving area, 6 operating rooms, recovery room, stores rooms and offices. The occupation rate of theatre is between 400-500 patients/month and it has about 37 nurses working there in theatre (National HMIS database, 2018)

The University Teaching Hospital of Butare is a public referral and teahing hospital located at Mamba Cell, Huye District in Southern province; approximately near the University of Rwanda/Huye campus.It was created in 1928 and became a University Teaching Hospital in 1966. It has up to 26 nurses working in theatre (National HMIS database, 2018)

King Faisal Hospitals is a private referral teaching hospital, situated in Kigali city, Gasabo District in Kacyiru sector. It has 2 changing rooms, 5 operating rooms and stores rooms and offices. It has about 27 nurses working in theatre(National HMIS database, 2018)

3.5. Study Population

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 selected referral teaching hospital in Rwanda such as University Teaching Hospital of Kigali, University Teaching Hospital of Butare and King Faisal Hospital.

2. Target population

The target population is defined as the units within which the result of the survey are meaningful to generalize (Paul J.Lavrakas, 2014).

In this study, the target population was about 90 nurses working in operating theatre at selected referral teaching hospitals in Rwanda such as University Teaching Hospital of Kigali, University Teaching Hospital of Butare and King Faisal Hospital whom provide nursing care to patients undergoing surgical operation.

3. Accessible population

The accessible population is the population of the study on that the researchers can draw their conclusions (Paul J. Lavrakas, 2014). In this study the accessible population was all nurses working in operating theatres at selected referral teaching hospitals in Rwanda especially these available and accept to participate in the study.

Table3. 1: Distribution of respondents according to their working institution

Site	UTHK	UTHB	KFH	Total
Population	37	26	27	90
Sample	31	21	22	74

4. Inclusion and exclusion criteria

This study included only nurses accepted to sign informed consent and working in theatres at selected referral teaching hospitals in Rwanda. The study excluded nurses who do not sign informed consent; administrative nurses such as unit manager; nurse anaesthetists; other theatres' working staff and staff who do not work in operating theatres at selected referral teaching hospitals in Rwanda.

3.6. Sampling

Sampling is an action, procedure or method of choosing an appropriate representative portion of people for defining features of the whole population (Merriam Webster dictionary, 2010).

3.6.1. Sample size

This study used a stratified random sampling strategy to make a sample size.Stratified random sampling is a technique of sampling that includes the division of a population into smaller groups known as strata. In stratified random sampling or stratification, the strata are made based on participants' shared attributes or characteristics (Philip cowen, 2014).

The formula of Taro Yamane (1967) has been used to calculate the sample size of nurses for representing all nurses working in operating theatres of referral teaching hospitals in Rwanda. So, the following formula has been used to get the sample size:

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

Where: n= Sample size; N=Population size; e= the acceptable sampling error (e=0.05). Consequently, the sample size was **n=90 /1+90*(0.05)^2 =74 nurses** working in operating theatres at selected referral teaching hospitals in Rwanda.

The proportion (P) of nurses from each stratum has been calculated by applying the simple rule of three. Thus P1, P2 and P3 are proportions representing the number of nurses selected from each formed stratum respectively for making a sample size of 74 nurses. So,

Nurses from University Teaching Hospital of Kigali **(P1) =(74*37)/90=31 nurses;**

Nurses from University teaching hospital of Butare **(P2)= (74*26)/90=21 nurses**;

Nurses from King Faisal Hospital **(P3)= (74*27)/90=22 nurses**

In fact, the sum of nurses from each operating theatre of referral teaching hospital was made of a sample size of n=P1+P2+P3=P4=31+21+22= **74 nurses**

3.6.2. Sampling strategy

This study used a stratified random sampling strategy. All nurses with required inclusions criteria formed subgroups called strata according to their respective working place. There are about 90 nurses working in theatres at referral teaching hospitals in Rwanda such as 37 nurses are working at University Teaching Hospital of Kigali, 26 nurses are these working at University Teaching Hospital of Butare and 27 nurses are working at King Faisal Hospital.

The strata have been formed by focusing on the working hospital place. Therefore, the University Teaching Hospital of Kigali, University Teaching Hospital of Butare and King Faisal Hospital formed these strata such as stratum 1, stratum 2 and stratum 3 respectively. In each formed stratum, nurses were selected through a simple randomly sampling for making a sample size.

3.7. Validity and reliability of research instrument

The fruitful quantitative research should have an accuracy and consistency in measurement. The instrument and or procedure should measure what they are supposed to measure and be consistent to what they are measuring (Rebar *et al.*, 2011, pp. 161–162).

3.7.1. Pilot study

This pilot study aimed to evaluate the reliability, validity, simplicity application and clarification of the study tool and necessary changes to be made. It was conducted among 9 nurses working in theatre at a selected district hospital in Southern province. The aim of pilot study was to check if the questionnaire was understandable to participants and to prove its reliability and validity.The nures who participated in this study were excluded in main study sample.Pilot study showed that some statements were not understandable to participants the reason why the changes have been made for making them easy understandable to participants before conducting the main study among nurses working in theatre at referral teaching hospitals in Rwanda. In addition to that, each participant was requested to comment on statements which were understandable and those which were not well understandable and then the researcher adapted the questionnaire.

The changes made after pilot study were in the section one about the demographic data on the question number 5 where needed to be completed by the other question number 6 regarding the types of training received by nurses working in operation theatre. In the section three about the practices of preoperative teaching on the statement number 18 was like the same as the statement number 12, so that they have been modified and combined in one statement. The statement number 20 and 21 seemed like not all completed and they have been edited and completed for better understandable to participants. In the section four about the barriers to the practice of preoperative teaching, the statements from number 1 to number 8 were completely modified. The small changes also have been made in the same section on the statements number 11, 12 and 14 for better understandable to participants. The pilot study helped the researcher to review the tool based on the obtained results .

After conducting the pilot study on 9 nurses working in theatre at a selected district hospital, the researcher checked the clarity and understandability of the tool items and then consulted an expert person in statistics for the validity and reliability of the adapted tool in order to test if it meets the objectives of the study.

3.7.2. Validity of instrument

Validity of instrument is defined as the degree at which an instrument truly have to measure what it is suggested to measure (Polit&Beck,2014,p.205). The structured self-administered questionnaire was used in this study.

Content validity

Content validity id defined as the level at which an instrument is composed of suitable and fit items to be measured (Polit&Beck,2014,p.205).

In this study, the content validity was confirmed through the comparison of items of the tool against the objectives of the study in order to determine whether they measured all elements to be explored in this study. The researcher ensured content validity of the instrument by consulting an expert person in statistic to evaluate that the structure of the questionnaire was in logic order.

Face validity

Face validity refers to whether the instrument looks or appears as if it is measuring the appropriate construct. Face validity deals with the superficial appearance of a measurement technique (Polit&Beck,2014,p.205). In this study, the questionnaire has been assessed by statistician for ensuring that the structure of the questionnaire was in logic order.

3.7.3. Reliability of instrument

Reliability of an instrument is defined as the degree to which an instrument measures the attribute with consistent, stable and repeatable outcomes or effect (Polit&Beck,2014,p.72).

Therefore the reliability of the study tool was established again by the expert in statistic to ensure that the data collected from the respondents were consistent to study objectives and that the questions were consistent with the title of study. The study tool has been proven that it was reliable and valid with a Cronbach alpha coefficient of 0.815 as calculated.

3.8. Data Collection

3.8.1. Data Collection Instrument

The researcher used an adapted structured questionnaire developed by Ablan Rancelle. This structured questionnaire was adapted in relation to the specific objectives and research questions of this study.The study questionnaire was addressed to nurses working in operating theatres at each mentioned referral teaching hospital in Rwanda for collecting quantitative data about knowledge, practice and barriers of preoperative patients teaching.

The questionnaire was composed of different statements made according to Likert scale for identifying nurses' knowledge, practice and related barriers about the preoperative patients teaching. It has four main sections such as section one was about 7 questions on the demographic data; section two was about 17 statements on nurses 'knowledge about the preoperative patients teaching; section three was composed of 22 statements on the practices of preoperative patients teaching and the fourth section was about 15 statements on the barriers to the practice of preoperative patients teaching.

3.8.2. Data collection procedure

After getting the permission from IRB and that from the study sites, the researcher went to the study site and introduced herself to the research director at each referral teaching hospital and to the nurses in charge of every respective theatre. There was a short brief meeting between researcher and theatre managers to give explanation on the purpose of the study and to gain the consent to do the study among nurses working in respective theatre. The participants received some explanations regarding the study objectives and allowed to read enough the informed consent and asked questions for more clarification and then sign it. Every nurse who accepted to participate in the study has received the questionnaire to fill and submitted it filled to the researcher.

