NURSES’ KNOWLEDGE, ATTITUDE AND MANAGEMENT OF PEDIATRIC EPILEPSY AT SELECTED REFERRAL HOSPITALS IN RWANDA.

UWITUZE SANDRINE

College of Medicine and Health Sciences
School of nursing and midwifery
Master of sciences in nursing

2017
NURSES’ KNOWLEDGE, ATTITUDE AND MANAGEMENT OF PEDIATRIC EPILEPSY AT SELECTED REFERRAL HOSPITALS IN RWANDA.

By

UWITUZE Sandrine

216338883

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

MASTER OF SCIENCE IN NURSING

In the college of Medicine and Health Sciences

Supervisor: Uwimana Philomène, RN, MSN

1st Co-Supervisor: Marcia Male RN, MS

2nd Co-Supervisor: Prof. Sheila Shaibu

June 2017
DECLARATION

I declare that the dissertation hereby submitted to the University of Rwanda, College of Medicine and Health Sciences for partial fulfillment of the requirement for Degree of Master of nursing and midwifery is my original work in design and in execution, and that all material contained herein has been duly acknowledged.

I further cede copyright of this dissertation in favor of the University of Rwanda.

__________________________  __________________
Sandrine UWITUZE          Date
ABSTRACT

Background: Epilepsy is a common neurological disorder in children and its onset occurs in the infant period. The incidence of epilepsy in children ranges from 41 to 187/100,000 where as its prevalence ranges from 3.6 to 44/1,000 in developing countries. In Rwanda, the prevalence of epilepsy in 2008 was 0.7% in general population and the onset of seizures was 23% at birth, 32% between birth and age of 5; 23% between ages 5 and 16, and 21% above the age of 16. Nurses have preventive, curative and rehabilitative roles to play in providing care for children with neurological disorders and nurses’ awareness and management of epilepsy is essential in order to provide quality care for improve quality of life of children.

Purpose: The purpose of the study was to determine nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals in Rwanda.

Methods: A quantitative descriptive cross-sectional design was used. A self-reported questionnaire adapted from Goel’s (2011) questionnaire, was used to assess nurses’ knowledge, attitude and management of pediatric epilepsy. Convenience sampling method was used to select 191 nurses who worked in pediatric, emergency, ICU, HDU and surgical wards at the University Teaching Hospital of Kigali, Rwanda Military Hospital and King Faysal hospital. Analysis was done using SPSS software package version 20 and Microsoft Excel Spreadsheet. Frequency distribution tables and inferential statistics were also used to summarize findings and examine relationships among variables under study.

Results: High percentage of nurses (95, 2%), had low level of knowledge about pediatric epilepsy, 80, 63% had positive attitude regarding pediatric epilepsy and 91% had low knowledge of nursing management strategies of pediatric epilepsy. There was no significant association between nurses’ knowledge and attitude (df =126, P value .008) and between knowledge and management strategies of pediatric epilepsy (df=180, p value .209).

Conclusion: Knowledge and management of pediatric epilepsy is poor among nurses working at referral hospitals in Rwanda. It is importantly to organize training programs in order to increase nurses’ level of knowledge improve patient outcomes and prevent complications due to poor management of epilepsy.

Key words: Attitude, epilepsy, knowledge, management, nurses at referral hospitals.
DEDICATION

Let the glory be to God who guides me through all my life. This work is strongly dedicated to my dear parents for their advice, encouragement and support during my study. To my beloved husband for his love, guidance and support. To my lovely sister and brothers for care and support. To all my relatives, friends and family friends.

May the Almighty richly bless you.
ACKNOWLEDGEMENTS

I acknowledge the government of Rwanda through the Ministry of Health for sponsoring my studies at the University of Rwanda.

I heartily acknowledge my supervisors Mrs. UWIMANA Philomène, Marcia Male and Professor Sheila Shaibu for their valuable courageous critiques, sacrifice, and guidance during this study. Thank you for the mutual and academic support.

I would like to express my special gratitude to the UR-college of medicine and health sciences administration for availing to me the opportunity to carry out my study and always encouraged me in all my education activities.

Special thanks extend to my husband MUGISHA Augustave for his love and support. You were my pillar of strength.

I thank my dear parents KALIMBA Titien and MUKABEZA Ancille for their endless love, sacrifice and encouragement during my life.

I thank my lovely unique sister MUGISHA Sylvie and my brothers DUSHIME Docile and HIRWA Louange for their love, care and support.

Thanks and appreciation extends to my lecturers from College of Medicine and Health Science who made the study possible.

Thanks to my workmates from Kinihira hospital for their arrangement and support.

Thanks to all my classmates for collaboration, support and courage expressed during our journey in Master’s program.

Thanks to all my friends and my relatives for their guidance, encouragement, academic, and personal enrichment.
# Table of Contents

DECLARATION ........................................................................................................... i  
ABSTRACT .................................................................................................................. ii  
DEDICATION .............................................................................................................. iii  
ACKNOWLEDGEMENTS .............................................................................................. iv  
LIST OF TABLES ......................................................................................................... vii  
LIST OF FIGURES ...................................................................................................... viii  
LIST OF ACRONYMS AND ABBREVIATIONS ............................................................ ix  

CHAPTER 1: INTRODUCTION .................................................................................... 1  
1.1 INTRODUCTION .................................................................................................. 1  
1.2. BACKGROUND OF THE STUDY ....................................................................... 1  
1.3. PROBLEM STATEMENT ..................................................................................... 2  
1.4. AIM OF THE STUDY ......................................................................................... 3  
1.5. OBJECTIVES OF THE STUDY .......................................................................... 3  
1.5.1. Specific objectives ....................................................................................... 3  
1.6. RESEARCH QUESTIONS .................................................................................. 3  
1.7. SIGNIFICANCE OF THE STUDY .................................................................... 4  
1.8. DEFINITION OF KEY CONCEPTS .................................................................. 4  
1.9. STRUCTURE/ORGANIZATION OF THE STUDY ............................................... 5  

CHAPTER 2: LITERATURE REVIEW ........................................................................... 6  
2.1. INTRODUCTION ................................................................................................ 6  
2.2. THEORETICAL LITERATURE ......................................................................... 6  
2.3. EMPIRICAL LITERATURE ................................................................................ 9  
2.3.1. Knowledge of pediatric epilepsy ............................................................... 9  
2.3.2. Attitude towards pediatric epilepsy ......................................................... 12  
2.3.3. Management of pediatric epilepsy ........................................................... 13  
2.4. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION .................. 14  
2.5. CONCEPTUAL FRAMEWORK ....................................................................... 14  
3.1. INTRODUCTION .............................................................................................. 16  
3.2 STUDY DESIGN ................................................................................................. 16  
3.3 RESEARCH APPROACH .................................................................................. 16  
3.4. STUDY SETTING ............................................................................................. 16  
3.6.2 Sample size .................................................................................................. 18  
3.7 DATA COLLECTION ......................................................................................... 18
3.7.1 Data collection instrument ................................................................. 18
3.7.2. Pretesting of a questionnaire ............................................................ 20
3.8. DATA ANALYSIS .............................................................................. 20
3.9. ETHICAL CONSIDERATIONS .............................................................. 21
3.10 DATA MANAGEMENT ....................................................................... 21
3.11. DATA DISSEMINATION ..................................................................... 22
CHAPTER 4. RESULTS ............................................................................ 23
4.0. INTRODUCTION .................................................................................. 23
4.1. DEMOGRAPHIC CHARACTERISTICS ...................................................... 23
4.2. PRESENTATION OF FINDINGS .............................................................. 25
CHAPTER 5. DISCUSSION ........................................................................ 41
5.0. INTRODUCTION ................................................................................... 41
5.1. SUMMARY OF FINDINGS .................................................................... 41
CHAPTER 6. CONCLUSION AND RECOMMENDATION .............................. 47
6.1. CONCLUSION ...................................................................................... 47
6.2. RECOMMENDATION .......................................................................... 47
6.3. LIMITATION OF THE STUDY ............................................................... 47
References .................................................................................................. 48
a. QUESTIONNAIRE ENGLISH VERSION ...................................................... 55
b. QUESTIONNAIRE KINYARWANDA VERSION .......................................... 61
c. PERMISSION FROM THE AUTHOR TO USE THE TOOL .............................. 67
d. INFORMED CONSENT FORM ................................................................ 68
e. INFORMED CONSENT FORM KINYARWANDA VERSION .......................... 69
f. ETHICAL CLEARENCE .......................................................................... 70
g. LETTER FROM SCHOOL FOR REQUESTING DATA COLLECTION .................. 71
h. REVIEW APPROVAL NOTICE FROM UTHK ............................................. 72
i. REVIEW APPROVAL NOTICE FROM KFH ............................................... 73
j. REVIEW APPROVAL NOTICE FROM RMH .............................................. 74
k. DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION ........... 75
LIST OF TABLES

Table 4.1. Frequency distribution of nurses’ demographic variables at selected referral hospitals in Rwanda.

Table 4.2. Nurses’ knowledge score of pediatric epilepsy at selected referral hospitals in Rwanda.

Table 4.3. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referral hospital in Rwanda.

Table 4.4. Frequency distribution of nurses’ knowledge of pediatric epilepsy at Selected referrals hospital in Rwanda (Continued).

Table 4.5. Frequency distribution of nurses’ knowledge of pediatric epilepsy at Selected referrals hospital in Rwanda (Continued).

Table 4.6. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda (Continued).

Table 4.7. Nurses’ attitude score related to pediatric epilepsy at selected referral hospitals in Rwanda.

Table 4.8. Frequency distribution of nurses’ attitude regarding pediatric epilepsy at selected referrals hospital in Rwanda.

Table 4.9. Nurses’ management score of pediatric epilepsy at selected referral hospitals in Rwanda.

Table 4.10. Nurses’ management of pediatric epilepsy at selected referral hospital in Rwanda.

Table 4.11. Association between nurses’ knowledge, attitude and current management of pediatric epilepsy at the selected referral hospitals in Rwanda.
LIST OF FIGURES

Figure 2.1. The modified model of knowledge, attitudes, skills and aspirations change.

Figure 4.1. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda.

Figure 4.2. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda.
LIST OF ACRONYMS AND ABBREVIATIONS

AEDs: Anti Epileptic Drugs

EEG: Electro Encephalogram

HDU: High Dependent Unity

ICU: Intensive Care Unit

KFH: King Faysal Hospital

MRI: Magnet Resonance Imaging

OPD: Out Patient Department

PICU: Pediatric Intensive Care Unit

RMH: Rwanda Military Hospital

UTHK: University Teaching Hospital of Kigali

WHO: World Health Organization

%: Percentage
CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION
Epilepsy is a neurological disorder which affects both children and adults and its manifested by repeated disturbances of the nervous system which results in recurrent seizures (Camfield, 2015, pp.1). According to Atkinson et al. (2015, pp.1) epilepsy has the prevalence of 0.5% up to 1% since neonatal phase up to 16 years. Knowledge of epilepsy is a vital part in improving the way of its handling by reducing its impact on social and minimizing the stigmatization. The next five chapters are empirical investigation of nurses’ knowledge, attitudes and management of pediatric epilepsy. Chapter one presents an overview of the study, beginning with a detailed background of the study derived from the current literature on epilepsy in children; the statement of the research problem; a rationalization of the purpose and goals of this study; significance of the study; a description of the context and the research methodology.

1.2. BACKGROUND OF THE STUDY
Epilepsy which is a non-communicable disease is the most frequent neurological disorders in children and studies show that roughly 50 million people universally are suffering from epilepsy and the occurrence is highest in the earliest year of life (Paul et al., 2012, pp.2; Camfield, 2015, pp.1). In children, the incidence of epilepsy ranges from 41-187/100,000 whereby its prevalence ranges from 3.6-44/1,000 in underdeveloped countries and 3.2-5.5/1,000 in developed countries. Regarded a social and a public health problem, epilepsy presents a risk of developing mental health problems, intellectual and physical infirmities in children (Camfield, 2015, pp.2).

Studies have identified that for centuries religious and cultural taboos had manifested a great impact on the nature of care and treatment for people with epilepsy. Winkler (2013, pp.30) noted that in Africa, epilepsy is highly stigmatized because of interpretation that it’s a contagious disease reason why people with epilepsy are excluded to some social activities. Additionally, its prevalence in Africa is ranging from 5.2-74.4/1000 with a median of 15/1000 residents. In many African regions the myth that environs epilepsy remain a main basis of a wide epilepsy treatment gap (Gebrewold et al., 2016, pp.1).

The WHO conducted a survey and noted that the epilepsy rate was 1.5% in Sub-Saharan Africa while in Rwanda the prevalence of epilepsy was 4.9% (Elodie, 2012, pp.60). Statistic shows that epilepsy is a public problem in Rwanda and its prevalence from 2008 has
been increased; peoples with epilepsy are currently accessing health care services. A previous Cross-sectional nationally representative survey conducted in Rwanda in 2008 found that the prevalence of epilepsy was 0.7%. Therefore, the onset of seizures was generally before 16 years. In that study they found that the onset of epilepsy was 23% at birth, 32% between birth and age of 5, 23% between ages 5 and 16, and 21% above the age of 16 and persons with epilepsy as in other Africans country were experiencing stigmatization (Simms et al., 2008, pp.6).

Given that epilepsy is a disorder touching the brain, children with epilepsy may experience some complications like delay in development, problems of learning, autism spectrum disorders, inattentiveness, impulsivity, hyperactivity disorder, and behavioral problems (Zuberi and Symonds,2015, pp.11). Nurses’ recognition and management of epilepsy is essential in order to provide better quality of life for children with epilepsy. Many studies have been carried out to investigate the different understandings and beliefs of epilepsy (Maiga et al., 2014, pp.7; Bhesania1 et al., 2014, pp.5; Mohamed et al., 2014, pp.11; Jalle, 2015, pp.8) although, these studies provide details about what communities, teachers, students or epileptics persons believe about epilepsy, they do not provide a profile of nurses knowledge and management of epilepsy in pediatric population. The present study examined knowledge, attitude and management of pediatric epilepsy.

1.3. PROBLEM STATEMENT

In her observation during daily working in surgical ward at a District hospital, the researcher realized that approximately 2 children with epilepsy every 3 months experience burns and others physical injuries related to seizures and there are no in service education on epilepsy provided for nurses who take care of those children or protocol on epilepsy management. Therefore, most of these nurses have gained their knowledge of epilepsy from school, surrounding cultures and experiences of senior colleagues.

