KIBOGORA POLYTECHNIC

FACULTY OF HEALTH SCIENCE

DEPARTMENT OF GENERAL NURSING

ASSESSMENT OF KNOWLEDGE AND PRACTICE OF NURSES ANDMIDWIVES ON ACTIVE MANAGEMENT OF POSTPARTUM HEMORRHAGE AT KABUTARE DISTRICT HOSPITAL.

Case study: Kabutare District Hospital

Period: 2022-2023

A Research Paper submitted in partial fulfillment of the requirements for the Bachelor's degree With honor in General Nursing.

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DECLARATION

We, NIYOKWIZERWA Mediatrice and NIRERE Emerthe hereby declare that this is our original work and not a duplication of any similar academic work. It has therefore not been submitted to any other institution of higher learning. All materials cited in this paper that are not our own have been duly acknowledged.

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Declaration by the Supervisor

I declare that this work has been submitted for examination with our approval as KP Supervisor.

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ABSTRACT

Introduction: Globally, postpartum hemorrhage (PPH) is a leading cause of maternal mortality. The global prevalence of PPH is 6% (Habiba, A.S., 2019). According to Word Health Organization (WHO), Global numbers for the year 2017 estimate that 295,000 women die during pregnancy and childbirth. Nurse and midwives are the primary care providers in the hospitals and direct contact with all patients their ability recognize PPH direct toward the success of controlling mortality by initiating early and effective management.

Aime: This study aimed to determine the knowledge and practice of nurses and midwives on active management of postpartum haemorrhage (PPH) in Kabutare district hospital .Specific objectives were:

. (1) to assess the knowledge of nurses and midwives on active management of postpartum haemorrhage at KABUTARE district Hospital

. (2) to determine the practice of nurses and midwives on management of postpartum haemorrhage at KABUTARE District Hospital.

Methodology: A quantitative approach for data analysis and interpretation, across-section study design was adopted to conduct this study. Data collection process used questionnaire for self-report and checklist for observation

.Data analysis was performed using the statistical package for social sciences (SPSS) software, version 16.

Results: the study covered 63 nurses and midwives working six services, namely Maternity ward, Neonatology, Paediatric, Emergency and Internal Medicine. The majority of respondents (81 %)of nurses and midwives have good knowledge on management of PPH and (19%)of nurse and midwives have poor knowledge on management of PPH at Kabutare District Hospital from January to March 2023 . Association among Factors is significant between Demographic, practices, and Knowledge of nurses and midwives on active management of postpartum haemorrhage at KABUTARE district Hospital found tissue checked were significant with Chi-squared value of 8.672a and p-value of .020, to empty bladder were significance for inactive management of PPH with Chi-squared value of 23.082a and p-value of .000, Teas check was significance to the inactive management of PPH with Chi-squared value of 23.082a and p-value of .000, Participation in training courses of PPH was significance to the inactive management of PPH with a Chi-squared value of 56.639a and p-value of .000 and we were Nurses were significant to inactive management of PPH with Chi-squared value of 13.476a and p-value of .000. We were found 81.0% nurses and midwives at Kabutare district hospital have good knowledge in active management of post-partum haemorrhage which is high to 48% in Rwanda. We found 98.4% of nurses and Midwives give oxytocin during active management of post-partum haemorrhage which is high to 0.7% in Rwanda (Zoungrana, et al., 2020).

As Conclusion, the overall 19.0% have poor knowledge while 81% have good knowledge. We recommend: the Minister of Health for provision of planning training on management of post-partum haemorrhage at Kabutare District Hospital especially for the nurses. We recommend Kabutare District Hospital to continue training and consistent supervision of nurses and Midwives as well as effective facility job aids are recommended to improve PPH prevention.

DEDICATION

To the Almighty God

This work is the fruit of countless arduous sacrifices from different people.

This research paper is dedicated to our parents for always loving and supporting us until our research was fully finished.

It is heartily and proudly dedicated to the people who served as an inspiration, like our supervisor, KP lecturers, and some of our friends who extended their help during problems while doing this work.

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ABREVIATION AND ACRONYMS

ACOG: American College of Obstetricians and Gynecologists

AMTSL: Active Management of Third Stage of Labor

BMI: Body Mass Index

CCT: Controlled cord traction

DIC: Disseminated Intravascular Coagulation

FFP: Fresh Frozen Plasma

GDP: Gross Domestic Product

ESMOE: Essential Steps in the Management of Obstetric Emergencies

HELLP: Haemolysis Elevated Liver enzyme and Low Platelets

IFA: Iron/folate

IM: intramuscular

IVI: Intravenous iron

LMICs: low-and middle-income countries

MMR: Maternal Mortality rate

NCNM: National Council of Nurses and Midwives

NICE: National Institute for Health and Clinical Excellence

NDoH: National Department of Health

PPH: Postpartum Hemorrhage

PT: Prothrombin Time

PTT: Partial Thromboplastin Time

RCC: Red Cell Concentrate

RCOG: Royal College of Obstetricians and Gynaecologists

SPSS: Statistics Package for the Social Sciences

UK: United Kingdom

UN: United Nations

UNICEF: United Nations Children's Fund

WHO: World Health Organization

SBAs: Society of Black Academic Surgeons

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CHAPTER ONE: GENERAL INTRODUCTION

1.0 INTRODUCTION

Chapter one of this study covers, the background of the study, the statement of the problem, the purpose of the study, research questions, objectives of the study, specific objectives, significance of the study, limitations of the study and scope of the study.

1.1 BACKGROUND OF THE STUDY

Postpartum hemorrhage (PPH) is defined as blood loss of more than 500 mL following a vaginal delivery or more than 1000 mL following cesarean delivery. A loss of these amounts within 24 hours of delivery is termed early or primary post-partum hemorrhage whereas such losses are termed late or secondary post-partum hemorrhage if they occur 24 hours after delivery. (Habiba, A.S., 2019) The study done by the American College of Obstetricians and gynecologist (ACOG) was define post-partum hemorrhage as accumulative blood loss greater than or equal to 1,000ML Blood loss accompanied by symptoms of hypovolemia within 24 hours after the birth process like intrapartum loss regardless of route of delivery (Bienstock, 2021).

Globally, postpartum hemorrhage (PPH) is a leading cause of maternal mortality. The global prevalence of PPH is 6% (Habiba, A.S., 2019). According to Word Health Organization (WHO), Global numbers for the year 2017 estimate that 295,000 women die during pregnancy and childbirth. More than 90% of these deaths happened in low and middle-income countries like Rwanda. In Rwanda, the most frequent birth complications are postpartum hemorrhage (71.6%). Strategies for the prevention and treatment of birth complications have been proposed by the WHO (Aurore Nishimwe, 2021).

Most reported maternal deaths occur in Africa with PPH accounting for about 30%of these deaths (Habiba, A.S., 2019). West Africa has the lowest prevalence of 8.6% with 18.7% and 14.2% in Middle and Eastern Africa respectively (Habiba, A.S., 2019). The magnitude of PPH in sub-Saharan Africa is high at 10.5 % (Habiba, A.S., 2019) Ethiopia is one of the countries with the highest maternal mortality rate (MMR) and almost all of these deaths were due to direct obstetric complications. PPH is a leading direct cause of maternal morbidity and mortality in all regions of the country. Nurses and midwives, particularly in sub-Saharan hospitals, are the key clinicians in birth care. But, the substandard performance of nurses and midwives in managing birth complications has been documented widely as a major cause of maternal and newborn deaths in hospital settings globally (Aurore Nishimwe, 2021)

In Eastern African countries such as In Uganda, PPH causes 25 % of all maternal deaths (Habiba, A.S., 2019). In Rwanda, 70% of maternal deaths result from direct causes and postpartum bleeding is the leading direct cause of maternal death with 22.7% of all documented cases. There are 600,000 maternal deaths reported worldwide every year (El-Malek, 2019). With a mortality rate of 140,000 yearly or one maternal death every 4 minutes, postpartum hemorrhage (PPH) is a leading cause of maternal death and morbidity around the world, especially in underdeveloped nations. PPH impacts 5% of all deliveries, and the majority of deaths occur within 4 hours of delivery, indicating that it is precipitated by the third stage of labor. According to the World Health Organization (WHO), in low-income nations, PPH is the leading cause of maternal death, accounting for almost a quarter of all maternal deaths globally (Okunlola, 2022).The study conducted in Ethiopia in 2014 about the assessment of knowledge, attitude, and practice of midwives on active management of the third stage of labor at selected health centers of Addis Ababa, was found 136 midwives worked in the 26 health centers of Addis Ababa was included in the study. The finding revealed midwives generally had good knowledge about active management of the third stage of labor 82.4%. (50.7%) of midwives stated that active management of the third stage of labor prevents PPH and about. 35 (25.7%) of them responded that it increases the ability of the uterus to contract, and facilitates separation of placenta. (77.9%) had given oxytocin within the first minute. (97.8%) stated that active management of the third stage of labor should be used and advantageous to all pregnant mothers to prevent postpartum hemorrhage. (89%) used controlled cord traction. (86%) performed uterine massage within the first minute after delivery and only (67.6%) had estimated blood loss. (51.5%) of midwives achieved satisfactory standard scores in knowledge questions and (47%) had achieved good skills (Rahel Yaekob, 2015).The study was conducted in 2020 about Healthcare workers' knowledge and attitude towards prompt referral of women with postpartum hemorrhage in Nigeria. The study found that 86.5% of the respondents had good knowledge while 12% and 1.5% had moderate and poor knowledge respectively (Adekemi Eunice Olowokere, 2020). Another study conducted in selected Hospitals in ENUGU-NIGERIA about MIDWIVES' knowledge and utilization of life-saving skills for the prevention of post-partum hemorrhage found that 58.8% of the respondents reported a high level of practice of active management of the third stage of labor (AMTSL) for the prevention of postpartum hemorrhage while 37.5% had the high practice of AMTSL on observation. Furthermore, 76.5% of the

respondents had received training on AMSTL for the prevention of postpartum hemorrhage and 100% of the respondents stated that AMSTL is used in their hospitals (Justin Agorye Ingwu, 2020).