3.9 Data analysis

The data were analyzed according to the types of variables of the study and the distribution of data by using an SPSS software version 21 through descriptive and inferential statistics for generating frequencies, percentages and Correlation tests like bivariate analysis test and regression analysis test. The bivariate analysis test was used for identifying the relationship between two dependant variables such as knowledge and practice while regression analysis test was used for identifying the relationship between independents and dependant continuous

variables such as demographic characteristics with knowledge and demographic characteristics with practice respectively.

3.10. Ethical consideration

Before conducting this study, the researcher got the permission from UR IRB and that from the study site. The researcher also considered the informed consent from participants allowing them to participate in study freely. The explanation about the purpose and process of the study were provided to the participants. The Participation was voluntary and respondents could be withdrawn from the whole study at any time he/she wanted. The privacy of information received from the participants have been ensured in this study for ensuring that there no harm to them. Regarding confidentiality, the study tool was anonymous without participants'identification for keeping and managing the information from the participants.

3.11. Data management

The filled questionnaires have been stored safely, the data were coded, entered and saved into the computer in SPSS program and then secured by a password known only by the researcher. The data were categorized based on the variables by using the codes and this information must be only used for this research purpose. Both hard and soft copies were continued to be stored as they can be needed for future research and helpful to the respective teaching hospitals.

3.12. Data Dissemination

The researcher will present the results of this study at College of Medicine and Health Science (CMHS) at Remera campus. The data will be available to nursing department at CMHS/Remera and Huye campuses. The data will be communicated to the concerned director of referral Teaching hospitals in Rwanda through their respective research committee. The researcher will disseminate the results from this study to the nurses working in respective operating theatres of referral teaching hospitals such these nurses of University Teaching Hospital of Kigali, University Teaching Hospital of Butare and King Faisal Hospital. The researcher will make presentations of findings of this study in seminars, workshop and conferences and the effort will be made for publishing the results from this study.

3.13. Limitations and challenge to the study

The limitation of this study were the consent of nurses to participate in the study because of their heavy workload in operating theatres and the limited time for the researcher for collecting and analysing the data from the participants as she combines the work and the study at school. There was no generalization of the study findings to other hospitals due to small sample size used in this study.

3.14. Conclusion to chapter three

The chapter three focused on the research methodology that is the process and methods to obtain information from nurses working in operating theatres of referral teaching hospitals in Rwanda by administering the structured questionnaire to them for assessing their knowledge and practices of preoperative patients teaching. The obtained data have been coded and entered into the computer for being analyzed through SPSS program version 21 and they were used only for the purpose of this research.

CHAPTER FOUR. RESULTS

4.0. INTRODUCTION

This section represents the findings of information obtained from the structured self-administered questionnaire on knowledge, practices and barriers toward the practices of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda. Seventy four questionnaires were administered to nurses working in respective operating theatres and received back to the researcher for analysis. The data collected were analyzed using frequencies, percentages, mean, and correlation and regression tests. The findings were presented in form of tables according to the objectives of this study.

4.1. DISTRIBUTION OF PARTICIPANTS ACCORDING TO DEMOGRAPHIC CHARACTERISTICS

Demographically, table 4.1 showed that the highest percentage 32 (43.2%) of the participants were in the age group of 35-44; 46 (62.2%) were female; the majority of participants 48 (64, 9 %) were married. Half 37 (50%) of respondents had advanced diploma in nursing (A1); 70 (94.6%) of participants had no training in perioperative nursing; Out of 70, 58 (83.0%) of participants received the informal training; and 38(51.4%) had worked in theatre between 3-5 years.

Table 4.1. Distribution of participants according to their demographic characteristics

Variables	Frequency	Percent
Age groups 25-34	28	37.8
35-44	32	43.2
45-54	14	18.9
Total	74	100.0
Gender Male	28	37.8
Female	46	62.2
Total	74	100.0
Marital status Single	22	29.7
Married	48	64.9
Widow	4	5.4
Total	74	100.0
Level of education A1	37	50.0
A0	35	47.3
Masters	2	2.7
Total	74	100.0
Training in perioperative nursing		
Yes	4	5.4
No	70	94.6
Total	74	100.0
Types of training received		
Formal	12	17
Informal	58	83
Total	70	100.0
Working period in theatre		
Below 1 year	6	8.1
1-3 years	15	20.3
3-5 years	38	51.4
5 years and above	15	20.3
Total	74	100.0

4.2 PRESENTATION OF FINDINGS AS ALIGNED WITH THE OBJECTIVES

4. 2.1. DISTRIBUTION OF PARTICIPANTS ACCORDING TO KNOWLEDGE ON PREOPERATIVE PATIENTS TEACHING

Table 4.2 showed the distribution of participant according to their knowledge on preoperative patients teaching. Among 74 participants, the majority 23(31.1%) agreed that they know the appropriate surgical setting to provide preoperative patients teaching, 23(31.1%) neither know the appropriate surgical setting in which to provide preoperative patients teaching; 29(39.2%) agreed that preoperative patients teaching should be given to surgical patients and their families before surgery; 38(51.6%) agreed that preoperative teaching is provided to patients within a specific time before surgery; 38(51.4%) disagreed that the preoperative patients teaching is the responsibility of theatre nurses; 47(63.5%) agreed that preoperative teaching can prevent the preoperative anxiety among patients undergo surgery; 41(55.4%) strongly agreed that preoperative teaching reduce the post-operative complications among surgical patients; 34(45.9%) agreed that preoperative patients teaching help patients to build up an idea of what to expect after surgery; 34(45.9%) strongly agreed that preoperative teaching facilitates the patients undergoing surgery to follow post-operative instructions; 54(73%) strongly agreed that the fasting time is the type of preoperative information to teach to patients before undergoing surgery;   30(40.5%) of participants agreed that preoperative patients teaching include medications to use perioperatively.

This study continued showing that the majority 34(45.9) of respondents disagreed that the preoperative patients teaching involve the explanations regarding the types of anaesthesia to use during surgery; 26 (35.1%) neither know if preoperative patients teaching include the information regarding perioperative environment; 39 (52.7%) agreed that the preoperative patients teaching involve the management of post-operative pain; 28(37.8%) agreed that the preoperative patients teaching involve the postoperative deep breathing and coughing; 35(47.3%) agreed that preoperative patients teaching include post-operative patient's early and first mobilization and ambulation; 42(56.8%) strongly agreed that preoperative patients teaching involve the information regarding the skin decontamination on the day of surgery and while 53(71.6%) strongly agreed that preoperative patients teaching should inform patients undergoing surgery to left all valuables and remove denture, glasses, contact lenses, prosthesis, makeup, nail polish, hairpins or hairpiece before entering into the operating theatre.

Table 4.2.Distribution of participants according to knowledge on preoperative teaching

Variables		Strongly agree (5)	Agree (4)	Somewhat agree (3)	Disagree (2)	Strongly disagree (1)
Preoperative teaching should be given by theatre nurses at appropriate surgical setting.	Fq (%)	8 (10.8)	23 (31.1)	23 (31.1)	19 (25.7)	1 (1.4)
Preoperative teaching should be given to surgical patients and their families before surgery.	Fq (%)	14 (18.9)	29 (39.2)	17 (23)	13 (17.6)	1 (1.4)
Preoperative patient teaching should be delivered at specified time before surgery	Fq (%)	11 (14.9)	38 (51.6)	12 (16.2)	12 (16.2)	1 (1.4)
Preoperative patients teaching is the responsibility of theatre nurses	Fq (%)	3 (4.1)	4 (5.4)	14 (18.9)	38 (51.4)	15 (20.3)
Preoperative patient teaching can prevent preoperative anxiety in patients undergoing surgery.	Fq (%)	47 (63.5)	22 (29.7)	3 (4.1)	2 (2.7)	0
Preoperative patients teaching reduce post-operative complications among surgical patients.	Fq (%)	41 (55.4)	22 (29.7)	7 (9.5)	4 (5.4)	0
Preoperative patients teaching help to build up an idea of what to expect after surgery.	Fq (%)	27 (36.5)	34 (45.9)	7 (9.5)	6 (8.1)	0
Preoperative teaching facilitates the patients undergoing surgery to follow post-operative instructions.	Fq (%)	34 (45.9)	30 (40.5)	5 (6.8)	5 (6.8)	0
Fasting time is the type of preoperative information to teach to patients before undergoing surgery.	Fq (%)	54 (73.0)	20 (27.0)	0	0	0
Preoperative patients teaching include medications to use perioperatively.	Fq (%)	20 (27.0)	30 (40.5)	14 (18.9)	9 (12.2)	1 (1.4)
Preoperative patients teaching involve the explanations regarding the types of anaesthesia to use during surgery.	Fq (%)	7 (9.5)	21 (25.4)	26 (35.1)	14 (18.9)	6 (8.1)