Epileptic seizures are the main symptoms of epilepsy and seizure is a pediatric emergency sign. In addition, management of epilepsy are largely based on ensuring patient safety during seizures, assessing the seizures, pharmacological management, education and these measures are related to the prescriber’s familiarity with epilepsy. In Rwanda epilepsy is a public health dilemma associated with inequity and stigmatization of affected people due to the mistaken beliefs about epilepsy in people of different categories including health care professionals. The suspected cases of epilepsy in health care facilities are sent to Ndera
psychiatric hospital for EEG investigation then after they are counter referred in the health facilities where they came from for continuation of management.

As stipulated by Simms et al., (2008, pp.6) early diagnosis and a better treatment for epilepsy in children would prevent some disability and reduce morbidity and mortality. Therefore, nurses should have an understanding of epilepsy, the medications used to treat epilepsy, side effects of anti AED as well as implementation and monitoring strategies used to control epilepsy and to minimize their negative effect on a developing brain. Epilepsy management requires long-term AEDs therapy and other forms of care reason why it is very necessary to evaluate knowledge and attitudes of clinical nurses regarding epilepsy in terms of enhancing the quality of patient care and providing good patient–nurse communication (Dayapo&Tan, 2016, pp 4).

In Rwanda, little is known about pediatric epilepsy and there are no studies found that document nurses knowledge, attitude and management of pediatric epilepsy. It is in this regard that the researcher was seeking, through this study to inform on the knowledge and practice of nurses caring for pediatric patients with epilepsy in Rwanda.

1.4. AIM OF THE STUDY

This study was aimed to assess nurses’ knowledge, attitudes, and management of pediatric epilepsy at selected referral hospitals in Rwanda.

1.5. OBJECTIVES OF THE STUDY

1.5.1. Specific objectives

➢ To describe the nurses level of knowledge about pediatric epilepsy at a referral hospital in Rwanda.

➢ To examine the nurses’ attitude related to pediatric epilepsy at a referral hospital in Rwanda.

➢ To determine the nursing management of pediatric patients with epilepsy at selected referral hospitals

➢ To find out the association between the knowledge, attitudes, and current management of pediatric epilepsy.

1.6. RESEARCH QUESTIONS

➢ What is Rwanda referral hospital nurses’ knowledge about pediatric epilepsy?
- What is Rwanda referral hospital nurses’ attitude related to pediatric epilepsy?
- What is the current practice with regard to nursing management of pediatric patients with epilepsy at selected referral hospitals?
- What is the association between the nurses’ knowledge, attitude and current practice about pediatric epilepsy in Rwanda referral hospital?

1.7. SIGNIFICANCE OF THE STUDY

Holistic nursing care places the client at the centre of health care delivery and health care practitioners have an obligation to optimize patient outcomes. The report from this study will enable Rwanda referral hospitals nurses to be aware of their knowledge, their attitudes and their management of pediatric epilepsy so they can improve their way of managing children with epilepsy; effective epilepsy management depends on acknowledging epilepsy. In addition recommendation from this study will help Rwanda referral hospital nursing administration to plan for nurses training concerning knowledge and management of pediatric epilepsy. Patient and their families will benefit from this study as nurses will improve their way of caring children with epilepsy and giving health education to care givers and to the whole community. This study will help the Minister of health to establish guidelines and policies about nurses’ management of pediatric epilepsy. This is a basis of other research in the same domain.

1.8. DEFINITION OF KEY CONCEPTS

**Children with epilepsy:** A person aged from birth up to 15 years, who experience reoccurrence of epileptic seizures which can lead to cognitive, mental and social complications (Zuberi& Symonds, 2015, pp.6).

**Epileptic seizures:** A brief episode of signs, clinical signs, or both result in unusual extreme synchronous neuronal function in the brain (Pakozdy et al., 2014, pp.1).

**Knowledge:** In this study, the term is used to mean beliefs related to pediatric epilepsy that are correct and justified (Hunt, 2003, pp. 5).

**Nurses:** Persons registered and certified as professional nurses and enrolled nurses with the Rwanda National Nursing Council (NCNM, 2011, PP. 23).

**Nurses’ attitudes:** Nurses way of thinking about epilepsy and their feeling as well as the impact of their thoughts on caring a child with epilepsy (Dayapo&Tan, 2016, pp.1).
1.9. STRUCTURE/ORGANIZATION OF THE STUDY

This study is structured in the way it assessed the nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals in Rwanda. This study is subdivided in 5 chapters. The first chapter which is the introduction shows the overview of epilepsy in general; background which illustrate incidence and prevalence of epilepsy in children worldwide, in Africa and in Rwanda; problem statement related to knowledge and management of pediatric epilepsy in Rwanda; objectives of the study and research questions. Chapter two is about literature review which indicates different studies done on pediatric epilepsy, chapter 3 is the methodology the researcher used to conduct this study, Chapter 4 is about presentation and analysis of results found and chapter 5 is about discussion.

CONCLUSION

The chapter one reviewed the view of the background of pediatric epilepsy worldwide, in Africa, in Rwanda; problem statement which highlight how knowledge, attitude and practice concerning pediatric epilepsy in Rwanda is; aim of the current study about nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals in Rwanda; significance of the study and research questions which resulted in the interest for conducting this research.
CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION
Epilepsy is the most frequent non communicable disease with neurological origin and is more prevalent in pediatrics. In order to provide best care for the children with epilepsy, nurses should have knowledge related to epilepsy and its management. This chapter is going to present a review of the scientifically generated part of knowledge on epilepsy, especially in children. The differing views that have guided epilepsy recognition and management in children will be explored with successes and challenges noted. The arguments of the importance of nurses’ knowledge about epilepsy and its management, their attitudes as to how they will assess, treat and evaluate epileptic children are discussed in this chapter.

2.2. THEORETICAL LITERATURE
The presented knowledge, attitudes and experiences of nurses in managing epilepsy in children are important because such patients are at risk of many complications.

Epilepsy is characterized by at least 2 impulse seizures appearing separately in 24 hours but it can also be one unprovoked seizure if the chance of return over the following 10 years is 60% and in order to confirm that a person has been cured from epilepsy, that person have to remain without seizure for 10 years exclusive of taking drugs for the previous 5 years (Fisher et al., 2014, pp. 1).

According to Huff and Fountain (2011, pp.1), altered brain functioning is always present in patients with epilepsy and seizures do not occur spontaneously under normal circumstances because neuronal physiology maintains the stability of neuronal membranes and prevents rapid transfer of the synchronous discharges that initiate a seizure.

The pathophysiology of generalized tonic-clonic seizure is that seizure arise from a strong excitation of susceptible epileptic cerebral neurons, which leads to synchronous discharges of gradually larger groups of connected neurons eventually touching a part of the brain that leads to the clinical manifestations of the seizure and glutamate is the most frequent excitatory neurotransmitter and mediates the excess excitation via the N-methyl-D-aspartate subtype receptor(Huff& Fountain, 2011, pp. 2).
As highlighted by Mohamed et al., (2014, pp.1), epilepsy can be classified as primary when there is no other medical condition which may be the cause of epilepsy; or secondary when there is underlying cause like when a child has brain tumor and some types of epilepsy may be inherited. Studies showed that based on etiology, epilepsy can be classified as idiopathic epilepsy(Shorvon, 2011,pp.3), symptomatic epilepsy (Shorvon, 2011, pp.2) , provoked epilepsy(Shorvon, 2011, pp.2) and Cryptogenic epilepsies (Shorvon, 2011, pp.2). The types of epilepsies can be differentiated by how the seizure activity manifests and the most common syndromes are those with generalized seizures and those with partial-onset seizures (Mohamed et al., 2014, pp.2).

Studies have identified that the most common cause of epilepsy in children are structural brain abnormalities which can be acquired before birth, during birth like neonatal hypoxic ischemic encephalopathy or after birth when the child get meningitis, encephalitis, trauma, or a brain tumor; inborn errors of metabolism and genetic disorder (Mohamed et al., 2014, pp. 10). Filled investigation of the kind of epilepsy and recognition of its origin is an emergency issue as the onset of epilepsy is most of the time linked with considerable cognitive and behavioral problems(Berg, Loddenkemper & Baca, 2014, pp.5).

According to Wilmshurst and others (2015, pp.12) seizures may be classified as partial or generalized based on its location in the brain and partial seizures can be divided in simple or complex. However, Some seizures could commence as partial then turn into generalized after (Berg & Millichap, 2010, pp.6). There exist numerous types of generalized seizures:” absence, atonic, tonic, myoclonic and tonic clonic” (Wilmshurst et al., 2015, pp.8; Berg & Millichap, 2010, pp.9; Zuberi & Symonds, 2015, pp.5).

Studies show that the symptoms of seizures in children depend on the site of origin and may comprise changed alertness, convulsions, periods of confusion, uncontrolled movements of the body, and changes of perception, behaviors, sensation, and posture, no response to tactile stimulation, rapid eye fluttering or fixed eye deviation, unusual head movements, unusual mouth movements; twitching of the face, stereotyped hand movements, freezing of limbs, falls, inability of speaking, failure to social interactions and cognitive role, variants of paroxysmal events during sleep (Appleton & Camfield, 2011, pp 14; Sidhu, 2014, pp. 3).

Although, an excellent exploration of seizure is crucial in making decision about which medication is most likely to be effective, for prognosis and health education on lifestyle
change. Epilepsy may be diagnosed after observation of few tonic-clonic seizures and the medical history is also very important as a complete and precise information get from caregivers about the child’s convulsive occurrence will guide to the correct conclusion (Appleton & Camfield, 2011, pp. 160). Zuberi and Symonds (2015, pp.8) stated that for the diagnostic of epilepsy EEG is fundamental tool to use but CT scan, MRI can also be used. The EEG will assist in recognition and categorization of specific epilepsy syndrome, discovering region of focal brain problem that will help in the analysis of brain imaging and confirmation of non-convulsive status epilepticus (Appleton & Camfield, 2011, pp.140).

Studies found that patients with epilepsy are exposed to premature death from all causes and they may have abrupt mysterious death (Holst et al., 2013, pp. 8). Management of children with epilepsy must be holistic based on personal needs; outlook of both patient and their family and it should start with making the correct diagnosis. The efficiency of treatment should include absence of side effects. Drugs used to treat epilepsy in children are clobazam (NICE, 2016, pp.23), valproic acid (NICE, 2016, pp.23), oxcarbazepine (NICE, 2016, pp.23), topiramate (NICE, 2016, pp. 23), carbamazepine (NICE, 2016, pp. 23), lamotrigine, levetiracetam and phenobarbital (NICE, 2016, pp.23). Non-pharmacological treatments comprise epilepsy surgery (Zuberi & Symonds, 2015, pp. 11), the ketogenic diet Zuberi & Symonds, 2015, pp. 11), and neurostimulation techniques (Zuberi & Symonds, 2015, pp. 11). In order to manage the epilepsy nurses should also have knowledge of the drugs used for treating the epilepsy, their indications, their interactions, and adverse effects (Zuberi & Symonds, 2015, pp.11).

However, nursing management to the child during seizure will rely on first aid in order to protect and prevent the child from damage and injury during a seizure. Nurse should remain calm, comforting and be with the child until consciousness has returned (Appleton & Camfield, 2011, pp. 110), if the seizure is a convulsion, nurse will try to recognize the tonic-clonic seizure, try to put the person carefully to the floor, support the head with pillow, remove outfits which are on the neck, positioning the person on side for airway clearance (Clore, 2010, pp.2). Documentation of the length and description of the seizure is also important and it is obligatory to be with the person from the beginning of the seizure to the end. Trying to restrict the movements during seizures, insertion of stuff into the mouth or giving the person something orally during seizure are all contraindicated (Appleton & Camfield, 2011, pp. 115). After seizure nurse will help the child recovery from the seizure with drugs administration, oxygen delivery, suction, seizures safety measures such as
protection from falls and injuries, water safety, sleep safety, and supporting his family and educate them (Clore, 2010, pp. 4).

Tracy Glauser, MD et al., (2016, pp. 14) noted that when a seizure last more than 30 minutes is considered as status epilepticus which is common pediatric neurologic emergency; its mortality rate is approximately 1–3% and surviving children may experience cognitive and neuro developmental impairment and recurrent status epilepticus because of brain injury. Appleton and Camfield (2011, pp. 49) stated that the complications of pediatric epilepsy are intellectual disabilities in 33%, attention deficit disorder in 33%, behavior problems in 29%, depression 25%, anxiety 33% and sleep deprivation in 33–50%.

Nevertheless, the prevention of epilepsy requires that all health care providers who treat children with epilepsy have to be interested in managing epilepsy; they should be properly educated and make sure that they remain aware of the latest information on diagnosis change, management of the various epilepsy syndromes. Prevention of epilepsy should rely on avoidance of mistaken diagnosis of seizures, erroneous investigation and deterrence of a mistaken origin of epilepsy (Appleton & Camfield, 2011 pp. 12).

2.3. EMPIRICAL LITERATURE

2.3.1. Knowledge of pediatric epilepsy

The existing knowledge, attitudes and experiences of nurses in managing pediatric epilepsy are important. Carper in 1978 documented 4 keys of knowing detained in nursing: empirics, aesthetics, personal knowing and moral knowledge. Empirical knowledge is factual and descriptive. It is the direct or indirect observation and measurement representing objective, verifiable and is research-based. Its purpose is raising abstract and theoretical explanations. It is expressed in practice as science grounded in scientific theories and knowledge (Chin& Kramer, 2011, pp. 10). Teferi and Shewangizaw (2015, pp.7) stated that formal education, getting information related to epilepsy, had cared an epileptic seizure, being aged from 46 years to 55 years, had heard about epilepsy, prior knowledge of epilepsy, and history of epilepsy in family member are the factors which contribute to significant association to knowledge, attitude, and practice related to epilepsy.

The prevalence rate of epilepsy in children is 6.3/1000 from birth to 17 years old (Terry et al., 2016, pp.2). According to Berg, Loddenkemper and Baca (2014, pp.10), 10% of all epilepsy manifest in the first 3 years of life and 25% of new patients occur in children aged
14 years and below. A study conducted to children population in Canada report an incidence of 118/100,000 infants old below 1 year who have epilepsy and 42/100,000 in the second year of existence (Appleton & Camfield, 2011, pp. 12). The high prevalence of epilepsy have great impact socially and economically as the person with epilepsy are most of the time in crisis and family spend money by buying medications, paying hospitalization and those people are most of the time not productive because of lack of energy and missing on their daily activities, being in sick leave, being jobless and ending with premature death (Vancini et al., 2012, pp. 8). Children with epilepsy will not attend school regularly and this will influence their performance to school.