The study was conducted in Free State district hospital about the knowledge of the management of postpartum hemorrhage by doctors, nurses, and midwives working in Free State District hospitals. Of the participants with known occupations, 64.1% (n=131) were midwives and nurses 24, 4% were medical officers. (94.1%) participants had working experience of over one year to five years and 44.2% had completed ESMOE (Essential Steps in the Management of Obstetric Emergencies). Only 40 participants (30.3%) obtained scores over 80%, the acceptable mark for core knowledge. Doctors performed significantly better than midwives (p=0.0002). ESMOE training resulted in significantly better performance (p=0.0045). ESMOE training resulted in significantly better performance (p=0.0045). Issues identified were inadequate overall theoretical knowledge and an inability to practically demonstrate acquired theoretical knowledge. (Matthew Benedict, 2013)

The study conducted in Rwanda about Postpartum Haemorrhage Prevention and Management Require Strengthening was found in Antenatal Care (ANC) among 310 consults only 33% of pregnant women were given iron/folate (IFA) on their first ANC visit and 755 of women given IFA were taught on how to use it. Less than 44% of women were asked about bleeding during the current pregnancy and only 36% about bleeding in a previous pregnancy. In the labor and delivery room was found Providers had low knowledge of signs to assess for PPH (mean score 48%). Providers had low knowledge of signs to assess for PPH (mean score 48%). Few providers knew how to assess for an atonic uterus (mean score 41%) or knew the steps in managing retained placenta (40%). During labor, 97% of women received oxytocin during AMTSL, and of those, 86% received it by the correct route. However, only 48% of providers provided the uterotonic within the recommended 3-minute window. 7% of deliveries received all components of AMTSL. For the availability of products, Inventories were reviewed at 71 facilities; Oxytocin was available in 87% of facilities, and equipment and supplies (e.g., syringes, suture material) were almost always available (97%). 90% of facilities had items needed for the removal of retained placenta (Zoungrana, et al., 2020)

1.2 PROBLEM STATEMENT

The World Health Organization estimated an annual global occurrence of PPH OF 13.8 million with at least 166 000 deaths due to PPH accounting for 28% of maternal deaths. Most reported maternal deaths occurs in Africa with PPH accounting for about 30% of these deaths (Habib, A.S,2019). In sub-Saharan Africa PPH was the leading cause of the high maternal mortality. In South Africa the Free State is one of the province with the highest number of PPH related deaths reported (Fawcus, 2010a).Maternal mortality from low and lower middle-income countries accounts for 94% and more than 25% of these deaths result from postpartum bleeding**.**(Bazirete, 2022). Reduction of maternal mortality has long been a global health priority, and a target in the United Nations (UN) 2030 agenda for Sustainable Development Goals is to reduce the global MMR to less than 70 per 100,000 live births,(Bazirete, 2022).

In Rwanda, PPH is still a problem also where recently Sepsis was the most common cause of maternal death (50%), followed by haemorrhage (19%) in research conducted from 2017 to 2019 (Rulisa, 2021) but in research conducted with in 2021 has showed increase in maternal death caused by PPH where 70% of maternal deaths result from direct causes and postpartum bleeding is the leading direct cause of maternal death with 22.7% of all documented cases These figures demonstrate that the rate of dying due to PPH in Rwanda, remains high compared to average rates of dying due to PPH in developed countries (8%).(Bazirete, 2022).

Kabutare District Hospital indicate a problem, where in 2021the total cases for delivery received were 3786 and those 123 cases experienced PPH (4.6%) in which 23 cases was died (18.6%) which indicate big problem in this location which can cause increased maternal mortality in area.

1.3 PURPOSE OF THE STUDY

The aim of the study was been to investigate scientifically the knowledge and practice of nurses and Midwives on active management of postpartum hemorrhage at KABUTARE district hospital and discover the areas of improvement.

1.4 OBJECTIVES OF THE STUDY

1.4.1. General Objective

The objective of this study was to assess the knowledge and practice of nurses and midwives on active management of postpartum hemorrhage at KABUTARE District Hospital

1.4.2. Specific objectives

The specific objectives of this study were:

1. To identify knowledge of nurses and midwives on active management of postpartum hemorrhage at KABUTARE District Hospital.
2. To determine the practice of nurses and midwives in the active management of postpartum hemorrhage at KABUTARE District Hospital.

1.5 RESEARCH QUESTIONS

1. What is the level of knowledge among nurses and midwives at KABUTARE district hospital in the active management of postpartum hemorrhage?

2. How do the nurses and midwives of KABUTARE district hospital make practices in the active management of postpartum hemorrhage?

1.6 SIGNIFICANCE OF THE STUDY

This study is important in four major areas:

1.6.1. To the researchers

As the purpose of this study was been to improve their knowledge of the practice of nurses and midwives regarding the management of patients with PPH at KABUTARE District Hospital, it was document nurses and midwives' knowledge and practice at KABUTARE district hospital in Rwanda and will provide a basis for further research.

1.6.2. Practice

This study helped health professionals to recognize the strength and the gap between nurses' and Midwives' practice regarding the management of patients with PPH at KABUTARE District Hospital.

To take into consideration the results from this study was help to improve the quality of care delivered to patients with PPH.

1.6.3. Education and training of nurses

The study will be used as a reference in nursing schools by educating the nursing students and midwifery training nursing and midwifery staff to acknowledge and be aware of patients with PPH. It will help the Ministry of Health in Rwanda and the Ministry of Education in Rwanda to plan for the development of relevant curricula for nursing and midwifery programs.

1.6.4. Management

This study will be used as a reference by the hospital where this study will be accompanied by to develop or improve the policy on the management of patients with PPH at a recognized level and a plan for training nursing and midwifery staff to build their size on the management of patients with PPH.

1.7 LIMITATION

. Time constraint because the researchers were simultaneously engaging in this study with other academic work, this consequently was cut down on time devoted for the research work. We have also faced the problem of financial issue.

1.8 SCOPE OF THE STUDY

1.8.1 Geographical scope

The research asses the knowledge and practice of nurses and midwives on management of PPH has been conducted at Kabutare District Hospital in Huye district in eastern province.

1.8.2 Time scope

This study has been conducted prospectively where included all nurses and midwives about knowledge and practice on management of PPH at Kabutare District Hospital from January to March 2023

1.8.3 Content scope

This study aims to assess the knowledge and practice of nurses and midwives regarding the management of patients with PHH at Kabutare District hospital, and it was done in maternity, (postpartum room, post c/section wards, delivery room), emergency, internal medicine, and surgery room of Kabutare District hospital and it will be done about 2021.

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

This chapter presents information aligned with the objectives of the study namely: assessing knowledge and practice of midwives and nurses regarding managing PPH. The chapter also provides information based on PPH from international and Rwandan perspectives and the scope of practice of registered and enrolled midwives and nurses.

2.1. DEFINITION OF KEY TERMS

Definition of key concepts

PPH: is defined as blood loss of more than 500 mL following vaginal delivery or more than 1000 mL following cesarean delivery. A loss of these amounts within 24 hours of delivery is termed early or primary PPH, whereas such losses are termed late or secondary PPH if they occur 24 hours after delivery.(habiba,A.S., 2019)

A nurse: is a person who has completed a program of basic, generalized nursing education and is authorized by the appropriate regulatory authority to practice nursing in his/her country. (International Council of Nurses.2019)

Knowledge: Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject (English dictionary.2019).

Nursing knowledge is the means by the whole purpose of caring for patients is achieved because it underpins what we actually do. It is what defines us as nurses as opposed to similar professions such as doctors or physiotherapists, and helps to differentiate us from lay careers or care support workers (sekse et., 2018).