Table 4.2.Distribution of participants according to knowledge on preoperative patients teaching Cont'd

Preoperative patients teaching include the information regarding perioperative environment.	Fq (%)	3 (4.1)	9 (12.2)	19 (25.7)	34 (45.9)	9 (12.2)
Preoperative teaching involve the management of post-operative pain	Fq (%)	0	8 (10.8)	8 (10.8)	39 (52.7)	19 (25.7)
Preoperative teaching involve post-operative deep breathing and coughing	Fq (%)	9 (12.2)	28 (37.8)	14 (18.9)	19 (25.7)	4 (5.4)
Preoperative patients teaching include postoperative patient's early and first mobilization and ambulation.	Fq (%)	24 (32.4)	35 (47.3)	11 (14.9)	2 (2.7)	2 (2.7)
Preoperative patients teaching involve the information about skin decontamination on the day of surgery.	Fq (%)	42 (56.8)	27 (36.5)	5 (6.8)	0	0
Preoperative teaching should inform patients to left valuables and remove all objects before entering operating theatre	Fq (%)	53 (71.6)	18 (24.3)	3 (4.1)	0	0

*Fq: Frequency

*(%): Percentage

4.2.2 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE LEVEL OF KNOWLEDGE ON PREOPERATIVE PATIENTS TEACHING

Table 4.3 showed the distribution of respondents according to the level of knowledge. Knowledge of nurses working in operating theatres at referral teaching hospitals in Rwanda about the preoperative patients teaching was presented using the cut off score of knowledge of participants. There were 17 statements on knowledge about preoperative patients teaching and they had to choose one among strongly agree (5), agree (4), somewhat agree (3), disagree (2) and strongly disagree (1).

Therefore, the cut off score was made according to the responses from the participants whose responded "Somewhat agree" that equal to the score of 51%.This means that the participants with the score below 51% (cut off score) were classified as having low knowledge on

preoperative patients teaching and these with the score above 51% were classified as having high knowledge on preoperative patients teaching. The cut off score of knowledge: <51% low level of knowledge; > 51% high level of knowledge.

According to the descriptive statistics, there were 5 participants scored below 51% and 67 scored above 51% while 2 were scored 51% as this score was considered as cut off score for knowledge. Therefore, the results 67(93.0%) indicated that the nurses working in operating theatres at referral teaching hospitals had high level of knowledge on preoperative patients teaching.

Table 4.3. Distribution of participants according to the level of knowledge (Cut off score =51/100)

Knowledge categories	Frequency	Percentage (%)
Low level of knowledge	5	7.0 %
High level of knowledge	67	93.0%
Total	72	100.0%

4.2.3. DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE PRACTICES OF PREOPERATIVE PATIENTS TEACHING

Table 4.4 below showed the distribution of participants according to the practices of preoperative patients teaching. Among 74 of participants, the majority 30(40.5%) did not often provide preoperative teaching to patient before surgery; 35(47.3%) did not often do preoperative teaching among next of kin of patients undergoing surgery; 34(45.9%) did not often teach patient's family members before surgery;31(41.9%) did not often teach patients undergoing surgery within a specific time prior to surgery while 31(41.9%) neither agreed nor disagreed if they often teach patients undergoing surgery within a specific time prior to surgery; 30(49.5%) neither agreed nor disagreed that they often teach about fasting time to the patients before undergoing surgery; 29(39.2%) did not often teach the patients about medications to use perioperatively; 45(60.8%) did not often provide the explanations regarding the types of anaesthesia to use during surgery; 47(63.5%) did not often provide teaching regarding perioperative environment to patients before surgery; 35(47.3%) did not often teach patients before undergoing surgery about the management of post-operative pain; 39(52.7%) did not often teach the patients undergoing surgery about the exercises to perform

after surgical operation; 36(48.8%) neither agreed nor disagreed if they often provide teaching to patients undergoing surgery about the skin hygiene on the day of surgery.

The results of this study also showed that a half 37(50%) of participants neither agreed nor disagreed if they often teach patients undergoing surgery to left valuables to and remove all jewelries before going into the operating room for surgery; 31(41.9%) always have no difference in the way to teach surgical patients and their related family members; 40(54.1%) did not often use different methods when providing preoperative teaching to patients before surgery; 38(51.4%)did not often use didactic materials when providing preoperative patient teaching; 28(51.4%) disagreed that the preoperative didactic materials are easy to use when teaching patients before surgery; 24(32.4%) neither agreed nor disagreed if they are often more comfortable when teaching patients before surgery; 43(58.1%) did not teach the patients undergoing surgery about post-operative activities restriction; 43(58.1%) did not teach the patients undergoing surgery about post-operative deep breathing and coughing; 42(56.8%) did not teach the patients undergoing surgery about the time for postoperative early mobilization; 42(56.8%) did not teach the patients undergoing surgery that the nursing personnel must assist him/her to perform first ambulation; and 30(40.5%) neither agreed nor disagreed if often verify the preparedness of patients before surgery.

Table 4. 4.Distribution of participants according to the practices of preoperative patients teaching

Variables		Strong agree(5)	Agree (4)	Somewhat agree (3)	Disagree (2)	Strongly disagree (1)
Often provide preoperative teaching to patient before surgery.	Fq	2	3	29	30	10
	(%)	(2.7)	(4.1)	(39.1)	(40.5)	(13.5)
Often do preoperative teaching among next of kin of patients undergoing surgery	Fq	0	0	25	35	14
	(%)			(33.8)	(47.3)	(18.9)
Often teach patient's family members before surgery	Fq	0	0	13	34	27
	(%)			(17.6)	(45.9)	(36.5)
Often teach patients undergoing surgery within a specific time prior to surgery.	Fq	0	5	31	31	7
	(%)		(6.8)	(41.9)	(41.9)	(9.5)
Often teach about the fasting time to the patients before undergoing surgery.	Fq	14	24	30	5	1
	(%)	(18.9)	(32.4)	(49.5)	(6.8)	(1.4)
Often teach patient about medication to use perioperatively	Fq	1	6	26	29	12
	(%)	(1.4)	(8.1)	(35.1)	(39.2)	(16.2)
Often teach on the types of anesthesia to use during surgery	Fq	0	0	6	45	23
	(%)			(8.1)	(60.8)	(31.1)
Often teach information regarding perioperative environment to patients before surgery.	Fq	0	1	7	47	19
	(%)		(1.4)	(9.5)	(63.5)	(25.7)
Often explain to patient before surgery about the post-op pain management	Fq	0	7	22	35	10
	(%)		(9.5)	(29.7)	(47.3)	(13.5)
Often teach patients about exercises to perform after surgery	Fq	0	1	14	39	20
	(%)		(1.4)	(18.9)	(52.7)	(27)
Often provide teaching to patients undergoing surgery about the skin hygiene on the day of surgery	Fq	6	16	36	16	0
	(%)	(8.1)	(21.6)	(48.8)	(21.6)	
Often teach patients to left valuables to and remove all jewelries before entering the operating room	Fq	5	15	37	17	0
	(%)	(6.8)	(20.0)	(50.0)	(23.0)	
There is always a difference in the way to teach patients and their family members.	Fq	0	3	30	31	10
	(%)		(4.1)	(40.5)	(41.9)	(13.5)
Teach patients by using different methods	Fq	0	0	17	40	17
	(%)			(23.0)	(54.1)	(23.0)

Table 4. 4.Distribution of participants according to the practices of preoperative patients teaching Cont'd

Often use didactic materials when teaching patients before surgery	Fq (%)	0	0	1 (1.4)	38 (51.4)	35 (47.3)
The preoperative didactic materials are easily to use when teach patients before surgery	Fq (%)	0	0	11 (14.9)	28 (51.4)	25 (33.8)
More comfortable when teaching patients before surgery	Fq (%)	19 (25.7)	18 (24/3)	24 (32.4)	11 (14.9)	2 (2.7)
Often teach the patients before surgery about post-op activities restriction	Fq (%)	0	2 (2.7)	8 (10.8)	43 (58.1)	21 (28.4)
Often teach patients undergo surgery about post-op deep breathing and coughing	Fq (%)	0	0	4 (5.4)	43 (58.1)	27 (36.5)
Often teach the patient about the time for post-operative early mobilization	Fq (%)	0	1 (1.4)	13 (17.6)	42 (56.8)	18 (24.3)
Often teach surgical patients that the nursing personnel must assist him/her to perform first ambulation	Fq (%)	0	0	8 (10.8)	42 (56.8)	24 (32.4)
Often verify the preparedness of patients before surgery	Fq (%)	0	20 (27)	30 (40.5)	22 (29.7)	2 (2.7)

*Fq: Frequency

*(%): Percentage

4.2.5 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE LEVEL OF PRACTICES OF PREOPERATIVE PATIENTS TEACHING

The table 4.5 below showed the level of practices of preoperative patients teaching. Practice of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda was analyzed using the cut off score of participants on practices. There were 22 statements on practices of preoperative patients teaching and they had to choose one among strongly agreed (5), agreed (4), somewhat agree (3), disagreed (2) and strongly disagreed (1) in order to respond to these statements.