Epilepsy has always been referred to as a disorder or a family of disorders, rather than a disease, because it’s comprised of many diverse diseases and conditions (Fisher et al., 2014, pp. 8). Epileptic seizures arise in 1 to 2% of the general population and 4% among them are children and in developing countries the higher prevalence is associated with lack of good prenatal care, lack of principles of nutrition and hygiene, the greater risk of brain trauma and infection of the brain (Saad, 2014, pp. 17). The uppermost incidence rate of epilepsy 100 per 100,000 is seen in the first year of life, declining to around 20 cases per 100,000 per year in adolescence (Saad, 2014, pp.17). Pediatric epilepsy has a prevalence of about 0.5-0.8% and focal epilepsies ranges from 59 to 63% than generalized epilepsy which ranges from 12 to 29% (Saad, 2014, pp. 17).

Insufficient nurses’ knowledge concerning epilepsy may have impact on the quality of health care provided to children with epilepsy. In Africa, epilepsy represents a remarkable socio-economic weight because of the chronicity of the disease and repercussions on individual with epilepsy, his family and the community he lives in. Although admittance to contemporary medicine is inadequate for epileptic person who reside in sub Saharan Africa and traditional drugs are preferred because peoples believe that epilepsy comes from possession by evil (Winkler, 2013, pp.34). Treatment gap is also associated with social stigmatization of epileptic persons, insufficient knowledge of local policy, poor transportation, long distances from home to health institutions, the insufficient of anti epileptic drugs, health teaching deficiency for people who have epilepsy and their relatives, the power of traditional beliefs and inadequate number of qualified medical staff (Winkler, 2013, pp.34).
However, studies show that epilepsy is a neurological disorder which results from infections of the nervous system, head injuries, fever, untreated prenatal complications, malnutrition, tumors and brain stressors. In Africa the prevalence of epilepsy is associated with traumatic head injury from road traffic accidents and violent conflict, poor sanitation, malaria which is endemic in many areas of Sub Sahara Africa and malnutrition. Children who get malaria with plasmodium falciparum have 37.5% chance of developing epilepsy. Among all those risk factors of epilepsy, the most frequent source of pediatric epilepsy is perinatal head damage (Paul et al., 2012, pp. 12).

Though, misdiagnosis of epilepsy may cause unsuitable treatment with anti epileptic drugs, needless investigations, invasive measures as well as financial and emotional expenses for the child and his family (Wichaidit et al., 2015, pp. 8). The history for etiology of pediatric epilepsy should focus on antecedents of epilepsy in the family, history of head injury, if there was complications during birth, febrile convulsions, nose and ear infection and signs of tumor; while the history for precipitating factors must include factors such as hyperthermia, anxiety, sleep disturbance, high ventilation, shining lights, or television (Saad, 2014, pp. 17).

A study conducted in a tertiary epilepsy center in Denmark found that among 233 children referred to that center, 87 (39%) of them were not having epilepsy, and 35 (40%) of those who have been misdiagnosed had been started on anti-epileptic drugs. Another study conducted in Dutch on the population of 888 kids sent to a tertiary level with convulsive events, 19/124 (5.6%) of them had been transferred with several imprecise manifestations and the health workers made wrong conclusion that the diagnosis was epilepsy (Zuberi &Symonds, 2015, pp. 11).

For a better diagnosis of epilepsy Saad (2014, pp. 11-17) suggested that clinician should ask about history of loss of consciousness, if there was any obvious motor observable fact, history of stiff or floppy, if the movements were cyclical or continued, how the event started and if there was any warning sign or modification of behavior change in appearance or breathing. Clinicians should also ask if the event could be broken up, the duration took to be full healing, any recall of events, the rate of recurrence and the length of event, if seizure happen at exclusive time of the day, the general conditions around the attack, aggravating factors, medical antecedents; birth history, growth and developmental history, performance at school, history of epilepsy in the family and social history (Saad, 2014, pp. 11-17).
A study conducted by Anderson et al., (2015, pp. 6) found that 12% of children who were on antiepileptic drugs presented behavioral problems and 10% manifested somnolence as side effect of drugs. Nurses should know those side effect in order to be able to manage its. Zuberi and Symonds (2015, pp 5) conclude that there are considerable gaps for managing children with epilepsy and great efforts are required in order to handle that gap.

Elodie (2012, pp.9) stated that when a child have showed a good adherence on medication for a period of 2 to 5 years, with good outcome on anti epileptic drugs, drugs can be stopped in about 70% cases without relapses of the disorder. Although, poverty and low educational standards limit the social participation, restrict access to education and employment and lead to greater poverty and more severe disabilities of person with epilepsy; delay access to health care services and lead to health complications (Elodie, 2012, pp.60).

### 2.3.2. Attitude towards pediatric epilepsy

The social attitude, the stigmatization and the prejudice against persons with epilepsy are often more awful and have grave negative effects. A community based studies found that better trained persons have further knowledge and have fewer unconstructive attitudes concerning epilepsy (Sureka et al., 2015, pp.7). Nurses have to educate children with epilepsy, their families and the whole community in order to change attitude and minimize stigmatization related to epilepsy.

According to Lim and Tan, (2011, pp. 12), among factors associated with negative attitudes towards epilepsy there are social and financial status, level of education, instructions received, insight and misconceptions. The role of nurses consist in assessing individual needs, planning and providing nursing care to patients as well as health education to patients and their families.

A study conducted in Turkey on clinical nurses revealed that the clinical nurses obtained a mean score of 55.43 ± 6.59 on the epilepsy attitude scale, which shows that they generally have a positive attitude toward patients with epilepsy (Dayapo&Tan, 2016, pp.3).

Reno, Fernandes and Bell, (2007, pp.1) highlighted that the way in which peoples react towards a person having an epileptic seizure may impact the perception of epilepsy stigma and a study conducted in Brazil found that peoples including physicians, nurses and other healthcare personnel, do not know how to react to a person having a seizure. Trainings of
nurses on epilepsy help in minimizing negative attitude by adopting positive attitudes and educating others.

2.3.3. Management of pediatric epilepsy

According to the Rwanda Ministry of Health (2012, pp.112), acute non pharmacological management of pediatric epilepsy include handling airway, breathing, circulation; putting the child on side at 20 – 30° head up in order to prevent aspiration, monitoring all vital signs and oxygen saturation, assessment of neurological status, manage fluids, checking for blood sugar, electrolytes, blood gases, toxicology screen and AEDs blood levels if required. In case the child is presenting fever it must be managed using tepid sponging; if there are problem of ventilation oral airway, bag-mask ventilation or intubation can be used. Long-term management of pediatric epilepsy relies on reducing the effect of the epilepsy on the child by controlling seizure, teaching the patient and parents about epilepsy and its complications (MOH, 2012, pp.113).

For acute generalized tonic clonic seizures rectal diazepam 0.5 mg/kg single dose or intravenous diazepam 0.2 to 0.3mg/kg once to repeat every 5 minutes for a total of 3 doses is recommended (MOH, 2012, pp.113, Gschwind & Seeck, 2016, pp.24). If seizure persevere after giving benzodiazepines, phenobarbital 15 mg/kg intravenous or by naso-gastric tube loading dose over 15minutes or phenytoin 15-20 mg/kg intravenous infusion over 30 minutes in a dextrose-free solution is indicated( MOH, 2012;NICE, 2016; Gschwind & Seeck, 2016).

For management of status epilepticus, nurses should manage the airway, respiration, circulation; giving oxygen, monitoring blood glucose, administer rectal diazepam 0.5 mg per kg/dose or IV lorazepam 0.5 to 1 mg /kg maximum 5 mg IV over 1 to 4 minutes for acute seizures (Prasad, Pr and Sequeira, 2014, pp. 90; MOH, 2012, pp. 120). If there are no improvement in 10 minutes after administration of first AEDs, the treatment of second choice will be phenytoin 15 to 20 mg/kg IV infused over 30 minutes in a dextrose free solution or phenobarbital 20 mg/kg IV over 15 minutes. In that case, nurse should monitor side effect of those medications like arrhythmias, bradycardia and hypotension. If phenobarbital was given before the 3rd AEDs will be either levetiracetam or valproic acid. The fourth AED will be midazolam 0.1 to 0.3 mg/kg bolus followed by infusion of 1
meg/kg/minute or phenobarbital 3 to 15 mg/kg bolus followed by continuous infusion of 1 to 5 mg/kg/hour (MOH, 2012, pp. 120; Tracy et al., 2016, Ulas et al., 2011, pp. 32).

2.4. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION

Most of the studies conducted were focused on knowledge, attitude and practice regarding epilepsy by school teachers, parents, community, students and health professional in general. No study conducted about nurses’ knowledge, attitude and management of pediatric epilepsy. However, most of the studies were based on epilepsy in adults few articles talked about epilepsy in children. This is the reason why this study focused on assessing nurses ‘knowledge and attitudes towards management of pediatric epilepsy in the Rwanda context.

2.5. CONCEPTUAL FRAMEWORK

The conceptual framework which will guide this study has been developed by the researcher inspired by Bennett’s (1976) knowledge, attitude, skills, and aspirations (KASA) change hierarchy model as revised by Shelby (2014, pp. 18). Bennett model is one of the initial models formed to impact change in practice.

Before preparing an educational program, the researcher must first of all identify what knowledge do people require to see the need for, and to effect changes in the practices and how does their current knowledge compare with the required knowledge; what types of attitudes are needed to effect changes in the practices and how do current attitudes compare with the desired attitudes; what skills are needed to effect changes in the practices and how do present skills compare with the necessary skills; what desires, hopes, or ambitions are required to effect changes in the practices (Bennets, 1976).

The current framework includes independent variables which are nurses’ demographic characteristics (including level of education, professional experience and nurses’ exposure); the knowledge of nurses related to pediatric epilepsy; the attitudes of nurses toward children with epilepsy and dependent variables which is nurses’ management of children with epilepsy as a guide for the research process.
CONCLUSION
From this chapter it is evident that there is a need for nurses to be aware of their knowledge on epilepsy management. This knowledge can be used to self-examine attitudes and practice to care children with epilepsy and how these will affect their clinical decision making when meeting epileptic children needs. The following chapter will discuss the research methods used to meet the purpose and objectives of the study.
CHAPTER 3. METHODOLOGY

3.1. INTRODUCTION
This chapter discusses the methodology that was used to assess nurses’ knowledge, attitude, and management of pediatric epilepsy. In this chapter there is a study design, research approach, study setting, population, sampling method, data collection tool, and data analysis, ethical consideration, Data management, dissemination and limitations are discussed.

3.2 STUDY DESIGN
“Research design refers to the general preparation, to guide the conduct of a study in such a manner as to maximize control over factors and answer research questions” (Rebar et al., 2011, pp.187).This study used a non-experimental, quantitative descriptive cross-sectional design using quantitative approach which was suitable for this study because it answer the research questions established and describe nurses’ knowledge, attitude and management of pediatric epilepsy.

3.3 RESEARCH APPROACH
This study used a quantitative approach in order to describe the knowledge of nurses, their attitude and management of pediatric epilepsy.

3.4. STUDY SETTING
This study on assessing nurses’ knowledge, attitudes and management of pediatric epilepsy was conducted at three referral hospitals located in Kigali, namely, UTHK, RMH and KFH.

University Teaching Hospital of Kigali is a public institution located in Kigali city; Nyarugenge District .UTHK is a principal public hospital of the country .Its activities began 1922 and was located at Muhima as a District hospital and there after shifted. From 1995, UTHK was under control of the Ministry of Health as the National Hospital with the aid of Belgian cooperation. In 2002, UTHK as national referral hospital was also promote to a university teaching whereby medical students, nurses and paramedical students go for their different clinical health care professional trainings. UTHK is one of countrywide reference hospitals, with capacity of 543 beds. This hospital has various services: clinical services, paraclinical services and administrative services. Pediatric unity at UTHK is divided in pediatric OPD, HDU, pediatric emergency, PICU, Oncology, surgery, general Pediatric and
Cardiac department. There were 60 nurses in pediatric unit, 145 in surgical department and 9 nurses in neuro surgery at UTHK.

Rwanda Military Hospital is also a public institution located at Kanombe Sector, Kicukiro District in Kigali city. RMH was built in 1968 at Kanombe as a military referral hospital. At that time, RMH was providing health care services to the military and their families only until after 1994 genocide against Tutsi when they started to receive the general population. RMH since its foundation has been offering both secondary and primary tertiary medical care. From 2011 its strategic plan has been oriented towards transforming it into a fully fledged referral and teaching facility. There were 19 nurses in pediatric unity at RMH, 19 nurses in ICU, and 25 nurses in emergency service.

King Faysal Hospital is a referral hospital located in Kacyiru Sector, Gasabo District in Kigali city. KFH have been started in 1997 with the support of Saudi Fund. This hospital is a specialty and super specialty center handling national and regional referral cases. KFH has the capacity of 160 beds and it provides a minimum of 33 services. KFH mission is providing quality specialized health care, clinical education and research. At KFH there were 16 nurses in pediatric ward, 16 nurses in emergency service, 22 nurses in surgical ward, 24 nurses in ICU, and 10 nurses in HDU.

3.5 STUDY POPULATION

A population is considered as counting all people or objects with the characters one wishes to comprehend (Rebar et al., 2011, pp. 113). This is the total number of individuals from which the sample is being obtained. The study population was 365 nurses who work in emergency, ICU, HDU, Pediatric and surgical ward at UTHK, RMH and KFH. These units are the ones which care for children with different cases in the selected hospitals. There was no discrimination of sex, age, religion or level of education. This population was drawn from the files of the human resource offices in the hospital.

3.6 SAMPLING

3.6.1 Sampling strategy

Sampling is the choice of a subset of individuals from the general population in order to represent the uniqueness of that entire population using low cost and by managing time (Singh & Masuku, 2014, pp.10). This study used a convenience sampling and nurses were selected based on their availability for the study.
3.6.2 Sample size

The sample size was designed using formula found in the book written by Israel (2013, pp. 4).