Nursing practice

The nursing process consisting of assessment, diagnosis, planning/outcome, intervention, and evaluation, has been described as the core and essence of nursing, central to all nursing actions (barbiani et al.,2018)

M**anagement** is the coordination and administration of tasks to achieve a goal. Such administration activities include setting the organization's strategy and coordinating the efforts of staff to accomplish these objectives through the application of available resources (International Council of Nurses.2019)

A midwife is a health professional trained to support and care for women during pregnancy, labour and birth. They help you to stay healthy in pregnancy and, if no complications arise, to give birth with little intervention. Midwives also care for you and your baby in the first few weeks following the birth.(Nigussie, 2022)(Placeholder1)

Practice: To do something again and again in order to became better at it.(Buzaglo, 2015)

Assessment is considered as the systematic collection, review and use of information about educational and services undertaken for the purpose of quality improvement, planning and decision making, (Thomuson.2009)

LITERATURE RELATING TO KNOWLEDGE OF NURSES AND MIDWIVES ON MANAGEMMENT OF PPH

All over the world, the assessment of PPH remains the major cause of maternal deaths (WHO. W. H., 2012). According to Ononge, Mirembe, Mandambwa, and Campbell, (Ononge, 2016) many low-and middle-income countries (LMICs), have a scarcity of information about the magnitude of risk factors for PPH among midwives. This contributes to poor assessment of Post-partum hemorrhaged potential risks. Therefore, it is important to understand the relative contributing risk factors for PPH.

Risk factors that cause PPH are known as the four T's which are: tone, tissue, trauma, and thrombin (Enverson A. A., 2017)

2.2.1 Tone (Uterine atony)

The main cause of PPH is uterine atony (McClintock C. &. Obstetric Hemorrhage. , 2011). Uterine atony was found to be the primary cause of PPH in nearly 70% of all studies (Mountufar-Rueda, 2013). Uterine atony occurs when the uterus fails to contract sufficiently after delivery, resulting in severe bleeding (Rajan, 2010). (Ngwenya. 2016)Conducted a study referral hospital in Bulawayo, Zimbabwe which showed that 82.4% of cases who develop PPH were because of uterine atony. Similarly, a study done by (Egenberg S. M., 2017) indicated that 70%-80% of PPH cases in their studies were due to uterine atony. (Sultana, 2018)Identified conditions that contribute to poor uterine atony such as a large fetus, multiple pregnancies, and a

high parity of more than four children. Parity refers to the number of viable births including fetuses born after fetal viability, whether alive or stillborn (Dippenaar J. &., 2018) found these conditions overstretch the uterus, which reduces the uterine tone, leading to PPH. induction of labor and labor augmentation also increases the risk of PPH by affecting the uterine tone after vaginal birth and therefore must only be performed when indicated (Khireddine, 2013).

2.2.2 Tissue

Products of conception, namely placenta tissues and blood clots inhibit the uterus from contracting after births to achieve optimal tone thereby predisposing a woman to develop PPH (Enverson A. A., 2017). It is thus important that midwives/nurses inspect for retained products of conception in the cervical and vaginal canal of a woman following a vaginal birth to prevent PPH (McClintock C. &., Obstetric Hemorrhage. , 2011). A study conducted at a teaching hospital in Nigeria found that retained placenta contributed to 48% of all PPH cases in that hospital. A contributing factor was a lack of knowledge among midwives/nurses about the active management of the third stage of labor to promptly deliver the placenta to prevent PPH. study conducted in Nigeria found midwives/nurses having poor knowledge about the third stage of labor to prevent PPH (Ajenifuja, 2010).

2.2.3 Trauma

Trauma to the board ligaments, uterine rupture, as well as tears to perineal, vaginal, and cervical areas, are all associated with increased blood loss at a normal vaginal delivery causing PPH (Cohain, 2010). A study conducted in Cameroon indicated that trauma to the woman's genital tract after vaginal births contributed to 37.7% of all PPH cases (Halle-Ekane, 2016). A further study conducted in Pakistan identified that the PPH that resulted from genital tract injury was 16.5%. The researchers in this study warned (Society of Black Academic Surgeons) SBAs to reduce interventions that contribute to genital tract trauma at vaginal births such as the use of forceps that can cause injury to vaginal and perinea walls of a woman to decrease the incidences of PPH (Khaskheli, 2012) further stated that unnecessary use of episiotomies at vaginal births should be eliminated to reduce PPH. An improved birthing initiative to prevent PPH is rather for a woman to sustain a perineal tear rather than to can episiotomy (Oyetunde, 2015). CaesCesareantions should be reduced to decrease the incidences of PPH because of the risks of trauma to the internal organs that can occur during the surgery (Saini, 2018).

2.2.4 Thrombin

Normal pregnancy poses significant challenges to haemhemostasisth a significant drop in platelet count with nearly 20% by the end of pregnancy (Moiz, 2017). The platelet count decreases in normal pregnancy, due to an increased destruction of red blood cells and haemodilution, haemodilution occur in pregnancy due to an increase in the blood volume with not enough blood cells.

This exposes pregnant women to develop PPH at birth. (Erhabor, 2013). Predisposing conditions such as pre-eclampsia that can influence coagulation functions in pregnancy leading to PPH at birth (James, 2012). According to (Haram, 2014) women with pre-eclampsia may develop HELLP syndrome. HELLP syndrome is a condition characterized by haemolysis, elevated liver enzymes and low platelet count. HELLP syndrome predispose a woman to develop PPH at birth also due to the destruction in the coagulation factors. Although the risk factors for PPH can be identified in the antenatal and intrapartum period, most women who develop PPH do not present with any identifiable risk factors.

Thus, every pregnant woman could be at risk of developing PPH (James, 2012). PPH events do not have identifiable risk factors prior to haemorrhage. Thus, midwives/nurses should plan and ensure that the necessary resources and personnel are available at every delivery for effective PPH response and management (Lockart, 2015).

2.2.5 THE DIAGNOSING OF POSTPARTUM HAEMORRHAGE

Diagnosing PPH will be discussed under subheading of postpartum blood loss assessment.

2.2.5.1 Postpartum blood loss assessment

Diagnosing of PPH begins with an accurate estimation of postpartum blood loss made by a midwives/nurses, which also provide a guide toward the management of PPH (Weeks, 2014). A study conducted in Iran in 2013 found that most of the PPH-related deaths were due to late diagnosis that led to late PPH management ((Golmani, 2014). If excessive blood loss is identified early, interventions to help stem the blood flow can be started sooner, to improve maternal outcome. Thus, it is important to find the best methods to accurately measure or estimate blood loss after giving birth (Diaz, 2018). Several studies reported global inaccuracy in postpartum blood loss assessment methods, which increase maternal risks. Studies done on postpartum blood loss report a tendency in overestimation and underestimation of blood loss after birth. Large volumes of blood are usually underestimated more than small volumes of blood (Wintanathantrige, 2016). A systematic review which was conducted on postpartum blood loss

assessment, confirmed the extent of underestimation as blood loss volumes increase. Six out of eight studies conducted reported an underestimation when blood volumes increased (Hancock, 2015).

The methods that exist globally to measure blood loss after delivery include visual estimation, drape estimation and the weighing method. Visual estimation is the most widely used method to measure postpartum blood loss after birth, because it is relatively easy and inexpensive (Al-Kandri, 2014). However, although visual estimation is the commonly used method, it is also the most unreliable and inaccurate method of estimating postpartum blood loss (University, 2014). Drape estimation is reported to provide more accurate results than others (Diaz, 2018). (Al-Kandri, 2014).

Stated none of the methods that exist to assess postpartum blood loss have been proven accurate to guarantee patient safety. (Dippenaar J. a., 2018).

Recommend maternity units to develop accurate standards to measure blood loss within 24 hours after birth to decrease the lower threshold in diagnosing PPH. Postpartum grades During 2018 Royal Cornwall hospital identified PPH grades as follow: Minor primary postpartum hemorrhage: The loss of 500mls to 1000mls of blood from the genital tract within 24 hours of the birth of the baby. Major primary postpartum haemorrhage: The loos of over 1000mls of blood from the genital tract within 24 hours of the birth of the baby. Massive primary postpartum haemorrhage: Blood loss >2000mls or rate of blood loss of 150ml/min or 50% blood loss volume within 3hours. (Trust. 2018)

2.2.5.2. Prevention of PPH in the antenatal period

The primary prevention of PPH includes good antenatal care with improved nutritional status of pregnant women and routine supplementation of iron and folic acid to prevent anaemia (Dippenaar J. a., 2018). Iron deficiency anaemia affects generally 66% to 80% of the world's population and severe anaemia increases the risk of PPH- related morbidity and mortality. To correct iron deficiency anaemia in pregnant women an iron prophylaxis dose of 30 to 40mg daily from early pregnancy till delivery. This dose will ensure sufficient iron levels among pregnant women with a big possibility that moderate to excessive haemorrhage at birth and after delivery will be tolerated. (Milman, 2011).