So, the cut off score was made according to the responses from the participants who responded "Somewhat agree" that equal to the score of 66%.This means that the participants

with the score below 66% (cut off score) were classified as having poor practice on preoperative patients teaching and these with the score above 66% were classified as having good practices on preoperative patients teaching.

There were 72 participants scored below 66% and 2 participants scored above 66%. Therefore, the results 72(97.3%) indicated that the nurses working in operating theatres had poor practices of preoperative patients teaching while only 2(2.7%) had good practices of preoperative patients teaching.

Table 4.5.Distribution of participants according to the level of practices of preoperative patients teaching (Cut off score=66%)

Practice categories	Frequency	Percent
Poor practice	72	97.3%
Good practice	2	2.7%
Total	74	100.0%

4.2.6 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE RELATIONSHIP BETWEEN KNOWLEDGE AND PRACTICE SCORES

Table 4.6 highlighted the results of bivariate analysis. It revealed that there was a significant correlation between score of knowledge and score of practice with P-value = 0.023 and the direction of the relationship is positively correlated with correlation coefficient R=0.265. This means that knowledge and practice tend to increase together.

Table 4.6.Distribution of participants according to the bivariate correlation between knowledge score and practice score

Score	Practice score	
	Correlation coefficient(R)	P-value
Knowledge score	0.265	0.023

4.2.7 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE RELATIONSHIP BETWEEN DEMOGRAPHIC DATA AND KNOWLEDGE

To determine the possible relationship between demographic data and knowledge score among study participants, the regression analysis in table 4.7 below showed that there is only a significant association between working period in operating theatres and knowledge score with P-value =0.001.

Table 4.7. Distribution of participants according to the relationship between demographic data and knowledge score

Regression analysis	Knowledge score
Demographic data	**P-value**
Age	.501
Gender	.400
Marital status	.500
Level of education	.360
Type of training received	.214
Working period in theatre	.001

4.2.8. DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE RELATIONSHIP BETWEEN DEMOGRAPHIC DATA AND PRACTICES

To determine the possible relationship between demographic data and the practice score among study participants, the regression analysis in table 4.8 below showed that there is only a significant association between type of training received and practice score with P-value of 0.044.

Table 4.8.Distribution of participants according to the association between demographic data and practice score

Regression analysis	Practice score
Demographic data	**P-value**
Age	.397
Gender	.499
Marital status	.799
Level of education	.710

Type of training received	.044
Working period in theatre	.200

4.2.9. DISTRIBUTION OF PARTICIPANTS ACCORDING TO BARRIERS TO THE PRACTICES OF PREOPERATIVE PATIENTS TEACHING

The table 4.9 highlighted the barriers to the practices of preoperative patients teaching. Among 74 participants, the majority 26(35.1%) agreed that lack of didactic materials to use preoperatively can affect the delivery of preoperative patients teaching; 42(56.8%) disagreed that the methods used preoperatively can be a challenge to preoperative teaching of patients before surgery; 33(44.6%) neither agreed nor disagreed that the lack of working hospital 's regular and updated training on preoperative teaching is a barrier to its proper delivery to patients before undergoing surgery; 48(64.9%) strongly agreed that preoperative patients teaching is affected by a heavy daily workload of nursing staff in operating theatre; 53(71.6%) strongly agreed that the lack of time among nursing staff of operating theatre can affect the delivery of preoperative teaching to patients undergoing surgery.

The result of this study continued showing that the majority 57(77%) of respondents strongly agreed that the shortage of operating theatre nursing staff is a factor affecting the practice of preoperative patient teaching; 35(47.3%) agreed that the lack of experience among nursing staff is a factor affecting the preoperative teaching to patients undergoing surgery; 43(58.1%) agreed that the culture can affect the delivery of preoperative teaching to patients undergoing surgery; 38(51.4%) agreed that the language can be a barrier in delivering preoperative patient teaching; 45(60.8%) strongly agreed that the preoperative patients teaching can be affected by the tight operations scheduled daily in operating theatre; 38(51.1%) agreed that the health literacy level can be a factor affecting the delivery of preoperative teaching to patients undergoing surgery; 38(51.4%) agreed that the preoperative patients teaching is a challenge among critically ill patients; 41(55.4%) agreed that preoperative patient teaching is affected among patients with fear of unknown; 40(54.1%) agreed that the patient and family anxiety about outcome of surgery is a barrier to the practice of preoperative patients teaching; and 34(45.9%) neither agreed nor disagreed if the lack of working hospital support for improving participants' knowledge about preoperative patients teaching can be a barrier to its correct practice.

Table 4.9. Distribution of participants according to the barriers to preoperative patients teaching

Variables		Strongly agree(5)	Agree (4)	Somewhat agree (1)	Disagree (2)	Strongly Disagree(1)
Lack of didactic materials to use preoperatively affect the delivery of preoperative patients teaching	Fq (%)	8 (10.8)	26 (35.1)	23 (31.1)	17 (23)	0
Different methods used preoperatively can be a challenge to preoperative patients teaching	Fq (%)	0	8 (10.8)	22 (29.7)	42 (56.8)	2 (2.7)
Lack of hospital updated training on preoperative teaching is a barrier to its provision	Fq (%)	0	23 (31.1)	33 (44.6)	16 (2.6)	2 (2.7)
Preoperative teaching is affected by a heavy daily workload of nursing staff of theatre	Fq (%)	48 (64.9)	25 (33.8)	1 (1.4)	0	0
Lack of time among nursing staff of operating theatre is a barrier to the provision of preoperative teaching	Fq (%)	53 (71.6)	21 (28.4)	0	0	0
Preoperative teaching is affected by insufficient nursing staff of operating theatre	Fq (%)	57 (77)	15 (20.3)	2 (2.7)	0	0
Lack of experience can be an factor affecting the preoperative patient teaching	Fq (%)	23 (31.1)	35 (47.3)	12 (16.2)	4 (5.4)	0
Culture can affect the delivery of preoperative patients teaching	Fq (%)	11 (14.9)	43 (58.1)	15 (20.3)	4 (5.4)	1 (1.4)
Language can be a barrier in delivering of preoperative patients teaching	Fq (%)	6 (8.1)	38 (51.4)	25 (33.8)	5 (6.8)	0

Table 4.9. Distribution of participants according to the barriers to preoperative patients teaching Cont'd

Preoperative teaching is affected by the tight operation scheduled daily in operating theatre	Fq (%)	45 (60.8)	25 (33.8)	3 (4.1)	1 (1.4)	0
Health literacy level affects the delivery of preoperative patients teaching	Fq (%)	5 (6.8)	38 (51.1)	23 (31.1)	7 (9.5)	1 (1.4)
Preoperative teaching is a challenge among critically ill patients	Fq (%)	32 (43.2)	38 (51.4)	4 (5.4)	0	0
Preoperative teaching is affected among patient with fear of unknown	Fq (%)	27 (36.5)	41 (55.4)	4 (5.4)	2 (2.70	0
Patient and family anxiety about the outcome of surgery is a barrier to preoperative patients teaching	Fq (%)	21 (28.4)	40 (54.1)	11 (14.9)	2 (2.7)	0
Lack of working hospital support to improve knowledge can affect the preoperative patients teaching	Fq (%)	2 (2.7)	24 (32.4)	34 (45.9)	13 (17.6)	1 (1.4)

*Fq: Frequency

*(%): Percent

CHAPTER FIVE: DISCUSSION

The aim of this section is to discuss results from this study according the study objectives. The results were compared with the literature reviews of studies conducted by other researchers to exchange opinions of authors on the set objectives. This study determined the knowledge, practices and barriers of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda. This study contributes to the growth of the body of knowledge and practices towards the preoperative patients teaching.