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

\( n = \) Sample size  \( N = \) Population size  \( e \) = Level of precise

Therefore, \( n = \frac{365}{1 + 365(0.05)^2} = 190.84 \approx 191 \)

The confidence interval to consider was 95% with maxim variability of 5% with \( P = 0.05 \).

The simple size was 191 nurses out of the population of 365 nurses.

3.6.2.1. Inclusive criteria

- Nurses who were working at UTHK, RMH and KFH in emergency, pediatric ward, surgical ward, ICU, during the period of research.
- The nurses who gave their consent to willingly participate in the research study.

3.6.2.2. Exclusive criteria

- All the nurses who declined to participate in the study.
- Nurses who were working in others services that are not mentioned in this study.

3.7 DATA COLLECTION

3.7.1 Data collection instrument

Self administered questionnaires were employed to collect data in this study. Goel (2011) originally developed the questionnaire on knowledge and attitude, and permission to use it was sought and obtained from the author. The researcher developed the questionnaires on management of pediatric epilepsy based on pediatric epilepsy guidelines used in Rwanda hospitals. The total items of the tool were 25. The questionnaire consisted of 4 sections. Section A contained demographic data (age, sex, year of graduation, working experience and level of education), section B with 18 multiples choices questions that assessed nurses’ knowledge of pediatric epilepsy, section C with 2 multiple choice questions which evaluated nurses’ attitude regarding pediatric epilepsy, and section D which assessed nurses’
management of pediatric epilepsy at selected referral hospitals in Rwanda. The questionnaire initially designed in English, was translated into Kinyarwanda language by the researcher.

**Operational definitions**

**Knowledge Score**
- Low knowledge: Nurses who scored the correct answers for knowledge related questions’ regarding pediatric epilepsy are <70%.
- Moderate knowledge: Nurses who scored the correct answers for knowledge related questions’ regarding pediatric epilepsy are 70-80%.
- High knowledge: Nurses who scored the correct answers for knowledge related questions’ regarding pediatric epilepsy are ≥80%.

**Attitude Score**
- Positive attitude: Nurses who scored the correct answers for attitude related questions are 80-100%.
- Negative attitude: Nurses who scored the correct answers for attitude related questions are < 80.

**Management Score**
- Low management: Nurses who scored the correct answers for management related questions’ regarding pediatric epilepsy are < 70%.
- Moderate management: Nurses who scored the correct answers for practice related questions’ regarding pediatric epilepsy are between 70-80%.
- High management: Nurse who scored the correct answers for practice related questions’ regarding pediatric epilepsy are ≥80.

**Validity of instrument**

The strength of quantitative research lies in the rigor of the design and the collection of data using a psychometrically sound tool. “According to (DeVon et al., 2007 pp.155) validity is defined as the capability of a tool to weigh up the attributes of the construct under study. Face validity means the language and presentation of the tool in relation to participants’ context. The instrument was presented to supervisors to test its face validity and the recommended changes were made to make sure that the questionnaire is simple to read, comprehensible and relevant.

**Reliability of instrument**
The Reliability is defined as the measure of true scores and includes an examination of stability or equivalence, referring to “the instrument’s ability to measure an attribute consistently” (DeVon et al., 2007, pp.156). A pilot study was conducted in order to test consistency reliability of the tool because the tool was adapted. The Cronbach's alpha of the modified instrument was found to be 0.7 and the tool was appropriate for the study.

3.7.2. Pretesting of a questionnaire

Before the research, pilot study was conducted at UTHK in order to test if the tool was easy to complete and understandable by each participants. The questionnaire prepared in both English and Kinyarwanda language was pretested on 10 participants. Each participant was asked to provide comments on questions which required more clarification and change.

3.7.3. Data collection procedure

After obtaining permission from UR/College of Medicine and Health Sciences administration, permission to conduct the study was also obtained from the relevant authorities in charge of selected referral hospitals. The Heads of departments of pediatric unit, emergency services and surgical wards at UTHK, RMH and KFH then informed the nurses in their units about the objectives of the study.

Data collection started at UTHK in pediatric unit and surgical ward for the 1\textsuperscript{st} week. The researcher gave a brief explanation to nurses who were available in the morning staff meeting in order to generate interest in the study and clarify the data collection procedure. Also, the written consent form was given to nurses in order to get their approval. Questionnaires were self administered and nurses who accepted to participate in the study completed it.

After collecting data at UTHK, the 2 followed weeks the researcher continued data collection at KFH starting by emergency and pediatric unit for the 1\textsuperscript{st} week then ICU, HDU and surgical unit for the 2\textsuperscript{nd} week. Questionnaires were also self-administered in morning staff meeting after getting a brief enlightenment about the study and nurses who gave their consent completed the questionnaires. For the last week, data were collected at RMH in pediatric unit, HDU and ICU by the same procedure. The duration of data collection was in total 4 weeks.

3.8. DATA ANALYSIS

After collecting data, an SPSS software package version 20 was used to organize and analyze data and Microsoft Excel 2007 was used to present graphics. Data were analyzed by using
descriptive statistics, frequencies and percentages. Frequency distribution tables and inferential statistics were used to monitor the different variables and analyze their relationship. A regular consultation with the statisticians was conducted to validate data, guide analysis and assist in the accurate interpretation of the results.

**3.9. ETHICAL CONSIDERATIONS**

Initially, ethical clearance was obtained from University of Rwanda, College of Medicine and Health Sciences, research review ethical committee after assessing the research proposal on nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals in Rwanda. Then, the research proposal was taken to UTHK, KFH and RMH research center to obtain the permission to conduct the study there. The ethical committees from these three hospitals again approved the proposal. Then, approval letter was given to the units’ managers of pediatric, ICU, HDU, emergency and surgical unit.

A consent form for participants was established. Before data collection, the research informed participants that participation in the study was voluntary and they got explanation concerning the aim of the study, objectives, benefits and methodology that was going to be used. The researcher reassured the participants about confidentiality and anonymity of the questionnaires as they used codes instead of their names and a collection box for questionnaire return. Voluntary participation, with no penalty for not completing the questionnaire was highlighted in the information letter and by the researcher before distributing the questionnaires.

After data collection, all the participants’ responses were kept confidential and analyzed data were saved in computer files, secured by a password that is only known by the researcher. Before publication, the researcher will communicate the results to participants and to the study facilities.

**3.10 DATA MANAGEMENT**

Before conducting the study, the tool was kept safely in the research’s own laptop locked with a password. After collecting data, results from the study was analyzed and reserved also in the researcher’s laptop locked with a password. The completed questionnaires were put in a locked shelf in order to be accessed by the researcher and supervisors only upon request. After 5 years, data will be destroyed.
3.11. DATA DISSEMINATION

The results from this study are going to be presented and submitted to UR/CMHS, to UTHK hospital, RMH and KFH where this study have been conducted and to Ministry of health. This study will also be published by the researcher.

CONCLUSION

In this chapter, the blueprint used to plan and implement the research strategy was discussed as well as research ethics, including the rights of participants. In chapter four data will be analyzed.
CHAPTER 4. RESULTS

4.0. INTRODUCTION
This chapter presents the findings of the study that was conducted to assess nurses’ knowledge, attitude and management of pediatric epilepsy at UTHK, KFH and RMH three referrals hospitals located in Rwanda. A descriptive cross sectional design was used. The specific objectives of the study were to describe the nurses’ level of knowledge about pediatric epilepsy, to examine the nurses’ attitude related to pediatric epilepsy, to determine the nursing management of pediatric patients with epilepsy and to find out the association between the knowledge, attitude and current practice about pediatric epilepsy. A sample of 191 nurses was selected to take part in the study and self-administered questionnaire was employed in data collection. Data was entered into SPSS version 20 for analysis.

In this chapter, the results from the study are presented under the headings of demographic data, nurses’ knowledge of pediatric epilepsy at UTHK, KFH, RMH, nurses’ attitude related to pediatric epilepsy at UTHK, KFH, RMH, nurses’ knowledge of management strategies concerning pediatric epilepsy at UTHK, KFH, RMH and association of nurses’ knowledge, attitude and management strategies of pediatric epilepsy. Descriptive statistics was used to describe nurses’ demographic characteristics and level of knowledge at UTHK, KFH, RMH, attitude and management strategies regarding pediatric epilepsy at selected hospitals in Rwanda. Chi-square test was used to find if there is any association between nurses’ knowledge, attitude and management strategies of pediatric epilepsy.

4.1. DEMOGRAPHIC CHARACTERISTICS
This section intended to identify the demographic characteristics of the respondents including sex, age group, working experience as a nurse; the level of education as well as the year of graduation. The age and sex of the respondents may help to assess the ability of the nurses to care for a child with epilepsy. The year of graduation, the education level and working experience in the nursing field were important to determine their qualifications and competences to manage a child with epilepsy and support his family. Participants were granted confidentiality at the very beginning and they signed a consent form.
Table 4.1. Frequency distribution of nurses’ demographic variables at selected referral hospitals in Rwanda (N=191).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>19</td>
<td>9.9</td>
</tr>
<tr>
<td>&gt;21-30</td>
<td>62</td>
<td>32.5</td>
</tr>
<tr>
<td>&gt;30-40</td>
<td>93</td>
<td>48.7</td>
</tr>
<tr>
<td>&gt;40-50</td>
<td>17</td>
<td>8.9</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>38</td>
<td>19.9</td>
</tr>
<tr>
<td>Female</td>
<td>153</td>
<td>80.1</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>9</td>
<td>4.7</td>
</tr>
<tr>
<td>Diploma</td>
<td>121</td>
<td>63.4</td>
</tr>
<tr>
<td>Bachelors degree</td>
<td>61</td>
<td>31.9</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Year of graduation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>22</td>
<td>11.5</td>
</tr>
<tr>
<td>&gt;2000</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>&gt;2000-2005</td>
<td>8</td>
<td>4.2</td>
</tr>
<tr>
<td>&gt;2005-2010</td>
<td>57</td>
<td>29.8</td>
</tr>
<tr>
<td>&gt;2010-2015</td>
<td>89</td>
<td>46.6</td>
</tr>
<tr>
<td>&gt;2015</td>
<td>12</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Working experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>20</td>
<td>10.5</td>
</tr>
<tr>
<td>1-5 years</td>
<td>61</td>
<td>31.9</td>
</tr>
<tr>
<td>&gt;5-10 years</td>
<td>68</td>
<td>35.6</td>
</tr>
<tr>
<td>&gt;10-15 years</td>
<td>24</td>
<td>12.6</td>
</tr>
<tr>
<td>&gt;15 years</td>
<td>18</td>
<td>9.4</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UTHK</td>
<td>112</td>
<td>58.63</td>
</tr>
<tr>
<td>KFH</td>
<td>46</td>
<td>24.1</td>
</tr>
<tr>
<td>RMH</td>
<td>33</td>
<td>17.27</td>
</tr>
</tbody>
</table>

A total number of 191 bedside nurses were invited to participate in the study and among them 112 nurses were selected from UTHK, 46 nurses from KFH and 33 nurses were from RMH. The majority of the nurses 48.7% (93) were aged from >30-40 years, 32.5% (62) were aged > 21-30 years and 8.9% (17) were aged 40-50 years. However, 9.9% (19) nurses didn’t mention their age. Among 191 nurses; 19.9% (38) and 80.1% (153) were males and females,
respectively. Regarding educational status majority of them 63.4% (121) were diploma holders while 31.9% (61) were bachelor’s degree holders in nursing and 4.7% (9) didn’t provide a response.

Regarding nurse’s graduation year, the majority 46.6% (89) have been graduated between >2010-2015, 29.8 % (57) graduated between >2005-2010, 6.3% (12) graduated between >2015, 4.2% (8) graduated between >2000-2005, 1.6% (3) nurses graduated before <2000 and 11.5% (22) didn’t answer the question. Nurses who were counted for their experiences in more than 15 years were 9.4% (18) while majority of them 35.6% (68) experienced >5-10 years, 12.6% (24) had 10-15 years of experience and 31.9% (61) had >1-5 years of experience in nursing profession.10.5% (20) nurses didn’t provide the years of working experience.

4.2. PRESENTATION OF FINDINGS
Knowledge of pediatric epilepsy at selected referral hospitals in Rwanda.

Table 4.2. Nurses’ knowledge score of pediatric epilepsy at selected referral hospitals in Rwanda (N=191).

<table>
<thead>
<tr>
<th>Knowledge score out of 49</th>
<th>% Knowledge score</th>
<th>Level of Knowledge</th>
<th>Frequency</th>
<th>% frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00</td>
<td>34.6%</td>
<td>Low level of knowledge</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>19.00</td>
<td>38.7%</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>20.00</td>
<td>40.8%</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>21.00</td>
<td>42.8%</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>22.00</td>
<td>44.8%</td>
<td></td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>23.00</td>
<td>46.9%</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>24.00</td>
<td>48.9%</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>25.00</td>
<td>51%</td>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>26.00</td>
<td>53%</td>
<td></td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>27.00</td>
<td>55.1%</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>28.00</td>
<td>57.1%</td>
<td></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>29.00</td>
<td>59.1%</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>30.00</td>
<td>61.2%</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>31.00</td>
<td>63.2%</td>
<td></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>32.00</td>
<td>65.3%</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>33.00</td>
<td>67.3%</td>
<td></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>34.00</td>
<td>69.3%</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>35.00</td>
<td>71.4%</td>
<td>Moderate level of knowledge</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>36.00</td>
<td>73.4%</td>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Overall, the nurses’ knowledge of pediatric epilepsy was at a low level with a minimum score of 34.6% and a maximum score of 73.4%. Table 4.2. shows number and frequency of nurses who were in each category of knowledge level. It was found that 95.2% (182) of nurses had low level of knowledge, 4.7% (9) possessed moderate level of knowledge and no one scored a high level of knowledge related to pediatric epilepsy.