Intravenous iron (IVI) therapy can be used in the second and third trimester of pregnancy. However, this treatment therapy is only recommended in women who cannot tolerate oral

treatment, experience inadequate response to oral treatment and where anaemia should be resolved urgently. Women with underlying bleeding disorders such as pre-eclampsia are more at risk of severe bleeding at birth and after delivery due to changes in coagulation as discussed in above paragraph. Therefore, recommending that these women deliver in hospitals where a specialists in high-risk obstetric care and a blood bank are found (Mclintock C. a., 2011).

2.4.2 Prevention in the intrapartum and postnatal period

.Reducing certain obstetric interventions**:** A study conducted in Norway in 2011 indicates that certain interventions done in the intrapartum period increase the risks of PPH. These interventions include induction of labour and labour augmentation with oxytocin and recommend that these interventions be minimized to reduce the incidences of PPH. (Nyflot, 2017). The risks of PPH resulting from caesarean section births are three times higher compared to vaginal births, due to an increase in blood loss and possible trauma at caesarean section births.

.Third stage of labor**:** The third stage of labour is the period that begins when the baby is delivered and ends when the placenta and membranes are completely delivered (Dippenaar J. a., 2018). The active management of the third stage of labour is a recommendation from WHO whose aim is to reduce the high rate of PPH resulting from uterine atony. The active management of the third stage reduces the risks of PPH by permitting the delivery personnel to facilitate the separation of the placenta. This also enhances effectiveness of the uterine contractions to shorten the duration of the third stage of labour to prevent PPH.

Several trails in a meta-analysis proved that the active management of the third stage of labour reduces PPH incidence by 60% (Deneux-Tharaux C. S., 2013). World Health Organisation recommends the active management to be offered to all women during childbirth to prevent PPH incidences. The active management of the third stage of labour involve three steps: (i) administering uterotonic drugs, (ii) cord clamping and (iii) controlled cord traction to deliver the placenta (WHO, 2009).

.Administering uterotonic drugs: Administering prophylactic uterotonic drugs are done just before, with, or immediately after the birth of the baby. The different uterotonic drugs include IVI or intramuscular (IMI) oxytocin, ergometrine, syntometrine and misoprostol which are available in a tablet form and can be given orally or rectally (Begley, 2019).

Recent guidelines from (WHO., 2012) and National Institute for Health and Clinical Excellence (NICE) (2014) recommend oxytocin 10 IU IMI as the first line PPH drug of choice. Misoprostol

600mcg to 1000mcg is the first line PPH drug of choice in poorly resource countries because it is stable at ambient temperatures and inexpensive (Shrestha A. D., 2011).

.Cord clamping**:** Study conducted by Raju (2013:2) indicated delayed cord clamping (waiting up to 3 minutes) method increases the haemoglobin level in infants which reduces the frequency of iron-deficiency anaemia at 4-6 months of age. According to Raju evidence is not available whether the cord clamping method reduces the incidence of retained placenta which causes excessive bleeding after childbirth (Raju, 2013). However, WHO reported that delayed cord clamping is one of the actions included in the package to reduce the incidences of PPH. Thus, WHO is recommending birth attendants to wait up to 3 minutes to cut the umbilical cord to prevent PPH and to improve neonatal outcome (WHO. W. H., 2014).

.Controlled cord traction**:** Controlled cord traction (CCT) is done by the midwife/nurses with one hand holding the cord after cord clamping and by placing another hand just above the woman's pubic bone to deliver the placenta. By applying counter-pressure during controlled cord traction it stabilizes the uterus. The midwife/nurse ensure slight tension on the cord and waits 3 minutes for a strong uterine contraction. With a strong uterine contraction, the midwife/nurse then encourage the women to push, while the midwife/nurse very gently tries to pull on the cord downward to deliver the placenta (Lalonde, 2013). A study done in France in 2011 showed no significant effect on PPH when CCT is applied compared to the passive management (waiting for signs of spontaneous placenta separation) to deliver the placenta (Deneux-Tharaux C. ..)

.Ensuring adequate drugs and medical supplies**:** The shortage of essential drugs and medical supplies for the provision of quality maternal health is a challenge in many health systems of LMICs according to (Mkoka, 2014). The shortage of essential drugs and supplies contribute to poor quality maternal health care services leading to a high number of avoidable maternal deaths. Study conducted a literature review on the factors associated with persistent high PPH maternal deaths in Sub-Saharan Africa. They found that only a few health centres are sufficiently equipped with essential drugs and medical supplies such as vacoliters and intravenous cannulas to provide basic emergency obstetric care. Thus, the quality of rendering maternal health care is extremely poor.

They further reported that many health systems in Africa depend on traditional medicine which cannot be trusted (Mpemba, 2013).

Another challenge identified by (Puchalski-Ritchie, 2016) in LMICs is inadequate funding toward the provision of health care. The inadequate funding directly affects the procurement of essential medications, suppliers and equipment in those countries, consequently leading to high maternal deaths. WHO recommendation is for every country to spend 5% of its Gross Domestic Product (GDP) on health. However, countries are not limited to the 5% and should take into consideration the health challenges they face toward maintaining and improving the health status of their inhabitants. Many Sub-Saharan states such as Angola, Democratic Republic of Congo, Eritrea, Ethiopia and many more spent less than 5% of their country's GDP by 2017 (Bank., 2019).

In Mali and Senegal most of the women were anaemic pre-delivery, due to the shortage of anaemic testing equipment and anti-anaemia drugs, which predisposes them to PPH after birth (Tort, 2015). Limited access to safe blood transfusion services in many Sub-Saharan African states is critical in the treatment of PPH. Schwartz-Dunn and Nour identified contributing factors for low blood supply in Sub-Saharan Africa as a low number of blood donors, a lack of testing equipment to make blood products safe, as well as a lack of refrigerators to store the blood. Schartz-Dunn and Nour reported that annually 26% of all maternal deaths are a direct consequence of the lack of blood transfusion services in the Sub-Saharan region (Schartz-Dunn, 2011)

.Increasing the number of midwives/nurses**:** It is estimated that around the world, one third of the births take place at home without the assistance of a SBA (Baral, 2010). Most of PPH-related maternal deaths in the developing countries occur in hospitals without the assistance of a midwife/nurse. Substantiated further study conducted by (Oyesene, 2010). Reported that the rates of PPH are high in Africa and this is attributed to a lack of adequately trained midwives/nurses. (Mpemba, 2013).reported that in 2010, 65% of deliveries were assisted by untrained birth personnel in Kenya. Only 18% of deliveries were attended to by a SBAs in Kenya, due to a critical shortage of SBAs in that country.

(Prata, 2011) Reported that the expansion of midwives at all births is critical but, many midwives/nurses remain working in urban areas.

Meanwhile, a high number of maternal deaths occur in rural areas especially in Sub-Saharan Africa and Northern Asia. Sri Lanka and Malaysia are among some countries that had managed to deploy midwives in rural areas, which significantly reduced their maternal morbidity and

mortality. According to Prata. Countries need to develop rural infrastructures and services to ensure the retention of midwives in those areas.

Nepal, one of the few countries that have achieved the fifth MDG also increased the number of midwives even in the most difficult areas of the country and this innovation helped Nepal to reduce their maternal mortality by 50% (Malla, 2011).v

. Training**:** According to (Rath, 2011) lack of adequate education and training among midwives/nurses is one of the contributing factors to the progression of severe PPH. Therefore, video conferencing is ideal even in peripheral areas which are difficult to reach with conventional training programmes (Nilsson, 2014).

.Availability of PPH guidelines in the maternity settings**:** The availability of PPH guidelines and emergency obstetric training may close the gap in the knowledge about PPH among midwives (Su, 2012). A study conducted in the Netherlands in 2015 stresses the importance of PPH guidelines in the maternity settings to improve maternal health and guide PPH clinical practices. PPH clinical guidelines offer midwives with concise instructions about the management of PPH. In this study low usage of PPH clinical guidelines was reported although the guidelines were available, which resulted in the midwives rendering sub-standard care (Rousseau. A., 2016). About ensuring that all maternity settings have PPH guidelines available. They indicate that the availability of PPH guidelines mitigate the impact of rendering substandard care by providing midwives with information regarding the best available evidence-based care. This increases the effectiveness of care and reduces variations in performance between professionals and hospitals.

2.3. MANAGEMMENT OF POST-PARTUM HEMORRHEGE.

Management of postpartum hemorrhage will be discussed under four actions which are communication, first line treatment, second line treatment, and third line treatment.(Rousseau.A.,2016).