5.1 DEMOGRAPHIC CHARACTERISTICS OF NURSES WORKING IN THEATRES

According to the demographic characteristics of nurse working in Operating Theatre (OT), this study revealed that among 74 participants, the highest percentages 32 (43.2%) of the participants were in age group of 35-44. This is contrary to the study by (Aliyu. et al,2015) in Nigeria that showed that the majority (65.8%) of participants in their study were in fifty years old and that of (Blomberg, Bisholt and Lindwall, 2018) that revealed that the participants of their study were in age group of 34–60 years. This also is contrary to the report by (Dhakal et al,2016) that revealed that highest 67.9 % of respondent were in age below 25 years while study by (Labrague et al, 2012) revealed that (42.86%) of participants in their study were in age group between 25 to 30 years old.

Regarding gender, the majority of participants 46 (62.2%) of this study were female. This is similar to the studies by (Leodoro et al, 2012) and (Aliyu et al,2015) that revealed that the major part of participants were female (76.19%) and seventy nine (54.1%) of the participants were females respectively. This also is supported by the fact that historically there are more female than males in nursing profession worldwide.

In addition, the finding of this study revealed that a half 37(50%) of respondents had advanced diploma in nursing (A1).This is contrary to the study by (Blomberg, Bisholt and Lindwall, 2018) that showed that the participants in their study were Registered nurse with different educational backgrounds and the study by (Oyetunde and Akinmeye, 2015) showed that 34 (17.7%) of respondents had bachelor's degree in nursing, while others have postgraduate degrees such as masters. This can be due to the structure of the nursing programs in the country that can include early or later the nursing in their curriculum according to the population need and country context.

This study also highlighted that the participants 38(51.4%) had worked in operating theatres between 3-5 years. This is similar to the studies by (Mitchell, M.,2016) and (Dhakal et al, 2016) which showed that 46 (34%) of respondents employed in the theatre setting for 1–5 years and most of respondents 75% had working experience of five years and below respectively. This finding is contrary to the study by (Mohan *et al.*, 2018) showed that majority of participants in their study had up to 6 years of working experience in operating theatre.

Concerning the type of training received, the majority 58 (78.4%) received the informal training helping them to work in operating theatre .This is contrary to the study by (Aliyu et al, 2015) that (97.3%) of participants acquired the formal training in perioperative nursing right from the school. This is in relation to that the official training of specialist perioperative nurses in Rwanda was not yet established since many years ago (Ryamukuru *et al.*, 2018). That program of perioperative nursing was started since 2015 in University of Rwanda.

5.2.KNOWLEDGE OF NURSES ON PREOPERATIVE PATIENTS TEACHING

Regarding the score of knowledge of participants, the findings of this study showed the highest knowledge score of participants was 77% and the least knowledge score was 34%. In this study, the majority 67(93.0%) of participants had high level of knowledge on preoperative patients teaching. This is supported by the study of (Aliyu et al,2015) among Nigerian perioperative nurses that showed that the nurses have correct knowledge about teaching patients before undergoing surgical operation. Other similar study on factors influencing the practice of preoperative patients teaching conducted in University College Hospital of Ibadan by (Oyetunde and Akinmeye, 2015) indicated that nurses have good knowledge and positive attitude toward patients teaching before surgery.

The big number 38(51.4%) of participants in this study disagreed that the preoperative patients teaching is the responsibility of theatre nurses. This is similar to the studies by (Alawadi et al., 2016) that revealed that there is confusion about the duty to deliver information to clients and about 60% of nurses thought that doctors were primarily responsible to provide pre-operative information to patients before surgery. This is contrary to the study by (Ali, Lalani and Malik, 2012) that revealed that the preoperative patient teaching is the important duty of health care providers and that perioperative nurse work as a teacher in charge for teaching the clients before experiencing surgical operation for preventing the associated risks.

The participants 29(39.2%) agreed that preoperative patients teaching should be given to surgical patients and their families before surgery; the major 38(51.6%) of respondents agreed that preoperative teaching is provided to patients within a specific time before surgery. This finding is similar to the study by (Papanastassiou *et al.*, 2011) that reported that the preoperative teaching occurs before surgery. The other study also proved that the best time of preoperative patient teaching is between 1-3 weeks before undergoing surgery (Ali, Lalani and Malik, 2012) while the others reported that preoperative teaching should occur over a prolonged period of time in order to give the opportunity to surgical patient to ask questions and ensure information is assimilated. Therefore, ideally this teaching isn't done on the day of surgery but is an ongoing process which begins during their pre-admission visit (Farrell & Dempsey ,2013) and the timing of patient education also varies before or after admission, 1 day or several days or weeks before the operation (Papanastassiou et al.,2011)

Regarding the importance of preoperative teaching, the majority 47(63.5%) of participant of this study agreed that preoperative teaching can prevent the preoperative anxiety among patients undergo surgery; 41(55.4%) strongly agreed that preoperative teaching reduce the post-operative complications among surgical patients; 34(45.9%) agreed that preoperative patients teaching help patients to build up an idea of what to expect after surgery; 34(45.9%) strongly agreed that preoperative teaching facilitates the patients undergoing surgery to follow post-operative instructions. This is similar to the studies by (Lee C& Lee I, 2012); (Kalogianni el al., 2016) and (Tollefson et al., 2012) that showed respectively that the preoperative teaching is very important to surgical clients because it alleviate them from anxiety and post-operative complications and it allows patients undergo surgery to have more understanding of their surgery, feel more controlled, experience less post-operative pain, little time to stay at hospital and to have a quick recovery time. In addition, this finding is supported also by the study conducted by (Gerlitz, 2017) in Southern Alberta hospital that indicated that insufficient preoperative teaching results in increased anxiety, bigger risk of complications, extended hospital stays, and greater incidence for readmissions.

This study also revealed that, the majority of respondents 54(73%) knew that the fasting time is the type of preoperative information to teach to patients before undergoing surgery.This is similar to the report by (Mohan *et al.*, 2018) on knowledge of nurses about preoperative fasting time at Corporate Hospital that revealed that nurses were aware of the preoperative fasting but required further training for updating them.

5.3 PRACTICES OF PREOPERATIVE PATIENTS TEACHING

The results of this study showed that the highest practice total score of participants was 69% and the least practice score was 27%. The result also indicated that 72(97.3%) of participants had poor practice of preoperative patients teaching while only 2(2.7%) had good practices of preoperative patients teaching. This is similar to the study conducted by (Lee C & Lee I, 2012) in China Hong Kong that showed that there a conflicting matter in carrying out preoperative patients teaching among nurses.

This is also supported by the studies by (Aliyu, et al., 2015) and (Oyetunde and Akinmeye, 2015) respectively among Nigeria perioperative nurses and University College Hospital of Ibadan revealed that there is a positive attitude towards patients preoperative teaching but the practice was not effective. In addition to these similarities, the researcher found that this poor practice of preoperative patients teaching can be due to the shortage of nursing staff in theatre and to their low level of education because most of them have advanced diploma in nursing with informal training in perioperative nursing.

Among 74 of participants, the majority 30(40.5%) did not often provide preoperative teaching to patient before surgery; 35(47.3%) did not often do preoperative teaching among next of kin of patients undergoing surgery. This is contradicted with the study by (Ali, Lalani and Malik, 2012) that the role of preoperative nurse is to work as a teacher for recognizing the client's need for information on each aspect of surgical procedure and evaluate the mode and level of clients' communication and understanding before teaching in order to assist him/her in management of their anxiety and stress. This findings is also contrary to the study by (Friedman et al.,2015) that the patients are more anxious, fearful and less concentrated before surgery and so need having a supporting people present at the time of preoperative teaching period facilitate them to remind on an ongoing basis following the nurse appointment.

The majority 31(41.9%) of respondents in this study did not always have difference in the way to teach surgical patients and their related family members; 40(54.1%) did not often use different methods when providing preoperative teaching to patients before surgery while 38(51.4%) did not often use didactic materials when providing preoperative patient teaching. This findings are contrary to the studies by (Ortiz et al.,2015) and (King et al.,2014) that highlighted that a wide range of different methods have been described to facilitate the practice of preoperative teaching such as group or individualized lectures, printed information

such as a booklet or information sheet, audio-visual presentation, internet or a combination of these modalities, verbal communication to transmit information; written materials to supplement verbal communication to support surgical clients' understanding; a specific exercise booklet; a printout of the power point presentation used in group education session.