Table 4.3. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda, (N=191).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you already provided care to a child having epilepsy in your practice?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>58</td>
<td>30.4</td>
</tr>
<tr>
<td>Yes</td>
<td>133</td>
<td>69.6</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>How many cases of pediatric epilepsy have you cared in the past 3 months?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>119</td>
<td>62.3</td>
</tr>
<tr>
<td>1 to 5</td>
<td>64</td>
<td>33.5</td>
</tr>
<tr>
<td>5 to 10</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>10 to 25</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>What type of training you received on epilepsy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theory or clinical demonstrations</td>
<td>130</td>
<td>68.1</td>
</tr>
<tr>
<td>Theory and clinical demonstrations</td>
<td>61</td>
<td>31.9</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>The epilepsy is a brain chronic disease that cannot be cured or controlled?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes and I don't know</td>
<td>57</td>
<td>29.8</td>
</tr>
<tr>
<td>No</td>
<td>134</td>
<td>70.2</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Seizure occurs when abnormal electric discharge happens in brain?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No and I don't know</td>
<td>37</td>
<td>19.4</td>
</tr>
<tr>
<td>Yes</td>
<td>154</td>
<td>80.6</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
</tbody>
</table>
The epilepsy is the most common neurological disorder in the world?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No and I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>126</td>
<td>65</td>
</tr>
</tbody>
</table>

Is epilepsy known to occur in the family?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No and I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>107</td>
<td>84</td>
</tr>
</tbody>
</table>

Every child who has convulsion has epilepsy?

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>5</td>
<td>186</td>
</tr>
</tbody>
</table>

Is epilepsy always brain disorder?

<table>
<thead>
<tr>
<th></th>
<th>Definitely not possible</th>
<th>Possible</th>
<th>Definitely yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>7</td>
<td>78</td>
<td>106</td>
</tr>
</tbody>
</table>

Generally, what is attitude of the family toward management of the children with epilepsy?

<table>
<thead>
<tr>
<th></th>
<th>Accepting, fearful, rejecting</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>185</td>
<td>6</td>
</tr>
</tbody>
</table>

Does any epileptic child need lifelong treatment?

<table>
<thead>
<tr>
<th></th>
<th>Yes and I don't know</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>186</td>
<td>5</td>
</tr>
</tbody>
</table>

Epilepsy is a mental illness?

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>109</td>
<td>82</td>
</tr>
</tbody>
</table>

What is status epilepticus?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent seizures with abnormal paroxysmal neuronal discharges</td>
<td>132</td>
</tr>
<tr>
<td>and sudden surge of electrical activity in brain</td>
<td>69.1</td>
</tr>
<tr>
<td>A convulsion that persists &gt;30 minutes or repeated frequently</td>
<td>59</td>
</tr>
<tr>
<td>enough to prevent recovery of consciousness</td>
<td>30.9</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
The majority of the nurses 68.1% (130) received either theory or clinical demonstrations training on epilepsy and 31.9% (61) had training on both theory and clinical demonstrations.

A great number of nurses 69.6% (133) have provided care to a child experiencing epilepsy in their practice and 30.4% (80) nurses didn’t. However, the highest percentage 62.3% (119) has not cared a case of pediatric epilepsy in the last 3 months. 33.5% (64) participants have cared for 1-5 cases, 2.6% (5) cared for 5-10 cases, and 1.6% (3) has cared 10-25 cases of pediatric epilepsy in the last 3 months.

The majority of respondents 70.2% (152) answered correctly that epilepsy is not a brain chronic diseases which cannot be cured or controlled and 29.8% (57) didn’t.

Regarding the occurrence of seizures, the majority of nurses 80.6% (154) have adequate knowledge of seizures definition and 19.4% (37) didn’t. 66% (126) nurses knew that epilepsy is the most common neurological disorder in the world and 34% (65) nurses didn’t know it.

The majority of nurses 67.5% (129) knew that every child who has a convulsion doesn’t mean that he/she had epilepsy and 2.6% did not know it. Results show that low percentage of nurses 42.9% (82) knew that epilepsy is not a mental illness and 57.1% (109) nurses didn’t know it.

For the knowledge of family attitude towards a child who has epilepsy, 96.9% (185) nurses responded accepting, fearful, rejecting and 3.1% (6) nurses didn’t know the family attitude toward children with epilepsy. Majority of the nurses 97.4% (186) didn’t know that child with epilepsy doesn’t need lifelong treatment only 2.6% (5) knew that.

With regard to status epilepticus, results show that the majority of nurses 69.1% (132) didn’t know what status epilepticus is only 30.9% (59) knew it.
Table 4.4. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda, N=191 (Continued).

<table>
<thead>
<tr>
<th>Types of seizures</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are mild seizures among the major types of seizures in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62</td>
<td>32.5</td>
</tr>
<tr>
<td>No</td>
<td>129</td>
<td>67.5</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Are generalized seizures among the major types of seizures in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>62</td>
<td>32.5</td>
</tr>
<tr>
<td>Yes</td>
<td>129</td>
<td>67.5</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Is thalassaemia among the major types of seizures in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>3.1</td>
</tr>
<tr>
<td>No</td>
<td>185</td>
<td>96.9</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Are focal seizures among the major types of seizures in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>126</td>
<td>66</td>
</tr>
<tr>
<td>Yes</td>
<td>65</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Are chronic seizures among the major types of seizures in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>64</td>
<td>33.5</td>
</tr>
<tr>
<td>No</td>
<td>127</td>
<td>66.5</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Are moderate seizures among the major types of seizures in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>57</td>
<td>29.8</td>
</tr>
<tr>
<td>No</td>
<td>134</td>
<td>70.2</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
</tbody>
</table>

For the knowledge of major types of seizures, results show that 67.5% (129) nurses had adequate knowledge of generalized seizures, and 34% (65) recognized focal seizures. Although, 33.5% (64), 29.8% (57) and 3.1% (6) responded moderate seizure, chronic seizure and thalassaemia which was not among the types of seizure.
For the signs of pediatric epilepsy, the majority of the nurses 78% (149) had knowledge about tongue biting as the sign of pediatric epilepsy, 75.9% (145) mentioned loss of consciousness, 41.9% (80) knew stiffening and 18.3% (35) knew staring as the signs of pediatric epilepsy. Nevertheless, 63.9% (122) answered hyperactivity/impulsive behavior and 1.6% (3) responded unexplained loss of weight which are not the signs of pediatric epilepsy.
### Table 4.5. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda, N=191 (Continued).

<table>
<thead>
<tr>
<th>Causes of pediatric epilepsy</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does loss of oxygen to the brain cause pediatric epilepsy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>39</td>
<td>20.4</td>
</tr>
<tr>
<td>Yes</td>
<td>152</td>
<td>79.6</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Does brain infection causes pediatric epilepsy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>86</td>
<td>45</td>
</tr>
<tr>
<td>Yes</td>
<td>105</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Does inadequate nutrition causes pediatric epilepsy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>No</td>
<td>170</td>
<td>89</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Does head injury causes pediatric epilepsy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>61</td>
<td>31.9</td>
</tr>
<tr>
<td>Yes</td>
<td>130</td>
<td>68.1</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Does brain tumor cause pediatric epilepsy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>63</td>
<td>33</td>
</tr>
<tr>
<td>Yes</td>
<td>128</td>
<td>67</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Does possession by evil causes epilepsy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19</td>
<td>9.9</td>
</tr>
<tr>
<td>No</td>
<td>172</td>
<td>90.1</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
</tbody>
</table>

For the causes of pediatric epilepsy, 79.6% (152) nurses recognized loss of oxygen to the brain, 68.1% (130) nurses knew head injuries, 67% (128) nurses identified brain tumor and 55% (105) nurses knew brain infection. Results show that 11% (21) responded inadequate...
nutrition and 9.9% (19) nurses answered possession by evil which are not among the cause of pediatric epilepsy.

Table 4.6. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda, N=191 (Continued).

<table>
<thead>
<tr>
<th>Side effects of AEDs</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is sedation among the most frequently observed side effects of anti epileptics’ drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>74</td>
<td>39</td>
</tr>
<tr>
<td>Yes</td>
<td>117</td>
<td>61</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Is coordination disturbance among the most frequently observed side effects of anti epileptics’ drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>135</td>
<td>71</td>
</tr>
<tr>
<td>Yes</td>
<td>56</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Is mood alteration among the most frequently observed side effects of anti epileptics’ drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>97</td>
<td>51</td>
</tr>
<tr>
<td>Yes</td>
<td>94</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Is cognitive deficit among the most frequently observed side effects of anti epileptics’ drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>134</td>
<td>70</td>
</tr>
<tr>
<td>Yes</td>
<td>57</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Is nausea or vomiting among the most frequently observed side effects of anti epileptics’ drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>143</td>
<td>75</td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
<tr>
<td>Is blindness among the most frequently observed side effects of anti epileptics’ drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
<td>9.4</td>
</tr>
<tr>
<td>No</td>
<td>173</td>
<td>91</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
</tbody>
</table>

Regarding the side effect of anti epileptics drugs, the majority 61.3% (117) knew sedation, 49.2% (94) mood alteration, 29.8% (57) cognitive deficits, 29.3% (56) coordination
25.1% (48) nurses answered nausea or vomiting and 9.4% (18) nurses responded blindness which was not correct.

**Figure 4.2. Frequency distribution of nurses’ knowledge of pediatric epilepsy at selected referrals hospital in Rwanda, N=191 (Continued).**

According to the results found, the majority of nurses 90.1% (172) nurses had good knowledge of epilepsy prevention by prevention of brain injuries; 52.9% (101) nurses knew avoidance mistaken diagnosis of seizures and having a healthy pregnancy, 23% (44) knew washing hands and prepare food safely to prevent infections, 22% (42) knew being up to date on vaccination. Although, 22% (42) nurses mentioned eating balanced diet which is not among the best way of preventing epilepsy.

**Nurses’ attitude related pediatric epilepsy at selected referral hospital in Rwanda.**
Table.4.7. Nurses’ attitude score related to pediatric epilepsy at selected referral hospitals in Rwanda (N=191)

<table>
<thead>
<tr>
<th>Attitude score out of 24</th>
<th>% Attitude score</th>
<th>Level of Attitude</th>
<th>Frequency</th>
<th>% Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>8.3%</td>
<td></td>
<td>1</td>
<td>19.37%</td>
</tr>
<tr>
<td>4.00</td>
<td>16.6%</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>16.00</td>
<td>66.6%</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>17.00</td>
<td>70.8%</td>
<td></td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>18.00</td>
<td>75%</td>
<td>Negative attitude</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>19.00</td>
<td>79.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.00</td>
<td>83.3%</td>
<td>Positive attitude</td>
<td>35</td>
<td>80.63%</td>
</tr>
<tr>
<td>21.00</td>
<td>87.5%</td>
<td></td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>22.00</td>
<td>91.6%</td>
<td></td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>23.00</td>
<td>95.8%</td>
<td></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>24.00</td>
<td>100%</td>
<td></td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

The nurses’ attitude regarding pediatric epilepsy was at high level with maximum score of 100% and the minimum score of 8.3%. Table.4.7 demonstrates number and frequency of nurses who are scored negative attitude with the score below 80% and positive attitude with the score between 80%-100%. Results found that 80.63% (154) of nurses had positive attitude level and 19.37% (37) had negative attitude level regarding pediatric epilepsy.

Table.4.8. Frequency distribution of nurses’ attitude regarding pediatric epilepsy at selected referrals hospital in Rwanda, (N=191).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you feel about providing care for a child with Tuberculosis?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I refuse to care for a child with tuberculosis</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>I prefer not to care for a child with tuberculosis</td>
<td>35</td>
<td>18.4</td>
</tr>
<tr>
<td>I do not mind caring for a child with tuberculosis</td>
<td>152</td>
<td>79.6</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>
How do you feel about providing care for a child with gastroenteritis?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer not to care for a child with gastroenteritis</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>I do not mind caring for a child with gastroenteritis</td>
<td>190</td>
<td>99.5</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

How do you feel about providing care for a child with epilepsy?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I refuse to care for child with epilepsy</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>I prefer not to care for a child with epilepsy</td>
<td>16</td>
<td>8.4</td>
</tr>
<tr>
<td>I do not mind caring a child with epilepsy</td>
<td>172</td>
<td>90.1</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

How do you feel about providing care for a child with AIDS?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I refuse to care for a child with AIDS</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>I prefer not to care for a child with AIDS</td>
<td>16</td>
<td>8.4</td>
</tr>
<tr>
<td>I do not mind caring for a child with AIDS</td>
<td>173</td>
<td>90.6</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

How do you feel about providing care for a child with mental illness?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I refuse to care for a child with mental illness</td>
<td>22</td>
<td>11.5</td>
</tr>
<tr>
<td>I prefer not to care for a child with mental illness</td>
<td>23</td>
<td>12.0</td>
</tr>
<tr>
<td>I do not mind caring for a child with mental illness</td>
<td>146</td>
<td>76.4</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

How do you feel about providing care for a child with pneumonia?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer not to care for a child with pneumonia</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>I do not mind caring for a child with pneumonia</td>
<td>190</td>
<td>99.5</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Would you place a hard object in the mouth of a child who is having a tonic clonic seizure?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>132</td>
<td>69.1</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>30.9</td>
</tr>
</tbody>
</table>
Would you turn the child on their side at 20 – 30° head up for during a tonic-clonic seizure?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>69</td>
<td>36.1</td>
</tr>
<tr>
<td>Yes</td>
<td>122</td>
<td>63.9</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Would you hold child down in decubitus and restrict his movements during a tonic-clonic seizure?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>75</td>
<td>39.3</td>
</tr>
<tr>
<td>No</td>
<td>116</td>
<td>60.7</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Would you give oxygen to maintain SaO2 of 95% for a child who is having a tonic-clonic seizure?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>84</td>
<td>44.0</td>
</tr>
<tr>
<td>Yes</td>
<td>107</td>
<td>56.0</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Will you keep your distance if you meet a child who is having a tonic-clonic seizure?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>11</td>
<td>5.8</td>
</tr>
<tr>
<td>No</td>
<td>180</td>
<td>94.2</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Would you monitor blood glucose, electrolytes and blood gases for a child who is having a tonic-clonic seizure?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>78</td>
<td>40.8</td>
</tr>
<tr>
<td>Yes</td>
<td>113</td>
<td>59.2</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Concerning nurses’ attitude regarding pediatric epilepsy, tables 4.8. is showing that the majority of the nurses 90.1% (172) do not mind about caring a child with epilepsy, 8.4% (16) prefer not to care a child with epilepsy and 1.6% (3) refuse to care a child with epilepsy. Compared epilepsy with other medical conditions, the high percentage of nurses 99.5% (190) do not mind about caring a child with gastro enteritis and pneumonia; 90.6% (173) do not
mind about providing care to the child with AIDS, 79.6%(152) do not mind about caring a child with tuberculosis and 76.4%(146) don’t mind about caring a child with mental illness.