2.3.1 Communication

Communication is the first step in the management of PPH which involves alerting the other members of the team. Suggested that each maternity unit should have a communication protocol in place which consists of a consultant obstetrician, anesthetist, midwifery staff and member of multidisciplinary teams such as laboratory technician. (Rousseau. A., 2016). Good communication about PPH diagnoses in the delivery suite is important to respond to the event and recommending that every maternity unit must be ready and prepared at all times (Ahonen, 2011).

2.3.2 First line treatment (establishing cause)

This involves the midwife/nurse establishing the cause of bleeding, directing more treatment toward atony, administering uterotonic drugs and fluids resuscitation. In the event of PPH, a midwife/nurse massages the uterus to stimulate uterine muscle contractions, emptying the urinary bladder with an indwelling catheter and administering uterotonic drugs such as oxytocin, syntrometrine or ergometrine and misoprostol. In addition, establishing the cause of bleeding including inspecting the genitals for trauma and suturing tears or an episiotomy. Delivery of a retained placenta or removal of other retained products of conception must be performed to prevent further bleeding (Ahonen, 2011).

Oxytocin (First line PPH drug treatment) Intravenous 20 units of oxytocin is the recommended PPH first drug of choice in the management of PPH. **Ergometrine or Syntometrine (Second line PPH drug treatment)** A 0.2mg IMI or IVI slowly of ergometrine or syntometrine (whatever drug is available) is recommended if bleeding does not respond to oxytocin.

Syntometrine is a fixed dose combination of ergometrine 0.5 mg and oxytocin 5 units. **Misoprostol (third line PPH drug treatment)** Misoprostol can be used as a third line PPH drug treatment if bleeding persists. However, there is uncertainty on the dose of misoprostol due to the side effects especially when a high dose is used, especially more than 1000mcg (Organization, 2009) . (Winikoff B. D., 2010) Identified misoprostol dose of 600mcg to 1000mcg to be effective and provide minimal side effects. (Organization, 2009)

2.3.3. Second line treatment (Non-surgical measures)

If bleeding fails to be controlled by uterotonic drugs several other non-surgical measures are suggested:

Bimanual compression of the uterus: Bimanual compression of the uterus is performed when bleeding persists and uterotonic agents have failed to control bleeding as a result of an atonic uterus.

However, in low resource-settings where the availability of uterotonic drugs are unavailable, bimanual compression of the uterus might be the only option to control haemorrhage to save maternal lives (Andreatta, 2011). Bimanual uterine compression is performed by the midwife placing one hand in the vagina and pushing against the body of the uterus while the other hand compresses the fundus from above through the abdominal wall. The posterior aspect of the

uterus is massaged with the abdominal hand and the anterior aspect with the vaginal hand (Su, 2012).

Balloon tamponade: uterine balloon tamponade has been added to the treatment of persistent PPH before surgical interventions like B-Lynch sutures can be considered. Balloon tamponade has reported to provide 86% successful rate in treating PPH resulting from uterine atony or from trauma of lower uterine segment. Different balloons used include simple condoms, Foley, rusch catheters and barki balloon. The barki balloon is the only balloon designed exclusively for uterine and vaginal tamponade. (Gronvall, 2013),

According to (McQuivey, 2018) the device consists of two inflatable balloons; the upper balloon inflated inside the uterus and the lower balloon which is inflated inside the vagina. The balloons have lumens to enable inflation, irrigation and drainage. Inflation of these balloons can be done with isotonic intravenous fluids such as ringers lactate or normal saline. Maximum recommended fill volumes are 300ml for vaginal balloons and 750ml for uterine balloons. The uterine balloons allow the device to be placed in the uterus to provide tamponade, hence controlling the bleeding. An irrigation can be done, if the need arises to drain blood from the uterus by connecting a collecting bag to the balloon lumen. These uterine balloons should not be left for indwelling for more than 24 hours.

Haemostasis is noted to be usually achieved within 2 to 6 hours (McQuivey, 2018).

Coagulation screen, blood product transfusion and fibrinogen supplementation: According to (Gillissen, 2018)there are important blood tests to be done in the event of PPH. These blood tests include the level prothrombin time (PT), activated partial thromboplastin time (PTT), platelet count, fibrinogen and haemoglobin (HB). Gillssen also indicate that these blood tests may be used simultaneously because there is no high-level evidence on the best strategy. However, the tests assist to enable timely treatment to prevent coagulopathy, through haemostasis therapy. (Adukauskiene, 2010) Added that administration of blood products and haemostatic agents are critical to save maternal lives in case of massive haemorrhage. The significant blood products according to Adukauskiene et al. include red cell concentrate (RCC) which is used to correct low HB. Red Cell Concentrate importantly keeps adequate oxygen-carrying capacity of blood and avoids tissue hypoxia. In the event of disseminated intravascular coagulation (DIC), low PTT and PT, fresh frozen plasma (FFP) transfusion is indicated, while the transfusion of platelets is done to correct low platelets count. Disseminated intravascular

coagulation is a disorder associated with significant cellular injury with the aetiology mainly due to severe pre-eclampsia (Toh, 2016).

The levels of PT and PTT of <1.5; platelet count of <100 x 109L; fibrinogen <1.5 g/dL and haemoglobin level of <8 g/dL are regarded as critically low and require interventions. Supported further by (Claroni, 2018) transfusion HB level must be between 7-9 g/dl and PT and PPT count of <1.5 need transfusion with plasma. Meanwhile (Yoon, 2019) identify that fibrinogen < 2 g/dL needs transfusion with cryoprecipitate.

2.3.4 Third line treatment (surgical measures)

If bleeding failed to be controlled by conservative treatment measures, surgical measures namely B-Lynch sutures, uterine embolization and a hysterectomy can be considered.

B-Lynch sutures; B-Lynch sutures are brace sutures used to mechanically compress an atonic uterus in the face of severe PPH (Diemerk, 2012). Also noted in some events that balloon tamponade is used in combination with B-Lynch sutures to control the bleeding. However, they report that with or without balloon tamponade the B-Lynch sutures are still an effective approach for the treatment of severe PPH. the B-Lynch sutures have showed a 75% successful rate to arrest bleeding in many controlled trial studies. Thus, recommending maternity settings to use this method to avoid postpartum hysterectomies in many women (Zyang, 2014).

Uterine artery embolization: The uterine artery embolization can be considered for persisted bleeding if all the aforementioned measures have been taken and the woman is hemodynamically stable. Also added that the procedure is done by a radiologist specialist guided by pelvic angiography done to visualize the bleeding vessels. A gelatine sponge, coils or glue is then placed into the bleeding vessels to arrest bleeding (Pinto, 2012)

Hysterectomy: An emergency postpartum hysterectomy (removal of the uterus) is considered the final resort for the treatment of unresolved PPH according to (Michetel, 2015) However, also. Reported that the emergency hysterectomy is highly associated with post-traumatic stress disorders, psychosocial morbidity and anxiety. (Michetel, 2015). Therefore advise strict follow up of women who have undergone this procedure that includes psychological support. Some complications of a postpartum hysterectomy includes sepsis, injury to the organs and impaired wound healing (Diemerk, 2012).

2.3.5 INTERNATIONAL PERSPECTIVE FOR PREVENTING AND MANAGING POSTPARTUM HAEMORRHAGE

The wide number of measures recommended in many countries to prevent PPH such as increasing the number of midwives, ensuring the availability of PPH guidelines and investing in training among midwives are all discussed in the section 2.5. Further, high preference is given to the use of misoprostol as a first line PPH drug treatment for PPH in LMICs (Rushwan, 2011).

According to (Winikoff B. D., 2010) oxytocin remains the drug of choice to prevent and treat PPH. However, the use of oxytocin might not be feasible in many poorly resourced countries also therefore recommend the use of misoprostol compared to oxytocin in poorly resourced countries because of its storage requirements. Oxytocin requires to be stored in refrigerators which might not be available in many maternity settings. Misoprostol can be stored at room temperature and does not require maintenance of cold chain which can be easily accessed.

A study conducted in Nepal in 2010 supported the use of misoprostol as a first line PPH drug treatment in poorly resourced countries. Oxytocin and most of uterotonic agents are administered intramuscularly or intravenously. The researchers in this study reported that misoprostol is administered postpartum sublingual or rectal because it is available in a table form. Thus, the administration of misoprostol is cost effective compared to oxytocin as it does not require sterile syringes and needles which may not be available in many poorly resourced countries (Shrestha A. D., 2011). Misoprostol can be a first line PPH drug of choice in poorly resourced countries because it is relatively inexpensive compared to oxytocin and can be administered by a non-trained midwife. Many low-resource settings lack midwives to provide safe maternal care. He further added that the efficacy and safety of rectal misoprostol have proven to prevent and treat PPH and is effective as IVI oxytocin. Thus, low-resource settings can consider misoprostol to be their first line PPH drug of choice if oxytocin is not feasible in their settings (Rushwan, 2011).