Out of 30(49.5%) participants neither agreed nor disagreed that they often teach about fasting time to the patients before undergoing surgery; 29(39.2%) did not often teach the patients about medications to use perioperatively. This is supported by the study by (Ablan, 2016) that the clinicians can enhance the client preparation by reinforcing teachings on preoperative fasting, medications, anaesthesia and postoperative care. The statement regarding the explanation on type of anesthesia to use during surgery, the results of this study showed that 45(60.8%) of respondents did not often provide the explanations regarding the types of anaesthesia to use during surgery.

This above finding is contradicted with the results of the study by (Ablan, 2016) that the health care provider should enhance the teaching on the anaesthesia and post-operative care to surgical patients. In addition, the majority of nurses working in theatre at referral hospitals receive informal training about perioperative nursing because recently in Rwanda, the program to train perioperative nurses was started recently since 4 years ago (Ryamukuru *et al.*, 2018).

The other results from this study showed that 35(47.3%) of participants did not often teach patients before undergoing surgery about the management of post-operative pain. This information results is contrary to the study conducted by (Papanastassiou et al., 2016) and (Koutoukidis & Stainton,K.,2016) that stated respectively that the preoperative teaching has a positive effect on client satisfaction, specifically in terms of post-operative pain management.

In regard to the preoperative teaching related to post-operative activities restriction, out of 39(52.7%) participants did not often teach the patients undergoing surgery about the exercises to perform after surgical operation, 42(56.8%) did not teach the patients undergoing surgery about the time for postoperative early mobilization; 42(56.8%) did not teach the patients undergoing surgery that the nursing personnel must assist to perform first ambulation while 43(58.1%) of participants in this study did not teach the patients undergoing surgery about post-operative deep breathing and coughing. This is contrary to the studies by (King et al., 2015) and (Koutoukidis & Stainton K.,2016) respectively that confirmed that the greatest

helpful part of the preoperative teaching delivered to patients is the importance of exercises to perform after surgical operation and postoperative activities the patient is expected to do such as activities restriction, deep breathing and coughing and early mobilization by nursing personnel.

5.4. RELATIONSHIP BETWEEN KNOWLEDGE AND PRACTICES OF PREOPERATIVE PATIENTS TEACHING

The results of bivariate analysis revealed that there was a significant correlation between knowledge and practice of preoperative patients teaching with P-value p. = 0.023 and the direction of this relationship is positive with correlation coefficient R=0.265. This means that knowledge and practice tend to increase together. This is similar to the study by (Grossweiler, 2012) that revealed that most perioperative nurses have correctly developed knowledge and positive attitude about preoperative patients teaching but there is an important gap between this knowledge and practice. The nurses have good knowledge but the practice is not effective at all. The others supporting studies by (Lee C &Lee I,2012) and (Oyetunde& akinnmeye,2015) that stated in their studies that the preoperative patients teaching was not entirely done by theatre nurses due to the diverse affecting factors while the study by (Iram Bokhari, Zahid Mehmood and Hhan, 2010) revealed also that there are still gaps in the way of providing adequate preoperative teaching to patients that could be improved by overcoming the affecting factors.

5.5 BARRIERS TO THE PRACTICE OF PREOPERATIVE PATIENTS TEACHING

Among 74 participants, the majority 26(35.1%) agreed that lack of didactic materials to use preoperatively can affect the delivery of preoperative patients teaching;48(64.9%) of participants strongly agreed that preoperative patients teaching is affected by a heavy daily workload of nursing staff in operating theatre; 53(71.6%) strongly agreed that the lack of time among nursing staff of operating theatre can affect the delivery of preoperative teaching to patients undergoing surgery; 57(77%) strongly agreed that the shortage of operating theatre nursing staff is a factor affecting the practice of preoperative patient teaching; 35(47.3%) agreed that the lack of experience among nursing staff is a factor affecting the preoperative teaching to patients undergoing surgery; 45(60.8%) strongly agreed that the preoperative patients teaching can be affected by the tight operations scheduled daily in operating theatre; 38(51.4%) agreed that the preoperative patients teaching is a challenge among critically ill

patients and 41(55.4%) agreed that preoperative patient teaching is affected among patients with fear of unknown.

These findings above are similar to the study by(Lee C& Lee I, 2012) that revealed that the top factors affecting the practice of preoperative teaching were time availability, language barriers, close-fighting operation programs, professional trainings and daily workload in the clinical setting. In addition to this, the other study by (Oyetunde and Akinmeye, 2015) indicated that chief factors that influencing the practice of clients teaching were the nurses' experiences, cultural, work place, lack of time, heavy workload, insufficient staffing, limited teaching aids and the complexity of clients' status.

Regarding the culture as a barrier to preoperative patients teaching, out of 43(58.1%) of respondents agreed that the culture can affect the delivery of preoperative teaching to patients undergoing surgery. This result is supported by the study finding of (Ablan, 2016) that suggested that nurses are not very comfortable when interrelating with patients with culture diversity. The nurses know the culture differences existed between them and assigned surgical patients and they reported that it is still a challenge to provide preoperative teaching to these patients.

The other results from this study on language and health literacy level showed that 38(51.4%) of participants agreed that the language can be a barrier in delivering preoperative patient teaching and 38(51.1%) agreed that the health literacy level can be a factor affecting the delivery of preoperative teaching to patients undergoing surgery. This is similar to the study by (Ablan, 2016) that reported that there is more challenge to provide preoperative health teaching to patients who speak different language and have inadequate knowledge about health information because nurses have to struggle with distrust in the process of translation and this leads to the transmission of ineffective of information to patients undergo surgery.

The majority 40(54.1%) of respondents agreed that the patient and family anxiety about outcome of surgery is a barrier to the practice of preoperative patients teaching. This result is in the same line with the study by (Ablan, 2016) which stated that nurses have the integral role in provision of health teaching to surgical patients and related family members for helping them improving and keeping the quality of health by being well-informed about what to expect both immediately before and after surgery.

CHAPTER SIX. CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

Preoperative teaching has confirmed useful in reducing anxiety and postoperative complications and length of hospital stay as well as positively influencing recovery among surgical patients. Patients who are well prepared with complete preoperative teaching deal more successfully with their surgical operation and are well prepared to cope with their pain and involve in suitable self-care activities.

6.2 CONCLUSIONS

Preoperative teaching is more effective in alleviating the anxiety and post-operative complications among surgical patients. It must be integrated into the daily routine practice of nurses working in operating theatre for preparing patients ready for surgery. This study revealed that most of nurses working in theatre at referral teaching hospital in Rwanda have advanced diploma in nursing and have no formal training about perioperative nursing. Most of them have good knowledge about preoperative patients teaching but the related practice is very poor. The study also revealed a positive correlation between knowledge and practices; significant association between working period of nurses in operating theatre and knowledge score, and the type of training received by the nurses working in operating theatres and practices. This poor practice of preoperative patients teaching among nurses working in operating theatres is due to the different barriers such as shortage of operating nursing staff, daily heavy workload of theatre nurses, close-tight operation program scheduled in operating theatre, lack of time among theatre nursing staff, health literacy, diverse culture and language of patients.

6.3. RECOMMENDATIONS

The following are recommendations specific to the findings from the study.

To nursing practice:

The findings from this study are addressed to nursing professional that there is a need of practice of preoperative patients teaching in the respective operating theatres and to allocate nurses specialist in perioperative nursing to work only in these operating theatres for better management of patients undergo surgery.

To Nursing education:

The findings from this study are addressed to the University of Rwanda that there is also a need to continue to train officially more perioperative nurse specialists at schools in Rwanda for increasing the capacity of nurses in the field of perioperative nursing.

To the administration of teaching hospitals:

The results of this study are addressed to the respective referral teaching hospitals administration that they have to increase the number of nursing staff to work in operating theatres and that there is a need to provide a regular training for new staff recruited for working in operating theatre and continue updating the nurses currently working in operating theatre about the perioperative nursing care while waiting for nurses specialist in perioperative nursing.

To the research:

Further studies are needed to be carried out using larger and more diverse samples to ensure generalization of the results and to evaluate the clinical importance of preoperative teaching in relation to patients 'post-operative outcomes.

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APPENDICES

APPENDIX A. APPROVAL TO USE THE QUESTIONNAIRE

Dative Maliza <dativemaliza7@gmail.com>   March17, 2019, 11:46 AM
to scholarworks@sjsu.edu.