For attitude related to the child who is having a tonic-clonic seizure, 56%(107) nurses will give oxygen to maintain SaO2 of ≥ 95% , 63.9% (122) nurses will turn the patient on their side at 20 – 30° head up and 59.2%(113) nurses will monitor blood glucose, electrolytes and blood gases. Although, the high percentage 69.1% (132) will put a hard object in the mouth which is not good, 39.3% (75) will hold them down in decubitus and restrict their movements and 5.8 (11) will keep the distance.

Nurses’ knowledge of management strategies related to pediatric epilepsy at selected referral hospital in Rwanda

Table 4.9. Nurses’ management strategies score of pediatric epilepsy at selected referral hospitals in Rwanda (N=191).

<table>
<thead>
<tr>
<th>Management score out of 10</th>
<th>% Management score</th>
<th>Level of Management</th>
<th>Frequency</th>
<th>% frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>20%</td>
<td>Low management level</td>
<td>2</td>
<td>91%</td>
</tr>
<tr>
<td>3.00</td>
<td>30%</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4.00</td>
<td>40%</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>50%</td>
<td></td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>6.00</td>
<td>60%</td>
<td></td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>7.00</td>
<td>70%</td>
<td>Moderate management level</td>
<td>61</td>
<td>31.9%</td>
</tr>
<tr>
<td>8.00</td>
<td>80%</td>
<td>High management level</td>
<td>36</td>
<td>20.4%</td>
</tr>
<tr>
<td>9.00</td>
<td>90%</td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.9 is about the frequency of nurses who were in each category of management level whereby 91 % (91) of nurses were scored low knowledge of management strategies, 31.9% (61) possessed moderate knowledge of management strategies and only 20.4% (39) were scored high knowledge of management strategies. The maximum score on knowledge of management strategies was 90% and the minimum score was 20%.
Table 4.10. Nurses’ management of pediatric epilepsy at selected referral hospital in Rwanda (N=191).

<table>
<thead>
<tr>
<th>Drugs used in treatment of pediatric epilepsy</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is hydralazine used in the treatment of epilepsy in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14</td>
<td>7.3</td>
</tr>
<tr>
<td>No</td>
<td>177</td>
<td>92.7</td>
</tr>
<tr>
<td>Is carbamazepine/Tegretol used in the treatment of epilepsy in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>136</td>
<td>71.2</td>
</tr>
<tr>
<td>Yes</td>
<td>55</td>
<td>28.8</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Is chlorpromazine used in the treatment of epilepsy in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>38</td>
<td>19.9</td>
</tr>
<tr>
<td>No</td>
<td>153</td>
<td>80.1</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Is phenobarbital used in the treatment of epilepsy in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>12.0</td>
</tr>
<tr>
<td>Yes</td>
<td>168</td>
<td>88.0</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Is methyldopa used in the treatment of epilepsy in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>5.2</td>
</tr>
<tr>
<td>No</td>
<td>181</td>
<td>94.8</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Is aminophylline used in the treatment of epilepsy in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>17</td>
<td>8.9</td>
</tr>
<tr>
<td>No</td>
<td>174</td>
<td>91.1</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Is phenytoin/Epineutin used in the treatment of epilepsy in children?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>77</td>
<td>40.3</td>
</tr>
<tr>
<td>Yes</td>
<td>114</td>
<td>59.7</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>
What is the preferred treatment of acute generalised tonic clonic seizures in children?

Midazolam iv 0.1-0.3 mg/kg bolus or phenobarbital15mg/kgiv or by NGT

Diazepam rectal 0.5mg/kg once Or Iv 0.2-0.3mg/kg once which may be repeated every 5 minutes for a total of 3 doses

Total 191 100.0

What is the preferred treatment of refractory status epilepticus in children?

Diazepam rectal 0.5mg/kg once Or Iv 0.2-0.3mg/kg once;
Clonazepam iv 0.1-0.15mg/kg, Lorazepam iv 0.05-0.1mg/kg once.
Midazolam iv 0.1-0.3 mg/kg bolus followed by a continous infusion starting at 1 ug/kg/minute.

Total 191 100.0

The dosage of phenytoin in children is:

0.1 to 0.15 mg/kg loading dose by slow IV injection and IV 0.2-0.3 mg/kg once or rectal 0.5 mg/kg once.

15-20 mg/kg IV infused over 30 minutes in a dextrose-free solution

Total 191 100.0

Regarding the drugs used in management of pediatric epilepsy, the majority of nurses 88% (168) could manage epilepsy with phenobarbital, 59.7% (114) knew phenytoin, and 28.8%(55) knew carbamazepine. However, 7.3% (14) nurses responded hydralazine, 19. 9% (38) answered chlorpromazine, 15.2% (10) methyldopa and 8.9% (17) answered aminophylline which are not the drugs for epilepsy.

For preferred treatment of acute generalized tonic clonic seizures in children, 51.3% (98) identified diazepam rectal 0.5mg/kg once or Iv 0.2-0.3mg/kg once which may be repeated every 5 minutes for a total of 3 doses and 48.7% (93) didn’t know it.
Related to the preferred treatment of refractory status epilepticus in children, 19.4% (37) nurses knew midazolam IV 0.1-0.3 mg/kg bolus followed by a continuous infusion starting at 1 ug/kg/minute and 80.6% (156) didn’t know it.

For the dosage of phenytoin in children, 42.9% (82) nurses had knowledge of the correct dosage of phenytoin and 57.1% (109) didn’t.

**Association between nurses’ knowledge, attitude and current management of pediatric epilepsy at the selected referral hospitals in Rwanda.**

**Table 4.11. Association between nurses’ knowledge, attitude and current management of pediatric epilepsy at the selected referral hospitals in Rwanda.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Chi square</th>
<th>Value</th>
<th>Degree of freedom (df)</th>
<th>p- value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Pearson Chi-Square</td>
<td>131.541*</td>
<td>126</td>
<td>.008</td>
</tr>
<tr>
<td>Attitude</td>
<td>N of valid cases</td>
<td>191</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Pearson Chi-Square</td>
<td>208.906*</td>
<td>180</td>
<td>.209</td>
</tr>
<tr>
<td>Management</td>
<td>N of Valid Cases</td>
<td>191</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The study result found that there is no significant association between knowledge and attitude (P value >0.005) and between knowledge and management strategies of pediatric epilepsy (P value >0.005).

**Conclusion**

From this chapter, it is noticeable that nurses at selected referral hospitals in Rwanda have low level of knowledge about pediatric epilepsy, positive attitude and low knowledge of management strategies of pediatric epilepsy. There is no significant association between nurses’ knowledge, attitude and management strategies of pediatric epilepsy.
CHAPTER 5. DISCUSSION

5.0. INTRODUCTION

The purpose of this study was to explore the nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals. The association between knowledge, attitude and management of pediatric epilepsy has been also examined. This chapter discusses the findings from this study in relation to the studies in the existing literature. Conclusion and recommendations are made in order to improve nurses’ knowledge and better management of children with epilepsy.

5.1. SUMMARY OF FINDINGS

The findings revealed that a high percentage of nurses had a low level of knowledge, low level of management with positive attitude. There was no significant association between nurses’ knowledge and attitude and between knowledge and management of pediatric epilepsy.

The findings are discussed under four variables which include level of knowledge, level of attitude, level of management and association between knowledge, attitude and management.

Level of Knowledge

The findings showed that nurses who participated in this study have low level of knowledge regarding pediatric epilepsy. There are two possible reasons to explain the low level of knowledge of pediatric epilepsy by this group:

First, education may be a factor related to this low level of knowledge as most of the nurses 63.4% (121) hold diploma and only 31.9% (61) hold a bachelors’ degree. Shehata et al., (2015, pp.197) noted that sustained educational nursing programs augment both knowledge and practice. The findings from the current study are similar to the findings from a study conducted in Lao People Democratic Republic where nurses had lower knowledge and wrong practices toward epilepsy compared to physicians and lack of knowledge of health care providers has been highlighted as a reason of epilepsy treatment gap(Harimanana et al., 2013, pp. 7).

A study conducted by Paulo et al., (2012, pp. 5) found that some health professionals didn’t receive adequate information or any formal instruction on epilepsy during their graduate study which may affect the management of people with epilepsy and these findings differ
from results of this study where the majority of nurses 66.5% (127) have received either training on theory or clinical demonstrations and only 31.9% (61) received training on both theory and clinical demonstration of pediatric epilepsy.

Second, it was suggested that the higher the working experience is the higher the knowledge gained (Uba et al., 2015, pp. 3). The current study found that 35.6% (68) nurses had an experience between 5 to 10 years, 31.9% nurses had an experience between 1 to 5 years, 12.6% (24) nurses with experience between 10 to 15 years and only 9.4% (18) nurses had more than 15 years of experience. These suggest that nurses without more experience might have lack of opportunity to gain access to updated information related to pediatric epilepsy from daily practices, observation or from workmates.

Findings from a study conducted by Atanga, Ngouakam & Wona (2015, pp.6) found that for the causes of epilepsy 10 nurses proposed head injury, 30 nurses proposed infections such as malaria and meningitis, 15 nurses said epilepsy is hereditary and 5 said the cause is unknown. Those findings differ from the findings of the current study where 79.6% (152) nurses recognized loss of oxygen to the brain as the cause of epilepsy, 68.1% (130) knew head injuries, 67% (128) nurses identified brain tumor and 55% (105) nurses knew brain infection.

Furthermore, in the current study a great number of nurses 69.6% (133) have provided care to a child experiencing epilepsy in their practice and only 30.4% (80) nurses didn’t. This shows that epilepsy is frequent in Rwanda’s referral hospitals.

With regard to the signs of pediatric epilepsy, the majority of the nurses 78% (149) were knowledgeable about tongue biting as the sign of pediatric epilepsy, 75.9% (145) mentioned loss of consciousness, 41.9% (80) knew stiffening and 18.3% (35) knew staring as the signs of pediatric epilepsy. Nevertheless, 63.9% (122) answered hyperactivity/impulsive behavior and 1.6% (3) responded unexplained loss of weight which is not the sign of pediatric epilepsy.

In the present study, the majority of nurses 70.2% (152) answered correctly that epilepsy can be cured and controlled, 67.5% (129) nurses knew that every child who has a convulsion doesn’t mean that he/she had epilepsy and 56% (107) answered that epilepsy occur in the family. However, only 42.9% (82) were aware that epilepsy is not a mental illness. Similar studies from Rajasthan found that 52% of 1st year medical students thought that epilepsy is a mental illness, 46% thought it runs in families and 1% student thought that it spreads by
direct contact. In the same study, among the medical students from final year 29% of them thought epilepsy to be a mental illness and only 32% thought it to occur in the family (Sureka et al., 2015, pp.2).

Regarding the occurrence of seizures, the majority of nurses 80.6% (154) had adequate knowledge of seizures definition and 19.4% (37) didn’t. For the knowledge of major types of seizures, results show that 67.5% (129) nurses had adequate knowledge of generalized seizures, and 34% (65) recognized focal seizures. Although, 33.5% (64), 29.8% (57) and 3.1% (6) responded moderate seizure, chronic seizure and thalassaemia which was not among the types of seizure. This show that nurses from referrals hospital can know a child who is having a seizure and the first aid will not delay.

For the knowledge of family attitude towards a child who has epilepsy, 96.9% (185) nurses responded accepting, fearful, rejecting and 3.1% (6) nurses didn’t know the family attitude toward children with epilepsy. Knowing family attitude towards epilepsy helps in preventing misconceptions and discrimination of children with epilepsy by educating the family about that neurological disorder.

Regarding the side effect of anti epileptics drugs, the majority 61.3% (117) knew sedation, 49.2% (94) mood alteration, 29.8% (57) cognitive deficits, 29.3% (56) coordination disturbance. 25.1% (48) nurses answered nausea or vomiting and 9.4% (18). Knowledge of anti epileptics’ side effects will help nurses in surveillance and monitoring of children with epilepsy who are receiving those medications (Shehata et al., 2015, pp.197). The roles of professional nurses are to decrease epilepsy related complications. While significant growth has been made in developing seizure medications with fewer adverse effects, much remains to be done to decrease the long delays in diagnosis and referral to more advanced levels of care, to improve care for those with refractory epilepsy, and to provide a better response to comorbidities, including mental health conditions (Jane et al., 2012, pp. 269).

For the knowledge of epilepsy prevention, the majority of nurses 90.1% (172) nurses had good knowledge of epilepsy prevention by prevention of brain injuries; 52.9% (101) nurses knew avoidance mistaken diagnosis of seizures and having a healthy pregnancy, 23% (44) knew washing hands and prepare food safely to prevent infections, 22% (42) knew being up to date on vaccination. Jane et al., (2012, pp. 268) suggested that early identification of risk factors is an essential first step in designing programs to prevent epilepsy and its most serious complications. He noted that for prevention of epilepsy, an improvements in
education and sanitary measures, prevention of the occurrence of traumatic brain injury through the use of seatbelts, to prevent traumatic brain injury associated with motor vehicle accidents, as well as helmets; including improved helmet design, to reduce the occurrence and severity of traumatic brain injury in sports, the prevention of epilepsy's other risk factors such as stroke and initiation of sustained vaccination programs will effect in decreasing the new cases of epilepsy. According to Appleton and Camfield (2011, pp. 105) prevention of epilepsy should rely on avoidance of mistaken diagnosis of seizures, erroneous investigation and deterrence of a mistaken origin of epilepsy.

Level of attitude

The study indicated that the majority of the nurses had positive attitude (80.63%) regarding pediatric epilepsy. These findings differ from those of a previous study on awareness, knowledge and attitudes towards epilepsy among rural populations in East Coast Peninsular Malaysia, which suggested that a lack of knowledge about epilepsy has been among the factors contributing to the negative attitudes towards people with epilepsy (Neni et al., 2010, pp. 5).

In the present study, concerning nurses attitudes related to pediatric epilepsy 90.1% (172) nurses do not mind about caring a child with epilepsy and only 5.8 (11) nurses will keep the distance while a child is presenting tonico-clonic seizures. Lim, Lim and Tan, (2011, pp. 8) noted that attitudes are designed from a human rights perspective, to choose whether the patients are being discriminated against.