2.3.6. SCOPE OF PRACTICE OF MIDWIVES AND NURSES IN RWANDA

The registered midwives or nurses and enrolled midwives or nurses in Rwanda are required by the law to be registered with the National Council of Nurses and Midwives of Rwanda before they can practise as registered midwives/ or enrolled midwives/Nurses.

2.3.7. Midwives professional

Health promotion: The registered midwife with a diploma must:

1° look after women, families and community throughout their reproductive life cycle. He/she shall use her/his competencies to provide safe and quality care to women and their families during preparation for and pregnancy, child birth and postpartum period;

2° look after women, families and community as they prepare for their reproductive life and during their reproductive period with focus on family planning, pregnancy, labour and post-partum;

3° take active role in health education discussions with women, their families and community on traditional and modern health practices that may be beneficial or harmful to pregnancy and health;

4° use appropriate communication and listening skills across all domains of competencies; 5° work in partnership with women and their families to enable and support them in making informed choices about their health, and maintain the confidentiality of all information shared by the woman in accordance with professional ethics;

6° advocate for respect of human rights with focus on domestic and gender based violence and their effects on health of the women and family.

Preventive care: The registered midwife/nurse with a diploma shall act consistently in accordance with standards of practice using standard precautions, infection prevention and control strategies, and clean techniques including hand-washing to maximize client safety.

She shall ensure accessible premarital, antenatal and post-natal care, immunization, family planning services to the women and families and prevention of health conditions prevalent in the country.

Midwifery/nursing care: The registered midwife/nurse with a diploma shall:

1° provide care and services to women before, during and after child;

2° assist women in child birth while remaining respectful of their culture, beliefs, values and customs;

3° provide care to women and their new-born babies immediately after delivery and during post-partum;

4° observe and respond appropriately when health care needs of the woman and/or baby exceed his/her abilities;

5° manage obstetrical and neonatal emergencies by taking appropriate clinical decisions and making actions to save lives;

6° work collaboratively with multidisciplinary teams to improve midwifery services to women, families, including the need for referral to other health care or service providers for continued care or intervention;

7° participate in research and in the implementation of evidenced-based practice while remaining respectful of individual culture, customs and religious beliefs.

2. 3.8. A conceptual framework

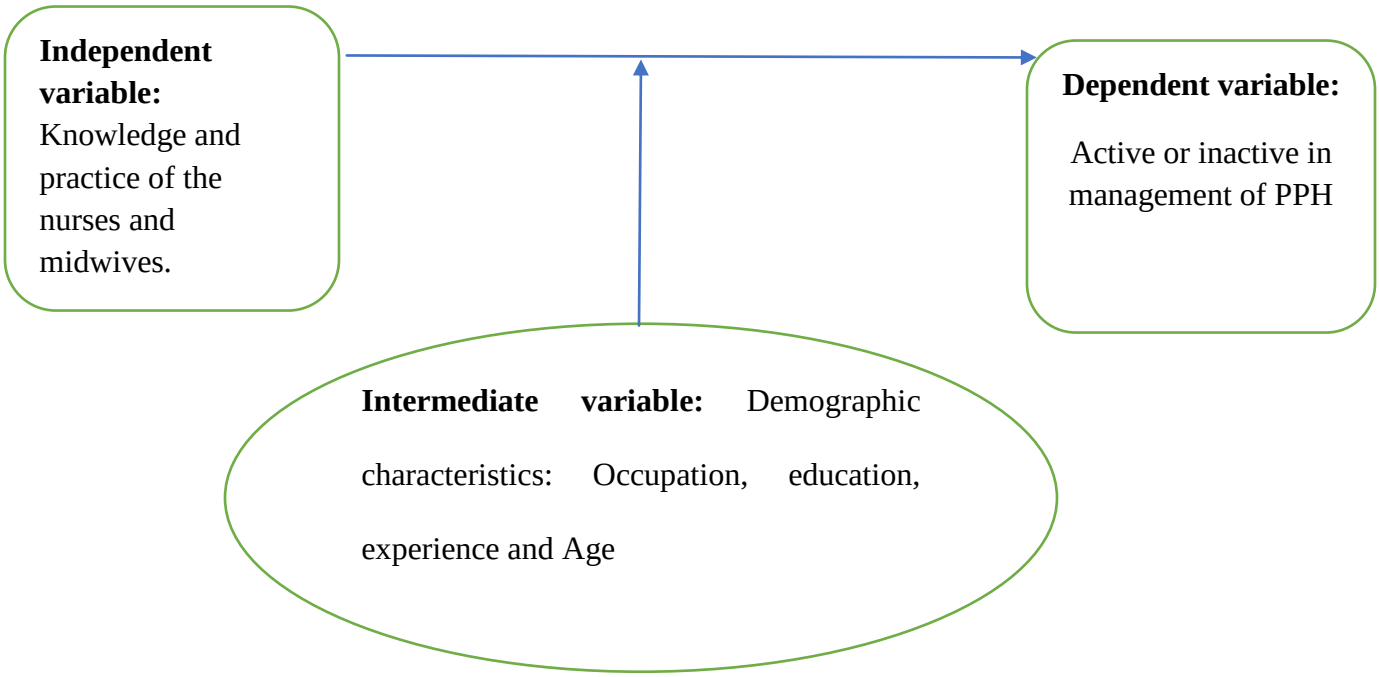

Figure 1: a conceptual framework (Naibei, 2011)

From the above figure shows the relationship between variables. There are Independent variable like Knowledge and practice of the nurses and midwives that result to Active or inactive management of PPH that are Dependent variables and the Intermediate variable: Demographic characteristics: Occupation, Education, experience, and Ages.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0. Introduction

Chapter three cavers the research approach and design, target population sampling procedures, and sample size, research instrument for data collection, data collection procedure, ethical consideration, reliability, and validity measures.

3.1. Research approach

Research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection (Abutabenjeh& Jaradat.2018).In this research, we used a quantitative approach for data analysis and interpretation.

3.2 Research design

Research design refers to the overall strategy utilized to carry out research that defines a succinct and logical plan to tackle established research question through the collection, interpretation, analysis, and discussion of data.In our research, we used a cross-section study design by asking the nurses and midwives of KABUTARE District Hospital different questions about the knowledge and practice of PPH management.

3.3. Target population definition

The study population is the total group of individuals from which the sample might be drawn(Martinez et al., 2016).The study was carried out on seventy five(75) all nurses and midwives of Kabutare District Hospital working in the Maternity ward, Neonatology, Paediatric, Emergency, Surgery, and Internal Medicine

3.3.1 Inclusion criteria

All nurses and midwifery of Kabutare District Hospital working in the Maternity ward, Neonatology, Paediatric, and Internal Medicine will be allowed to participate in this study voluntarily.

3.3.2 Exclusion criteria

Other workers except for nurses and midwifery of Kabutare District Hospital who are working in the Maternity ward, Neonatology, Pediatric, and Internal Medicine were not allowed to participate in this study

3.4. Sampling procedure

During this study, we used simple random sampling where the number from the target population divided by the sample size will be used for selecting the participants, in this sampling procedure we used random sampling , each member of the population has an exactly equal chance of being selected from the target populations, by writing 63 small papers were yes and 12 small papers were non, then we mixed them in one box and the participants come one by one to choice one small paper from it ,63 who were chosen yes were our sample size.

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3.5 Sample size

Sample size is the act of selecting the number of observations to include in a statistical sample, the sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample (chow et al., 2017).

This study was carried out on a target population of 75 nurses and midwifery which covers the minimum sample size of 63 nurses and midwifery, which was obtained from a calculation using the below formula

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

n=75/1+75(0.05)2

, Where: ***n*** = Sample,

e =Margin error (5%) and

N= Population

3.6. Data collection instruments

The data collection instruments are tools used by research to collect data in the research process We use the computer, telephone, Pen, Pencils, and paper Data collection was done by using self-report (questionnaires and checklists).

Questionnaire is a method used for collecting where asset of written questions calls for responses (Richard, 1990).

3.7. Data collection procedures

After getting written authorization from the Direction of Kibogora Polytechnic and from Kabutare district hospital, in their collaboration, the data collection process was started after

Assessing whether the participants easily understood the questions according to their

Accuracy and clarity, the purpose of the research, signing a consent form, and knowing to Withdrawal any time in research.

3.8. Ethical considerations

Ethical clearance was obtained from Kibogora Polytechnic. The researchers were asked for permission from the administration of the hospital to perform the study. All information that the respondents provide was kept secret and treated as confidential and the data from the study were only used to complete this study.

3.9. Data analysis

Data analysis is defined as a process of cleaning, transforming, and modeling data to discover useful information. The purpose of data analysis is to extract useful information from data and taking the decision based upon the data analysis.

During carrying out this research, we reviewed primary data from the checklist by checking that the questionnaires are properly filled. Then data were entered, cleaned, checked, and analyzed by SPSS Version 16.