Dear Ablan,

My name is MARIZA Dative, I'm a Rwandan, I'm a Registered nurse with Bachelor's degree. I work at University of Rwanda/School of Nursing and Midwifery as a Tutorial Assistant. Now, I'm upgrading my study for masters in science of nursing/ Perioperative nursing at University of Rwanda.

I want to conduct a research entitled" **Knowledge, Practice and barriers of preoperative patients teaching among nurses working in theatre at selected referral teaching hospitals in Rwanda**"

I am requesting the study tool that you had used for collecting data about this study entitled" **Barriers to Preoperative Teaching in a Culturally Diverse Healthcare Environment".** I request it in order to use it to collect Data among nurses working in theatres at selected referral teaching hospitals in Rwanda. I also request if I can adopt it and modify it according to my study objectives and to my country context. I'm waiting for your positive response.

Thank you.
Mariza Dative

Rancelle Ablan   Tue, April 7, 11:59 AM (20 days ago)
to me

Dear Dative,

I really appreciated your request. The tool is free and publicly available so you do not need permission to use it. You are full allowed to adopt, modifying it. However, please cite the instrument validation and reliability according to your study objectives and in your country context.

Of course! Good luck!

APPENDIX B. PERMISSION TO CONDUCT A STUDY AT University Teaching Hospital of Kigali.

CENTRE HOSPITALIER UNIVERSITAIRE

UNIVERSITY TEACHING HOSPITAL

Quality Health Care
Training & Research

Ethics Committee / Comité d'éthique

February 25th, 2019   Ref.: EC/CHUK/029/2019

Review Approval Notice

Dear Dative Mariza ,

Your research project: **"Knowledge and practices of preoperative patients teaching among nurses working in operating theatre at CHUK".**

During the meeting of the Ethics Committee of University Teaching Hospital of Kigali (CHUK) that was held on 25th February, 2019 to evaluate your request for ethical approval of the above mentioned research project, we are pleased to inform you that the Ethics Committee/CHUK has approved your research project.

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,

Dr.Emmanuel Rusingiza
The Chairperson, 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

APPENDIX C. PERMISSION TO CONDUCT A STUDY AT UNIVERSITY TEACHING HOSPITAL OF BUTARE

CENTRE HOSPITALIER UNIVERSITAIRE
UNIVERSITY TEACHING HOSPITAL

CENTRE HOSPITALIER UNIVERSITAIRE DE BUTARE (CHUB)
OFFICE OF DIRECTOR GENERAL

Huye, 14/03/2019

N° Ref: CHUB/DG/SA/02/.........../2019

0459

Mrs. Dative Mariza
UR-CMHS
Phone: +250788215086
Email: dativemaliza7@gmail.com

Dear Mariza,

<u>Re:</u> **Your request for data collection**

Reference made to your letter requesting for permission to collect the data within University Teaching Hospital of Butare for your research proposal entitled "*Knowledge and practices of preoperative patient teaching among Nurses working in operating theatres at referral hospital in Rwanda*", and based to the different approvals **Ref: CMHS/IRB/056/2019** from Institution Review Board of University of Rwanda and **No: RC/UTHB/012/2019** from our Research-Ethics committee, we are pleased to inform you that your request was accepted. Please note that your final document will be submitted in our Research Office.

Sincerely,

Dr. Augustin SENDEGEYA
Director General of CHUB
Cc:

- ➢ Head of Clinical Services Division
- ➢ Director of Education and Research
- ➢ Chairperson of Research Committee
- ➢ Research officer

CHUB

E-mail : info@chub.rw   B.P : 254 BUTARE
Website: www.chub.rw   Hotline: 2030

APPENDIX D: PERMISSION TO CONDUCT A STUDY AT KING FAISAL HOSPITAL

KING FAISAL HOSPITAL, KIGALI

Patient Centered Care

27th March, 2019

MARIZA DATIVE

Post graduate student- General Nursing

School of Nursing and Midwifery

College of Medicine and Health Sciences (CMHS)

University of Rwanda (UR)

Cell-phone: (+250) 788215086

Email: datuvamaliza7@gmail.com

We acknowledge receipt of your study protocol: **"Knowledge and Practices of preoperative patient teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda"**

After a thorough review; the reviewers of KFH, K Ethics Research Committee have found the topic of research important but the proposal lacks some important aspects like conceptual framework and actual consent form.

Therefore; It is however recommended that the postgraduate be allowed to commence her work at KFH as soon as possible but be expected to address and deposit the responses to the issues raised by the reviewers of KFH, K Ethics Research Committee in due course of her work at KFH,K.

N.B. It is a requirement that you deposit a final copy of your research in the office of Continuous Quality Improvement in King Faisal Hospital, Kigali for our records.

Best Regards

Prof. Samuel Lutalo

Clinical Professor of Medicine;

Chief Consultant Physician and

Chairperson KFH, K Ethics Research Committee

CC:
- Chief Executive Officer, Oshen- KFH
- All KFH, K Ethics-Research Committee Members.

King Faisal Hospital, Kigali will become a Centre of Excellence in health services provision and clinical education in Africa

• EMAIL: info@kfh.rw • Website: www.kfh.rw
GASABO DISTRICT, P.O. Box 2534 KIGALI, RWANDA

APPENDIX E: INDIVIDUAL INFORMED CONSENT

Dear participant;

I am MARIZA Dative, a student in post graduate studies; Masters of Science in Nursing, Perioperative track, School of nursing and Midwifery in College of Medecin and Health Sciences/University of Rwanda. My email addresses and Cell phone contact is dativemaliza7@gmail.com and +(250)788215086 respectively.

According to the Ethical clearance with reference CMHS/IRB/056/2019 made from the College of Medicine and Health Science Institutional Review Board (CMHS/IRB) allowing me to conduct the research project, I am conducting a research entitled **"Knowledge,practice and barriers of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda"** under the supervision of Mrs. MUKANTWARI Joselyne and Dr.Lilian Omondi. The following are the related explanations about the aim and benefit of the study, the processes to reach the participant and the consent form of the participant.

1. **Aim and benefit of the study**

This study is aimed to assess Knowledge and practices of preoperative patients teaching among nurses working in operating theatres of referral teaching hospitals in Rwanda and the benefit is to help the nurses working in operating theatres in referral hospitals to increase knowledge in preoperative patient education and for improving the surgical patients' outcomes like preoperative anxiety reduction; reduction in fear related to surgical operation and in postoperative complications by preoperative information provision to them about fasting time, anesthesia, medications, operating theatre environment and post-operative exercises and pain management respectively.

The information provided by the participant will be kept confidentially. While answering the questionnaire, some questions are responded by ticking the correct answer in the box provided and others are answered by writing the correct answers according to the knowledge of the participant. The participation in this study is voluntary and the participant can take out from the study at any time without giving reasons for doing so and this will have no negative effect on any relations with the researcher. There is no direct benefit from participating in this study. There will be a short brief meeting between researcher and theatre managers to give

explanation on the purpose, benefit and related privacy of participants' information provided related to the study and to gain the consent to do the study among nurses working in theatres. The participants also will get some explanations about the study related purpose and benefits and be allowed to read enough the provided consent form and ask questions for more clarification and then sign it. Every nurse who will accept to participate in the study will receive the questionnaire to fill and submit it filled.

2. Participant Consent form

After receiving the explanations from the researcher about the benefit and purpose of this study, I, a participant, agree to participate in the study conducted by Dative MARIZA entitled, **"Knowledge, practices and barriers of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda"**

I am with pleasure to assist the researcher in her study by providing information related to the objectives of her study. I am ensured that the information provided will be kept confidentially. I understand that while answering the questionnaire, some questions are responded by ticking the correct answer in the box provided and others are answered by writing the correct answers according to my knowledge.

I comprehend that to participate in this study is voluntary and I can withdraw from the study at any time without giving reasons for doing so. If I withdraw from the study, I understand that, this will have no negative effect on any relations with the researcher. I understand that I will not receive any direct benefit from participating in this study but it may help me and others in the future. I understand also that the information I am going to give will be kept with confidentiality to the extent permitted by law. I have read and understand this information and I willingly agree to be a participant of this study.

Date and Signature of the participant: ……/…../2019…..…………

N.B: If you have any question regarding this study or any wish to report any related problem you have experienced, please you can call or mail the researcher on the above mentioned contact.

Thank you.

APPENDIX F: QUESTIONNAIRE ADRESSED TO NURSES WORKING IN OPERATING THEATRES AT REFERRAL TEACHING HOSPITALS IN RWANDA.