Studies show that low level of knowledge about epilepsy, lack of contact with someone with epilepsy lead to poor attitudes; and the negative attitudes are motivated by the presence of some belief related to epilepsy such as perception of epilepsy as a mental illness, being incurable contagious, hereditary, or a form of mental retardation (Lim, Lim & Tan, 2011, pp.10).

Level of management

Results from this study found that the nurses’ knowledge of management strategies related to pediatric epilepsy was at low level (91%). This differed from findings of the study conducted on management of epilepsy: knowledge and practices of nurses in Buea regional hospital, south west region of Cameroon, which indicated that nurses are familiar with the approaches in the management of epilepsy (Atanga, Ngouakam& Wona, 2014, pp.6).
The poor knowledge of health staff has been suggested as a contributing cause to the epilepsy treatment gap. Diagnosis and management of epilepsy is an active area of study and it is important for clinicians to stay up to date with the latest advances to provide the best care for patients (Sarma et al., 2016, p.7). In this study, the results illustrated that the majority of nurses 88% (168) knew the three drugs used in the treatment of pediatric epilepsy; phenobarbital, 59.7% (114) phenytoin, and 28.8% (55) carbamazepine. For the dosage of phenytoin in children, only 42.9% (82) nurses have knowledge of the correct dosage of phenytoin and 57.1% (109) didn’t.

Findings from this study are different from the results from the study conducted on management of epilepsy: knowledge and practices of nurses in Buea regional hospital, southwest region of Cameroon where 62% of nurses know the various medications used in the management of epilepsy (Atanga, Ngouakam & Wona, 2014, pp.5). Similarly, in Lao People’s Democratic Republic, the majority of the respondents (59.9%) had insufficient knowledge of epilepsy and was also unaware of any available anti epileptic drugs at the health facilities. Many did not know the names of any AED (57.3%) and phenobarbital was known by 121 (42.6%) (Harimanana et al., 2013, pp.7).

**Association between knowledge, attitude and management**

Based on the results from this study, there is no statistically significant association between knowledge and attitude, as well as knowledge and management strategies (p value >0.05) of nurses from selected referral hospitals in Rwanda regarding epilepsy; low level of knowledge was not associated with positive attitude or low level of management. In a previous study conducted with clinical nurses working at a university hospital located in eastern Turkey, more knowledge was observed to be associated with more practice (Dayapo & Tan, 2016, pp. 4).

Furthermore, a study conducted by Shewangizaw,( 2015, pp.1239) on assessment of knowledge, attitude, and practice related to epilepsy among the people belonging to the Sululta community in Ethiopia found that promising knowledge of epilepsy was associated with unfavorable attitude toward epilepsy, and unsafe practices related to epilepsy. In that study, 59.8% participants were knowledgeable about epilepsy, 35.6% had favorable attitude, and 33.5% of them observed safe practices related to epilepsy.
These results are incongruent with findings from the current study. Lack of knowledge of the clinical nurses regarding epilepsy constitutes the most important barrier for best management of epilepsy.
CHAPTER 6. CONCLUSION AND RECOMMENDATION

6.1. CONCLUSION

As evidenced by the discussion above, the level of knowledge and management strategies regarding pediatric epilepsy was poor among nurses working at referral hospitals in Rwanda. Nonetheless, nurse’s attitude towards pediatric epilepsy at referral hospitals was positive and there was no statistically significant association between knowledge and management strategies of pediatric epilepsy. According to the KAP model changes knowledge and attitude of individuals can influence their practice (Uba et. al. 2015: pp6).

6.2. RECOMMENDATION

Continuing education to increase nurses ‘knowledge of pediatric epilepsy and its treatment must be provided to practicing nurses. This can be offered by the Nursing Council as a Continuing Professional Development. Therefore, development of educational curriculum content related to pediatric epilepsy is also crucial in order to raise awareness of epilepsy and improve the children’ quality of care received. Advocacy must be associated with information to the general population about management of pediatric epilepsy in order to minimize misconceptions and stigmatization in the community. Further studies are required to identify nurses’ knowledge, attitude and management of pediatric epilepsy in all referral hospitals, district hospitals and health centers.

6.3. LIMITATION OF THE STUDY

Among the limitations of this study, there was a short period of research and unwillingness of nurses to participate in the study because of busy schedules for completing the questionnaires. In order to mitigate this, the researcher planned for appropriate time management and she provided enough explanations about each question so that the questionnaire would not take a long time to complete it.

The deficiency of Rwandan literature was also among the limitations which resulted in a biased literature review by advantaging worldwide practice. The fact that there was no study done so far in Rwanda on nurses’ knowledge, attitude and management of pediatric epilepsy influenced the lack of information for discussion in national context.

Additionally, this study used a cross sectional design which was limited to referrals hospital located in Kigali city and a small geographical sample could affect the generalization of the
results. Waiting for longtime before getting approval from hospitals to collect data was also among the limitations.
References


Dayapo, N. and Tan, M. (2016) ‘Epilepsy & Behavior Clinical nurses â€™ knowledge and


Paulo, S., Sousa, B. S., Vancini, R. L., Ame, A., Gomes, S., Souza-vancini, M. I., Vancini-


APPENDICES

a. QUESTIONNAIRE ENGLISH VERSION

UNIVERSITY OF RWANDA
COLLEGE OF MEDICINE AND HEALTH SCIENCES
DEPARTEMENT OF NURSING

Questionnaire: Survey on nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals in Rwanda.

Introduction: You are invited to take part in this study that is aimed to identify nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals in Rwanda. It needs approximately 15 minutes to complete the questionnaire.

Would you willing to participate? Agree □ Disagree □

For more detail please contact the following addresses:

Principal Investigator: UWITUZE Sandrine  Cell phone: +250788621925

Name and signature of supervisor __________________ Date____________
I. Demographic data.

a. Age ______

b. Sex  □Male     □Female

c. Educational levels   1. Diploma       2. BSc degree           3. Masters degree

d. Year of graduation ___________

e. Working experience as a nurse________

1. Have you already provided care to a child having epilepsy in your practice?

   Yes  □□□□□ No □□□□□

2. How many cases of pediatric epilepsy have you cared in the past 3 months?

   None □□□□□

   1-5 □□□□□

   5-10 □□□□□

   10 -25 □□□□□

   25-50 □□□□□

   Above 50 □□□□□

II. Nurses knowledge of pediatric epilepsy

3. What type of training have you received on epilepsy? *Tick in the box*

   Theory only □□□□□

   Clinical demonstrations only □□□□□

   Theory + clinical demonstrations □□□□□

4. Among the following signs, what are the signs of a child who is having seizure? *Tick in the box*

   a. Hyperactivity and impulsive behavior

   b. Tongue biting
c. Unexplained weight loss

d. Stiffening

e. Staring

f. Loss of consciousness

5. The epilepsy is a brain chronic disease that cannot be cured or controlled?
   Yes   No   I don’t know

6. Seizure occurs when an abnormal electric discharge happen in the brain
   Yes   No   I don’t know

7. The epilepsy is the most common chronic neurological disorder in the world
   Yes   No   I don’t know

8. Is epilepsy known to occur in the family?
   Yes   No   I don’t know

9. What are the causes of pediatric epilepsy?
   a. Loss of oxygen to the brain
   b. Brain infection
   c. Inadequate nutrition
   d. Head injury
   e. Brain tumor
   f. Possession by evil

10. “Every Child who has a convulsion has epilepsy.”
    True   False

11. What are the major types of seizures in children? Please select all that apply
    a. Mild seizures
    b. Generalized seizures
c. Thalassaemia

d. Focal seizures

e. Chronic seizures

f. Moderate seizures

13. Is epilepsy always a brain disorder?
   Definitely yes          Possible          Definitely not possible

14. Generally, what is the attitude of the family toward management of the children with epilepsy?
   Accepting          Fearful          Rejection          I don’t know

15. Does any epileptic child need lifelong treatment?
   Yes                  No                  I don’t know

16. “Epilepsy is a mental illness”.
   True                False

17. What is Status epilepticus?
   a. A condition characterized by recurrent seizures associated with abnormal paroxysmal neuronal discharges.
   b. A convulsion that persists for > 30 minutes or repeated frequently enough to prevent recovery of consciousness and return to baseline between attacks
   c. A sudden surge of electrical activity in brain

18. Among the most frequently observed side effects of anti epileptics drugs there is:
   a. Sedation
   b. Coordination disturbances
   c. Mood alterations
   d. Cognitive deficits
   e. Nausea or vomiting
   f. Blindness
19. Most common ways to reduce the risk of developing epilepsy are:

a. Have a healthy pregnancy

b. Prevent brain injuries

c. Eating balanced diet

d. Avoidance of mistaken diagnosis of seizures

e. Wash the hands and prepare food safely to prevent infections

f. Be up-to-date on the vaccinations

Nurses attitude towards pediatric epilepsy

20. Health care workers take care of patients with many different medical conditions. Please indicate below how you feel about providing care for a child with various disorders using the following scale:

<table>
<thead>
<tr>
<th>Disorder</th>
<th>I refuse to care for these patients</th>
<th>I prefer not to care for these patients</th>
<th>I do not mind caring for these patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>AIDS</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Mental illness</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

21. What would you do for a child who is having a tonic–clonic seizure? *(Tick all that apply)*

a. Place a hard object in the mouth

b. Turn the patient on their side at 20 – 30° head up

c. Hold them down in decubitus and restrict their movements

d. Give oxygen to maintain SaO2 of ≥ 95%

f. Keep your distance

g. Monitor blood glucose, electrolytes and blood gases

Nurses’ management of pediatric epilepsy

22. Which of the following drugs is used in the treatment of epilepsy in children? *(Tick all that apply)*
a. Hydralazine
b. Carbamazepine/Tegretol
c. Chlorpromazine
d. Phenobarbital
e. Methylldopa
f. Aminophylline
g. Phenytoin/Epineutin

23. What is the preferred treatment of acute generalized tonic clonic seizures in children?
   a. Midazolam IV 0.1-0.3 mg/kg bolus followed by a continuous infusion starting at 1 ug/kg/minute.
   b. Diazepam rectal 0.5 mg/kg once OR IV 0.2-0.3 mg/kg once which may be repeated every 5 minutes for a total of 3 doses.
   c. Phenobarbital 15 mg/kg IV or by NG tube loading dose over 15 minutes

24. What is the preferred treatment of refractory status epilepticus in children?
   a. Midazolam IV 0.1-0.3 mg/kg bolus followed by a continuous infusion starting at 1 ug/kg/minute.
   b. Diazepam rectal 0.5 mg/kg once OR IV 0.2-0.3 mg/kg once which may be repeated every 5 minutes for a total of 3 doses.
   c. Clonazepam IV 0.1-0.15 mg/kg loading dose by slow IV injection
   d. Lorazepam IV 0.05-0.1 mg/kg once, may be repeated in 5 minutes for a total of 3 doses

25. The dosage of Phenytoin in children is:
   a. 0.1 to 0.15 mg/kg loading dose by slow IV injection
   b. 15-20 mg/kg IV infused over 30 minutes in a dextrose-free solution
   c. IV 0.2-0.3 mg/kg once or rectal 0.5 mg/kg once

   Thank you very much for participating in this survey!
b. QUESTIONNAIRE KINYARWANDA VERSION

IBAZWA KUBUSHAKASHATSI
UNIVERSITY OF RWANDA
COLLEGE OF MEDICINE AND HEALTH SCIENCES
DEPARTEMENT OF NURSING

Ibazwa ku bushakashatsi: Ubushakashatsi k’ubumenyi bw’abaforomo(kazi) nimyitwarire yabo mukwita kumwana ufite uburwayi bw’ igicuri muri bimwe mu bitaro bikuru byo mu Rwanda.

Iriburiro: Mutumiwe mugira uruhare muri ubu bushakashatsi buzadufasha kumenya ubumenyi bw’abaforomo(kazi) nimyitwarire yabo mukwita kumwana ufite uburwayi bw’ igicuri muri bimwe mu bitaro bikuru byo mu Rwanda. Biragutwara iminota nka 15 gusubiza ibibazo byose.

Urabyemeye? Yego Oya

Ugize ikibazo wakwiyambaza:

Ukuriye ubushakashatsi: UWITUZE Sandrine Telefoni: +250788621925

Amazina numukono byushaka amakuru ________________Itariki____________

IGIKA CYA MBERE: IBIBAZO BIJYANYE NUMWIWIRONDORO

1. Iki gika kiragusaba gutanga umwirondoro wawe. Dufashe usubize ibisubizo uko byabugenewe


b. Imyaka________

c. Urwego rwamashuri 1. Icyiciro cy a mbera cy a kaminuza 2. Icyiciro cy a kabiri cy a akaminuza 3. Icyiciro cy a gatatu cy a kaminuza

d. Umwaka warangirijemo amashuli _________

e. Uburambe mukazi _________
2. Waba warigeze kwita kumwana ufite uburwayi bw’igicuri?

Yego □□□□□ Oya □□□□□

3. Mumezi 3 ashize, waba waritaye kubana bangaka bafite uburwayi bw’igicuri?

a. Ntanumwe □□□□□
b. 1-5 □□□□□
c. 5-10 □□□□□
d. 10-25 □□□□□
e. 25-50 □□□□□
f. Hejuru ya 50 □□□□□

4. Nayahe mahugurwa wahawe agendanye n’igicuri kubana?

a. Inyigisho mvugo (Gereranya umubare wamasaha wigishijwe □□□□□
b. Inyigisho ngiro (Gereranya umubare w’abarwayi wigishirijweho □□□□□
c. Inyigisho mvugo + Inyigisho ngiro □□□□□

5. Nikihe kimenyetso waba warabonye ku mwana ugasaye?

a. Gutakaza ubwenge □□□□□
b. Kwiruma ururimi □□□□□
c. Kugagara kwamaboko, amaguru □□□□□
d. Gutakaza ibiro □□□□□
e. Kugira amahane menshi □□□□□
f. kureba hejuru nkureba inyenyeri □□□□□

6. Igicuri nindwara yubwonko yakarande idashobora kuvurwa ngo yorohe cg ikire?

Yego □□□□□ Oya □□□□□ Simbizi □□□□□

7. Kugagara biboneka iyo ubwonko bukoze cyane bidasanzwe hakiremamo ikintu kimeze nk’amashanyarazi?

Yego □□□□□ Oya □□□□□ Ntacyo mbiziho □□□□□

8. Igicuri niyo ndwara yambere kw’isi ifata imyakura y’ubwonko?

Yego □□□□□ Oya □□□□□ Ntacyo mbiziho □□□□□
9. Igicuri ni indwara yo mumuryango?