3.10.1 Validity

Items of the questionnaire cover all research objectives. The questionnaire was checked to test whether it was complete. Data entry was accomplished and analyzed to check the success of the research objectives. Variations were made accordingly, in case required, with the guidance of the supervisor. The latter work with us in controlling and supervising the full works of research from the start up to the end.

3.10.2 Reliability

Our questionnaire consistency was checked through pre-testing it by two participants nominated randomly among participants in other to check for constancy of answers provided through the questionnaire over time in the same group of respondents. We collect information using the questionnaire into the same individual and checklists of the population, two rounds in two weeks.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, INTERPRETATION, AND SUMMARY

4.0. INTRODUCTION

Chapter 4 contains data obtained from the Nurses and Midwives who have to be presented, analyzed, and interpreted. The chapter gives an overview of the results and discussion. The results are presented in terms of tables relating the study findings with the objectives of the study. The results of the assessment of knowledge and practice of nurses and midwives on active management postpartum hemorrhage (PPH) in Kabutare district hospital in Southern Rwanda. The findings from the study were discussed by the existing evidence that has been found in the same area of interest, the chapter also contains a summary of findings. Microsoft Excel and statistical package for social sciences (SPSS) software, version 16, were engaged in the analysis of the data. A p-value of < 0.05 was considered statistically significant with 95%, to establish a relationship between variables.

4.1 DEMOGRAPHIC CHARACTERISTICS

Overall, 63 participants were studied. Whereas males and females were 13 and 60 respectively. The participants were divided into Four classes depending on their age (20-29 were 9.5%, 30-39 % were 52.4%, 40-49% were 34.9% and >50 were 3.2% years old. 52.4% were Nurses and 47.6% were Midwives. 87.3 % were with Diploma, 9.5% with Bachelor's degree, and 3.2% with Masters. 55.6% with Experience <1-5 Years and 44.4% with 6-10. 82.5% Participated in training courses in PPH while 17.5% did not participate in training courses in PPH.

Tables 4. 1*:* Demographic characteristics

Variable	N (%)
Gender	
Male	13 (20.6%)
Female	50 (79.4%)
Age distribution in years	
20-29	6 (9.5%)
30-39	33 (52.4%)
40-49	22 (34.9%)
>50	2 (3.2%)
Occupation	
Nurse	33 (52.4%)
Midwives	30 (47.6%)
Highest academic qualification	
Diploma	55 (87.3%)
Bachelor's degree	6 (9.5%)
Masters	2 (3.2%)
Years of experience obstetrics care	
<1-5	35 (55.6%)
6-10	28 (44.4%)
Participation in training courses of PPH	
Yes	52 (82.5%)
No	11 (17.5%)

Data from January to March 2023

From the above table, males were 13 with 20.6% and females were 60 with 79.4%. The participants were divided into Four classes depending on their age (20-29 were 9.5%, 30-39 were 52.4%,

40-49 were 34.9% and >50 were 3.2% years old. 52.4% were Nurses and 47.6% were Midwives. 87.3 % were with Diploma, 9.5% with Bachelor's degree, and 3.2% with Masters. 55.6% with Experience <1-5 Years and 44.4% with 6-10. 82.5% have participated in training courses of PPH while 17.5% did not participate in training courses of PPH

4.2 The knowledge of nurses and midwives on the management of postpartum hemorrhage

Tables 4. 2: The knowledge of nurses and midwives on the management of postpartum hemorrhage

Variables	N	(%)
Lectures on PPH were given to you in the past year or years		
Yes	56	(88.9%)
No	2	(3.2%)
Nature	5	(7.9%)
Postpartum hemorrhage is the excessive vaginal bleeding of 500ml post-delivery until 42 days after giving birth		
YES	59	(93.6%)
NO	1	(1.6%)
Nature	3	(4.8%)
Postpartum hemorrhage is fatal		
Yes	59	(93.7%)
No	1	(1.6%)
Nature	3	(4.8%)
Primary PPH is excessive vaginal bleeding occurring within 24 hours after childbirth		
Yes	60	(95.2%)
No	1	(1.6%)
Nature	2	(3.2%)
All women at risk for PPH should routinely have an IV line during labor		
Yes	59	(93.6%)
No	1	(1.6%)
Nature	3	(4.8%)
Give 20 IU oxytocin IM to the women with PPH		
Yes	62	(98.4%)
No	1	(1.6%)

Data from January to March 2023

From the above table, 88.9% of Nurses and Midwives had lectured on PPH in the past year or years, 3.2% had not lectured on PPH in the past year or years and 7.9% Were Nature for the lecture on PPH in the past year or years. 93.7% of Nurses and Midwives respond that Postpartum hemorrhage is the excessive vaginal bleeding of 500ml post-delivery until 42 days after giving birth, 1.6% respond that Postpartum hemorrhage is not the excessive vaginal bleeding of 500ml post-delivery until 42 days after giving birth and 4.8% were Nature for the Postpartum hemorrhage is the excessive vaginal bleeding of 500ml post-delivery until 42 days after giving birth. 93.6% responded that postpartum hemorrhage is fatal, 1.6% Respond is not fatal and 4.8% were Nature PPH is fatal. 95.2% of nurses and Midwives respond that Primary PPH is excessive vaginal bleeding occurring within 24 hours after childbirth, 1.6% respond that Primary PPH is not excessive vaginal bleeding occurring within 24 hours after childbirth and 3.2% were nature for the Primary PPH is excessive vaginal bleeding occurring within 24 hours after childbirth. 93.7% of nurses and midwives responded that all women at risk for PPH should routinely have an IV line during labor, 1.6% of all women at risk for PPH should not routinely have an IV line during labor and 4.8% were nature that all women at risk for PPH should routinely have an IV line during labor. 98.4% Give 20 IU oxytocin IM to the women with PPH and 1.6% did not give 20 IU oxytocin IM to the women with PPH.

Tables 4. 3*: The knowledge of nurses and midwives on the management of postpartum hemorrhage continued*

Variables	N (%)
An IV infusion with 20 IU oxytocin in 1000 ml Ringer's lactate is given to a PPH woman	
Yes	60 (95.2%)
No	1 (1.6%)
Nature	2 (3.2%)
The most effective strategy to prevent PPH is the active management of the third stage of labor	
Yes	59 (93.7%)
No	0 (0.0%)
Nature	4 (6.3%)
Always inform the mother that she is having excessive bleeding	
Yes	51 (81.0%)
No	2 (3.2%)
Nature	10 (15.9%)
Primary and secondary postpartum haemorrhage is treated the same way	
Yes	58 (92.1%)
No	4 (6.3%)
Nature	1 (1.6%)
IV fluid, blood, blood product, and oxygen are given to prevent shock	
Yes	57 (90.5%)
No	1 (1.6%)
Nature	5 (7.9%)

Data from January to March 2023

From the above table, 95.2% of nurses and midwives respond that An IV infusion with 20 IU oxytocin in 1000 ml Ringer's lactate is given to a PPH woman, 1.6% respond that An IV infusion with 20 IU oxytocin in 1000 ml Ringer's lactate is not given to PPH woman and 3.2% were nature that An IV infusion with 20 IU oxytocin in 1000 ml Ringer's lactate is given to PPH woman. 93.7% of nurses and midwives respond that the most effective strategy to prevent PPH is the active management of the third stage of labor and 6.3% of the most effective strategy to prevent PPH is not active management of the third stage of labor. 81.0% Always inform the mother that she is having excessive bleeding, 3.2% did not Always inform the mother that she is having excessive bleeding, and 15.9% were nature Always inform the mother that she is having excessive bleeding. 92.1% respond that Primary and secondary postpartum hemorrhage is treated

the same way, 6.3% respond that Primary and secondary postpartum hemorrhage is not treated the same way and 1.6% were natural Primary and secondary postpartum hemorrhage is treated the same way. 90.5% respond that IV fluid, blood, blood product, and oxygen are given to prevent shock, 1.6% respond that IV fluid, blood, blood product, and oxygen are not given to prevent shock and 7.9% were nature for that IV fluid, blood, blood product, and oxygen is given to prevent shock.

4.3 The practice of nurses and midwives on active management of postpartum hemorrhage

Tables 4. 4: **The practice of nurses and midwives on active management of postpartum hemorrhage**

Valiable	N (%)
10 IU oxytocin IM was given to the women In one min after birth	
Yes	63 (100%)
The Uterine massage was done	
yes	63 (100%)
Control cord traction was done	
Yes	63 (100%)
Tissues were checked	
Yes	59 (93.7%)
No	4 (6.3%)
Teas were checked	
Yes	58 (92.1%)
No	5 (7.9%)
Bladder was emptied	
Yes	58 (92.1%)
No	5 (7.9%)
20 IU oxytocin IM was given to the women	
Yes	63 (100.0%)
Manuel uterine compression	
Yes	63 (100.0%)

Data from January to March 2023

From the above table 100% of nurses and midwives 10 IU oxytocin IM was given to the women in one min, 100% uterine massage was done, 100% Control cord traction was done, 93.7% of Tissues were checked while 6.3% of Tissues were not checked, 92.1% Teas were checked while 7.9% Teas were not checked, 92.1% Bladder was emptied while 7.9% Bladder was not emptied, 100% 20 IU oxytocin IM was given to the women and 100% Manuel uterine compression.