INTRODUCTION

I'm MARIZA Dative, a masters' student in Perioperative nursing track at UR/CMHS/ School of nursing and midwifery in Nursing Department. In order to accomplish my master's studies, a research project should be done. Therefore, I would like to collect data from you related to my study entitled: "**Knowledge, practices and barriers of preoperative patients teaching among nurses working in operating theatres at referral teaching hospitals in Rwanda.**"
My phone number: + (250)788215086**. E-mail**: dativemaliza7@gmail.com

INSTRUCTIONS:

1. This questionnaire is addressed to nurses working in theatres at referral teaching hospitals in Rwanda and it contains 4 sections.

2. Do not put your name on any of the pages.

3. Please answer the questions to the best of your knowledge.

4. Select the appropriate response by using a tick (√) where necessary and specify where asked.

SECTION 1.DEMOGRAPHIC QUESTIONS

1. **What is your age?** ☐

2. **Gender:**
1. Male ☐
2. Female ☐

3. Marital status:
1. Single ☐
2. Married ☐
3. Divorced ☐
4. Widowed ☐
5. Separated ☐

4. What is your level of professional training in nursing sciences?

1. Associate degree(A2) in nursing ☐

2. Advanced diploma in nursing ☐

3. Bachelor of Science in Nursing ☐

4. Master of Science in Nursing ☐

5. Others to specify…………………………..

5. Have you been trained in perioperative nursing?

1. Yes ☐   2. No ☐

6. What type of training did you received?

1. Formal training ☐

2. Informal training ☐

7. How long have you been working in operating theatre?

1. 0-12months ☐
3. 1-3 years ☐
4. 3-4 years ☐
5. 4-5 years ☐
6. From 5 years and above ☐

SECTION B. KNOWLEDGE ON PREOPERATIVE PATIENT TEACHING

Please circle your level of agreement with the following statements regarding your knowledge on preoperative patients teaching.

No	Statements	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
1	Preoperative patient teaching can be delivered by theatre nurses in any appropriate surgical setting	5	4	3	2	1
2	Preoperative information should be given to surgical patients and their families before surgery	5	4	3	2	1
3	Preoperative patient teaching should be delivered at specified time before surgery.	5	4	3	2	1
4	Preoperative patients teaching is the responsibility of theatre nurses	5	4	3	2	1
5	Preoperative patient teaching can prevent preoperative anxiety in patients undergoing surgery.	5	4	3	2	1
6	Preoperative patients teaching reduce post-operative complications among surgical patients.	5	4	3	2	1
7	Preoperative patients teaching help to build up an idea of what to expect after surgery.	5	4	3	2	1
8	Preoperative teaching facilitates the patients undergoing surgery to follow post-operative instructions.	5	4	3	2	1
9	Fasting time is the type of preoperative information to teach to patients before undergoing surgery.	5	4	3	2	1
10	Preoperative patients teaching include medications to use perioperatively.	5	4	3	2	1
11	Preoperative patients teaching involve the explanations regarding the types of anaesthesia to use during surgery.	5	4	3	2	1
12	Preoperative patients teaching include the information regarding perioperative environment.	5	4	3	2	1

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No	Statements	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
13	Preoperative patients teaching involve the management of post-operative pain.	5	4	3	2	1
14	Preoperative patients teaching involve the postoperative deep breathing and coughing.	5	4	3	2	1
15	Preoperative patients teaching include postoperative patient's early and first mobilization and ambulation.	5	4	3	2	1
16	Preoperative patients teaching involve the information about skin decontamination on the day of surgery.	5	4	3	2	1
17	Preoperative patients teaching should inform patient undergoing surgery to left valuables and remove denture, glasses, contact lenses, prosthesis, makeup, nail polish, hairpins or hairpiece before entering to the operating room.	5	4	3	2	1

C. PRACTICES OF PREOPERATIVE PATIENT TEACHING

Please circle your level of agreement with the following statements regarding your practices of preoperative patients teaching.

No	Statements	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
1	I often provide preoperative teaching to patient before surgery.	5	4	3	2	1
2	I often do preoperative teaching among next of kin of patients undergoing surgery.	5	4	3	2	1
3	I often teach patient's family members before surgery	5	4	3	2	1
4	I often teach patients undergoing surgery within a specific time prior to surgery.	5	4	3	2	1
5	I often teach about the fasting time to the patients before undergoing surgery.	5	4	3	2	1
6	I often teach the patients about medications to use perioperatively.	5	4	3	2	1
7	I often provide the explanations regarding the types of anaesthesia to use during surgery.	5	4	3	2	1

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8	I often provide the teaching regarding perioperative environment to patients before surgery.	5	4	3	2	1
9	I often explain the patient before undergoing surgery about the management of post-operative pain.	5	4	3	2	1
10	I often teach the patients undergoing surgery about the exercises to perform after surgical operation.	5	4	3	2	1
11	I often provide teaching to patients undergoing surgery about the skin hygiene on the day of surgery.	5	4	3	2	1
12	I teach patients undergoing surgery that should left valuables to and remove all jewelries such as denture, glasses, contact lenses, prosthesis, makeup, nail polish, hairpins or hairpiece before going into the operating room for surgery.	5	4	3	2	1
13	There is always a difference in the way I teach patients versus how I teach their family members.	5	4	3	2	1
14	I often use different methods when I provide preoperative teaching to patients before surgery.	5	4	3	2	1
15	I often use didactic materials when providing preoperative patient teaching.	5	4	3	2	1
16	The preoperative didactic materials are easy to use when teaching patients before surgery.	5	4	3	2	1
17	I am often more comfortable when I teach patients before surgery.	5	4	3	2	1
18	I often teach the patients undergoing surgery about postoperative activities restriction.	5	4	3	2	1
19	I often teach the patients undergoing surgery about postoperative deep breathing and coughing.	5	4	3	2	1
20	I often teach the patients undergoing surgery about the time for postoperative early mobilization.	5	4	3	2	1

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No	Statements	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
21	I often teach the patients undergoing surgery that the nursing personnel must assist him/her to perform first ambulation.	5	4	3	2	1
22	I often verify the preparedness of patients before surgery.	5	4	3	2	1

SECTION D. BARRIERS TO PREOPERATIVE PATIENT TEACHING

Please circle your agreement with the following statements on barriers to preoperative patients teaching.

No	Statements	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
1	Lack of didactic materials to use preoperatively can affect the delivery of preoperative patients teaching.	5	4	3	2	1
2	Different methods used preoperatively can be a challenge to preoperative teaching of patients before surgery.	5	4	3	2	1
3	Lack of working hospital 's regular and updated training on preoperative teaching is a barrier to its proper delivery to patients before undergoing surgery.	5	4	3	2	1
4	Preoperative patients teaching is affected by a heavy daily workload of nursing staff of operating theatre.	5	4	3	2	1
5	Lack of time among nursing staff of operating theatre can affect the delivery of preoperative teaching to patients undergoing surgery.	5	4	3	2	1
6	The shortage of operating theatre nursing staff is a factor affecting the practice of preoperative patient teaching.	5	4	3	2	1
7	Lack of experience among nursing staff is a factor affecting the preoperative teaching of patients undergoing surgery.	5	4	3	2	1

8	Culture can affect the delivery of preoperative teaching to patients undergoing surgery.	5	4	3	2	1
9	Language can be a barrier in delivering preoperative patient teaching.	5	4	3	2	1
10	The preoperative patients teaching can be affected by the tight operations scheduled daily in operating theatre.	5	4	3	2	1
11	Health literacy level can be a factor affecting the provision of preoperative teaching to patients undergoing surgery.	5	4	3	2	1
12	Preoperative patients' teaching is a challenge among critically ill patients.	5	4	3	2	1
13	Preoperative patient teaching is affected among patients with fear of unknown	5	4	3	2	1
14	Patient and family anxiety about outcome of surgery is a barrier to the practice of preoperative patients teaching.	5	4	3	2	1
15	Lack of working hospital support for improving my knowledge about the preoperative patients teaching can be a barrier to its correct practice.	5	4	3	2	1

Thank you very much for your participation.

M

APPENDIX G: UR IRB Ethical Approval

UNIVERSITY OF RWANDA **COLLEGE OF MEDICINE AND HEALTH SCIENCES**

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 14/01/2019
Ref: CMHS/IRB/**056**/2019

Mariza Dativa
School of Nursing and Midwifery, CMHS, UR

Dear Mariza Dativa

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled *"Knowledge and Practices of Preoperative Patient Teaching among Nurses Working in Operating Theatres at Referral Teaching Hospitals in Rwanda"*.

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.

Professor Jean Bosco GAHUTU
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR

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