Yego  [ ] Oya  [ ] Ntacyo mbiziho  [ ]

10. Ese uburwayi bw’igicuri buterwa niki?

a. Gutakaza oxygen k’ubwonko

b. Mikorobe zagiye kubwonko

c. Imirire mibi

d. Ibikomere byo kumutwe

e. Ibibyimba mu bwonko

10. Amadayimoni/ imyuka mibi

11. “Umwana wese ugagayeho kugagara aba arwaye igicuri.”?

Nibyo  [ ] Sibyo  [ ]

12. Ni ubuhe bwoko bwo kugagara bukunze kuboneka kubana?

a. Kugagara akanya gato cyane

b. Kugagara umubiri wose

c. Kugira amaraso make

d. Kugagara ku bice bimwe byumubiri

e. Kugagara by’akarande

f. Kugagara kudakabije

13. Ese igicuri igihe cyose n’ indwara yo mubwonko?

Nibyo rwose  [ ] Birashoboka  [ ] Ntibishoboka  [ ]

14. Muri rusange, imiryango yitwara ite mugufasha abana bafite uburwayi bw’igicuri?

Kubyakira neza  [ ] Kugira ubwoba  [ ] Kubaca mumiryango  [ ] Ntacyo mbiziho

15. Ese umwana ufite uburwayi bw’igicuri agomba gufata imiti ubuzima bwe bwose?

Yego  [ ] Oya  [ ] Ntacyo mbiziho  [ ]
16. “Igicuri ni uburwayi bwo mumutwe”.

Nibyo [ ] Sibyo [ ]

17. Status epilepticus niki?
   a. Ni ukugagara kugaragaye inshuro nyinshi kwikurikirana [ ]
   b. Ni igihe umwana agagaye igihe kiri hejuru yiminota 30 agatakaza nubwenge [ ]
   c. Ni uugukora cyane k’ubwonko hakiremamo ikintu kimeze nkamashanyarazi [ ]

18. Zimwe mungaruka zishobora guterwa n’imiti yigicuri nizihe murizi zikurikira?
   a. Gusinzira cyane nkuri muri koma
   b. Ibibazo mugukoresha ingingo
   c. Guhinduka mubiyumviro
   d. Kugira ibibazo mumitekerereze
   e. Iseseme no kuruka
   f. Ubuhumyi

19. Uburyo bwo kurinda igicuri ni ubuhe murubu bukurikira?
   b. Kugira ubuzima bwiza kumubyeyi utwite
   c. Kwirinda ibikomere by’umutwewe
   d. Kurya indyo yuzuyu
   e. Kwirinda kwibeshya mugusuzuma no kuvura ukugagara
   f. Gukaraba intoki, gutegura amafunguro neza murwego rwo kurwanya mikorobe
   g. Gukingiza neza into nga mpili

20. Abaforomo/kazi bita kubana bafite uburwayi butandukanye. Watubwira uko ubyumva ku kwita kubana bafite uburwayi bukurikira?

<table>
<thead>
<tr>
<th>Indwara</th>
<th>Ndabihakanye cyane sinshobora kubitaho</th>
<th>Numva nahitamo kubitaho</th>
<th>Ntakibazo nagira mukubitaho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Igituntu</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Guhitwa no kuruka</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Igicuri</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>AIDS/ Sida</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Uburwayi bwo mumutwe</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Umusonga</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
21. Ubonye umwana uri kugagara niki wamufasha? *(Hitamo ibisibizo byose bishoboka)*

   a. Gushyira ikintu gikomeye mukanwa ngo atiruma
   b. Guhindukiza umwana kuruhande hagati ya degree 20 na 30
   c. Kumushyira k’umuwuka oxygen kugirango SaO2 igume hejuru ya 95%
   d. Kumwitaza( kumuhunga)
   e. Kumufatira ibizamini byamaraso nk’isuki yo mumaraso , kureba imyunyu ngugu numwuka uri mumaraso
   f. Kumuryamisha hasi aryamiye umugongo ukamubuza kwinyeganyeza

22. Ni uwuhe mriyi miti ikurikira ukoreshwa mukuvura igicuri mubana( igisubizo kirenze kimwe kiremewe)?

   a. Hydralazine
   b. Carbamazepine/Tegretol
   c. Chlorpromazine
   d. Phenobarbital
   e. Methyldopa
   f. Aminophylline
   g. Phenytoin/Epineutin

23. Ni uwuhe muti wo kurwego rwa mbere ukoreshwa mukuvura ukugagara kumwana kudakabije?

   a. Midazolam IV kuva kuri 0.1mg kugera kuri 0.3 mg/kg bolus ikurikiwe nindi doze itanzwe muri serumu kugipimo cyo 1 ug/kg kukiro/kumunota
   b. Diazepam icishijwe mukibuno 0.5 mg/kukiro inshuro imwe gusa cg mumutsi hagati ya 0.2 na 0.3mg/kg inshuro imwe ikaba yaguma gutangwa buri minota 5 nta kurenza doze
   c. Phenobarbital 15 mg/kg mumutsi cg muri sonde inyuze mumazuru muminota 15

24. Ni uwuhe muti ukoreshwa mukuvura ukugagara kumaze igihe kiri hejuru yiminota 15 kubana?

   a. Midazolam IV kuva kuri 0.1mg kugera kuri 0.3 mg/kg bolus ikurikiwe nindi doze igatangwa muri serumu kugipimo cyo 1 ug/kg/kumunota
   b. Diazepam icishijwe mukibuno 0.5 mg/kg inshuro imwe gusa cg mumutsi 0.2-0.3mg/kg inshuro imwe ikaba yaguma gutangwa buri minota 5 nta kurenza doze 3
   c. Clonazepam mumutsi hagati ya 0.1mg na 0.15 mg/kg igenda gahoro mumutsi
d. Lorazepam mumutsi hagati ya 0.05mg na 0.1 mg/kg rimwe gusa ikaba yaguma gutangwa buri minota 5 nta kurenza doze 3.

25. Ingano ya Phenytoin ihabwa abana niyihe murizi zikurikira?

a. 0.1 mg kugera kuri 0.15 mg/kg loading doze igenda gahoro mumutsi

b. 15mg kugera kuri 20 mg/kg inyujijwe mumutsi muminota 30 ikavangwa muri serum idafitemo isukali

c. 0.2mg kugera kuri 0.3mg/kg mumutsi rimwe gusa cg igacishwa mukibuno kuri 0.5 mg/kg inshuro imwe gusa

Murakoze cyane gusubiza ibi bibazo!
c. PERMISSION FROM THE AUTHOR TO USE THE TOOL

12/14/16, deepak goel <goeld007in@yahoo.co.in> wrote:
> Dear Sandrine my tool is already given in my paper in tabular form. methods
> has described the details so there will be no problem if you use it please
> see and if any question feel free to discuss.
>
> Regards,
> Dr. Deepak Goel
> MBBS, MD, DM, MAMS
> Principal Consultant Neurology
> Max Institute of Neurosciences Dehradun (MIND)
>
-----------------------------
> On Wed, 14/12/16, sando sando <sandrtuze@gmail.com> wrote:
>
> Subject: Requesting a tool
> To: goeld007in@yahoo.co.in
> Date: Wednesday, 14 December, 2016, 1:09 PM
>
> Dear Sir,
> I am a student at University of Rwanda, College of
> Medicine and Health Sciences in Masters program, Pediatric
> specialty. I was reading your article about KNOWLEDGE, ATTITUDE AND PRACTICE OF EPILEPSY IN UTTARAKHAND, INDIA and
> I would like to request you the questionnaire you used in
> this study in order to assess nurses' knowledge and
> attitude towards management of pediatric epilepsy in
> Rwanda.
>
> Looking forward to get your positive feedback.
>
> Regards
>
> Sandrine
d. INFORMED CONSENT FORM

My name is UWITUZE Sandrine, a student at University of Rwanda, College of Medicine and Health sciences in Masters of Sciences in Nursing/ Pediatric track. I’m inviting you to contribute in my research study, participation is voluntary so you may decide to participate or not. You are going to get explanations about the study and all questions that you may have about the research are welcomed.

My research study is about Nurses’ knowledge, attitude and management of pediatric epilepsy at selected referral hospitals in Rwanda. You will be asked to tick your best answer according to the questions provided. This will take approximately 20 minutes of your time. All information will be kept confidential. Please don’t mention your name on the questionnaire.

The advantage of this research is helping us to know nurses’ knowledge, attitude and management of pediatric epilepsy at a referral hospital in Rwanda. There will be no harm to someone who participates to this research. Of course the risks will be minimized by voluntary participation, no name to indicate on the questionnaire, no one will access you answers. All your rights will be protected. If you do not wish to continue, you have the right to withdraw from the study, without penalty, at any time.

For more detail please contact the following addresses:

Researcher: UWITUZE Sandrine: 0788621925

Supervisor: Philomène Uwimana RN, MSN, Tel: 0788480604

IRB: Dr Asiime-Kateera Brenda, Tel: 0784841256

Participant: All of my questions and concerns about this study have been addressed. I choose, voluntarily, to participate in this research project.

Date and Signature of participant

Name of investigator

Signature of investigator
e. INFORMED CONSENT FORM KINYARWANDA VERSION

KWEMERA GUFATANYA MUBUSHAKASHATSI

Amazina yanjye ni UWITUZE Sandrine, Umunyeshuli muri kaminuza y’ u Rwanda mu ishuli ry’ abaforomo n’ ababyaza, mu kiciro cy a 3 cy a kaminuza mw’ishami ry’ubuvuzi bw’abana. Ndabasaba ko mwamfasha muri ubu bushakashatsi, kwitabira ni ubushake bwanyu ntagahato.

Mugiye guhabwa ibisobanuro bijyanye n’ubu bushakashatsi, ibibazo byose mugira mushobora kubibaza murahabwa ibisubizo.

Ubu bushakashatsi bugamije kumenya Ubumenyi bw’abaforomo(kazi) nimyitwarire yabo mukwita kumwana ufite uburwayi bw’ igicuri muri bimwe mu bitaro bikuru byo mu Rwanda.


Ubu bushakashatsi buzadufasha kumenya ubumenyi abaforomo bafite n’uburyo bita kubana bafite igicuri mubitaro bikuru byo mu Rwanda bityo harebwe icyakorwa kugirango ubumenyi bwabo bwiyongere kugirango bite uko bikwiye ku bana bafite uburwayi bw’igicuri. Kwitabira ubu bushakashatsi nta ngaruka nimwe bizagira kandi uburenganzira bwawe buzubahirizwa. Mugihe icyaricyo cyose utifuza gukomeza kwitabira ubu bushakashatsi, ufite uburenganzira bwo guhagarika kandi nta ngaruka bikugiraho

Umushakashatsi: UWITUZE Sandrine: 0788621925

Superiviseri: Philomène Uwimana RN, MSN Tel: 0788480604,

IRB: Dr Asiime-Kateera Brenda, Tel: 0784841256

Uwitabiriye ubushakashatsi : Ibibazo byose narimfite bigendanye n’ubu bushakashatsi byashubijwe. Ni kubushake bwanjye mpisemo kwitabira ubu bushakashatsi.

Umukono y’uwitabiriye ubushakashatsi

Izina ry’umushakashatsi

Umukono w’umushakashatsi

Italiki
f. ETHICAL CLEARANCE

Dear UWITUZE Sandrine

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled “Nurses’ Knowledge, Attitude And Management Of Pediatric Epilepsy At Selected Referral 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 Kato J. NJUNWA
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
g. LETTER FROM SCHOOL FOR REQUESTING DATA COLLECTION
Review Approval Notice

Dear Uwituze Sandrine,

Your research project: “Nurses knowledge, attitude and management of pediatrics epilepsy at selected referral hospitals in Rwanda.”

During the meeting of the Ethics Committee of University Teaching Hospital of Kigali (CHUK) that was held on 24/02/2017 to evaluate your protocol of the above mentioned research project, we are pleased to inform you that the Ethics Committee/CHUK has approved your protocol.

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

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

Yours sincerely,

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

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

B.P. 655 Kigali- RWANDA  www.chuk.rw  Tel Fax : 00 (250) 576638  E-mail :chuk.hospital@chukigali rw
16th March, 2017

UWITONZE, Sandrine
Post graduate Student
Masters of Nursing in paediatric tract
College of Medicine and Health Sciences
University of Rwanda
Tel: 0786219254/0789352216

Dear Uwitonze,

We acknowledge receipt of your study protocol “Nurses knowledge, attitude and management of paediatric epilepsy at selected referral hospitals in Rwanda”

After a thorough review by the KFH, K Ethics-Research Committee; the reviewers consider the study to be reasonable, feasible and useful in terms of determining nurse’s knowledge and attitude on epilepsy. The information obtained will be useful to both academicians and policy makers.

Therefore, it is recommended that the researcher should be permitted to commence the work at KFH.

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

[Signature]
Dr. Samuel Lutalo
Chief Consultant Physician
& Chairperson KFH, K Ethics Research Committee

CC

- All KFH, K Ethics-Research Committee Members.
REVIEW APPROVAL NOTICE

May 12th, 2017

Dear UWITUZE Sandrine
UNIVERSITY OF RWANDA

Your research project: “Nurses’ Knowledge, Attitude and Management of Pediatric Epilepsy at Selected Referral Hospitals in Rwanda”.

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

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

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

Sincerely,

Dr. Pacifique MUGENZI
Lieutenant Colonel
Co Chair: Rwanda Military Hospital Research Ethics Committee
DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION

THE FORM FOR SUBMISSION OF THE DISSERTATION

UR-COLLEGE OF MEDICINE AND HEALTH SCIENCES
P.O.BOX 3286 KIGALI

DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION

Surname and First Name of the Student

Title of the project

1. Declaration by the Student

I do hereby declare that this dissertation submitted in partial fulfilment of the requirements for the degree of MASTERS OF SCIENCE in NURSING, at the University of Rwanda/College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Date and Signature of the Student

2. Authority to Submit the Dissertation

Surname and First Name of the Supervisor

In my capacity as a Supervisor, I do hereby authorize the student to submit his/her dissertation.

Date and Signature of

Co-Supervisor

K