4.4. Level of knowledge and practice of nurses/midwives on management of PPH at Kabutare District Hospital from January to March 2023

Tables 4. 5.Level of knowledge and practice of nurses/midwives on management of PPH at Kabutare District Hospital from January to March 2023

Level of knowledge and practice of management of PPH

	N	(%)
Nurses and midwives who have good knowledge and practice	51	(81.0%)
Who have poor knowledge and practice	12	(19.0%)
Total	63	(100.0%)

Data from January to March 2023

4. 4. Relationship among Factors which is signed between Demographic, practices, and Knowledge of nurses and midwives on the management of postpartum hemorrhage at KABUTARE District Hospital.

Tables 4. 6*:* Relationship among Factors which is signed between Demographic, practices, and Knowledge of nurses and midwives on the management of postpartum hemorrhage at KABUTARE District Hospital

	Knowledge of nurses and midwives		
Variables for Demographic and practices			
	Pearson Chi-Square	Exact Sig. (2-sided)	
Tissues were checked	8.672[a]	.020	Data from Januar y to March 2023
Bladder was emptied	23.082[a]	.000	
Teas were checked	23.082[a]	.000	
Participation in training courses of PPH	56.639[a]	.000	
Nurses	13.476[a]	.000	

From the above table tissue checked were significant with Chi-squared value of 8.672a and p-value of .020, to empty bladder were significant for in the management of PPH with a Chi-squared value of 23.082a and p-value of .000, Teas check was significance to the in management of PPH with Chi-squared value of 23.082a and p-value of .000, Participation in training courses of PPH was significance to the in management of PPH with a Chi-squared value of 56.639a and p-value of .000 and we were Nurses were significant to in the management of PPH with Chi-squared value of 13.476a and p-value of .000

4.6. DISCUSSION OF FINDINGS

The study findings showed that 19.0% were the Prevalence of PPH at Kabutare District Hospital from January to March 2023 which is lower and lower when compared In Rwanda, the most frequent birth complications are postpartum hemorrhage (71.6%) and high when you compare with West Africa has the lowest prevalence of 8.6% with 18.7% and 14.2% in Middle and Eastern Africa respectively (Habiba, A.S., 2019). The magnitude of PPH in sub-Saharan Africa is high at 10.5 % (Habiba, A.S., 2019) and the global prevalence of PPH is 6% (Habiba, A.S., 2019) and lower when compared In Rwanda, the most frequent birth complications are postpartum hemorrhage (71.6%). And from 63 nurses and midwives males 13 with 20.6% and females 60 with79.4% from 19.0% have poor knowledge which is high when we compare to the study done in Nigeria was found 12% and 1.5% had moderate and poor knowledge respectively while 81% have good knowledge on active management of post-partum hemorrhage which is lower when we compare to the study done in Nigeria was found that 86.5% of the respondents had good knowledge (Adekemi Eunice Olowokere, 2020).

We asked 63 nurses and midwives working at Kabutare District Hospital which is lower than 310 attended a study conducted in Rwanda about the Postpartum Haemorrhage Prevention and Management Require Strengthening found in Antenatal Care (ANC). We found 81.0% of nurses and midwives at Kabutare district hospital have good knowledge of active management of post-partum hemorrhage which is high to 48% in Rwanda. We found 98.4% of nurses and Midwives give oxytocin during active management of post-partum hemorrhage which is high than 07% in Rwanda (Zoungrana, et al., 2020)

The study was conducted in Free State district hospital about the knowledge of the management of postpartum hemorrhage by doctors and midwives working in Free State District hospitals. Of the participants with known occupation 64.1% (n=131) were midwives which is high to our study with 47.4% (=30). (94.1%) participants had working experience of over one year to five years which is a high tour study where 55.6% of participants had working experience of over one year to five years. Only 40 participants (30.3%) obtained scores over 80%which is to our study where 51participant 81% obtained over 80%. the acceptable mark for core knowledge. Doctors performed significantly better than midwives (p=0.0002) which is different from our study where midwives performed significantly better than a nurse in active management of postpartum hemorrhage Nurses were significant in inactive management of PPH with a Chi-squared value of 13.476a and p-value of .000. ESMOE training resulted in significantly better performance (p=0.0045) to active management of PPH which is different to our study where Participation in training courses of PPH were significance to the inactive management of PPH with a Chi-squared value of 56.639a and p-value of .000. Issues identified were inadequate overall theoretical knowledge and an inability to practically demonstrate acquired theoretical knowledge. (Matthew Benedict, 2013) Overall, 63 participants were studied. Where males and females were 13 and 50 respectively which was lower when compared to The study conducted in Ethiopia in 2014 about the assessment of knowledge, attitude, and practice of midwives on active management of the third stage of labour at selected health centers of Addis Ababa, was found 136 midwives worked in the 26 health center of Addis Ababa were included in the study. We found 81.0% of nurses and midwives have good knowledge of the active management of post-partum haemorrhage which is lower than the study conducted in Ethiopia in 2014 The finding revealed midwives generally had good knowledge about the active management of the third stage of labour 82.4%. We found that 93.7% of nurses and midwives respond that the most effective strategy to prevent PPH is the active management of the third stage of labor which is high than the 50.7% of midwives who stated that active management of the third stage of labor prevents PPH and about. We found that 98.4% Give 20 IU oxytocin IM to the women with PPH which is high 77.9% had given oxytocin within the first minute. 100% Control cord traction was done which is high to 89% used controlled cord traction in Ethiopia. 100% uterine massage was done which is high to 86% performed uterine massage within the first minute after delivery

81.0% achieve good skills which is high than (47%) had achieved good skills in Ethiopia (Rahel Yaekob, 2015)

4.7 SUMMARY OF FINDINGS

We found the 19.0% Prevalence of PPH at Kabutare District Hospital from January to March 2023 and 19.0% have poor knowledge while 81% have good knowledge of the management of post-partum haemorrhage. In our study we found an association among Factors which is signed between Demographic, practices, and Knowledge of nurses and midwives in active management of postpartum haemorrhage we found that tissue checked was significant with a Chi-squared value of 8.672a and p-value of .020, to empty bladder were signed for in active management of PPH with Chi-squared value of 23.082a and p-value of .000, Teas check was significance to the inactive management of PPH with

Chi-squared value of 23.082a and p-value of .000, Participation in training courses of PPH was significant to the inactive management of PPH with a Chi-squared value of 56.639a and p-value of .000 and we Nurses were significant to inactive management of PPH with Chi-squared value of 13.476a and p-value of .000.

In our study, we found that in 100% of nurses and midwives 10 IU oxytocin IM was given to the women one min after birth, 100% uterine massage was done, 100% Control cord traction was done, 93.7% Tissues were checked while 6.3% Tissues were not checked, 92.1% Teas were checked while 7.9% Teas were not checked, 92.1% Bladder was emptied while 7.9% Bladder was not emptied, 100% 20 IU oxytocin IM was given to the women and 100% Manuel uterine compression. 92.1% respond that Primary and secondary postpartum hemorrhage is treated the same way, 6.3% respond that Primary and secondary postpartum hemorrhage is not treated the same way and 1.6% were natural Primary and secondary postpartum hemorrhage is treated the same way. 90.5% respond that IV fluid, blood, blood product, and oxygen are given to prevent shock, 1.6% respond that IV fluid, blood, blood product, and oxygen are not given to prevent shock and 7.9% were nature for that IV fluid, blood, blood product, and oxygen are given to prevent shock.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter deals with the conclusion and recommendation on the assessment of knowledge and practice of nurses and midwives on management of postpartum hemorrhage (pph) in kabutare district hospital from January to March 2023.

5.1 CONCLUSION

Finally, overall 19.0% have poor knowledge while 81% have good knowledge of the management of post-partum hemorrhage. we were found that tissue checked was significant in the management of PPH with a Chi-squared value of 8.672a and p-value of .020, to the empty bladder was significant for inactive management of PPH with a Chi-squared value of 23.082a and p-value of .000, Teas check was significance to the inactive management of PPH with Chi-squared value of 23.082a and p-value of .000, Participation in training courses of PPH was significance to the inactive management of PPH with a Chi-squared value of 56.639a and p-value of .000 and we were found inactive management of PPH which is significant to the prevalence of PPH with a Chi-squared value of 13.476a and p-value of .000. Nurses were significant to inactive management of PPH with Chi-squared value of 13.476a and p-value of .000.

This might have occurred the reason that a greater percentage of nurses and midwives working at Kabutare District Hospital who participated in our research have not participated in postpartum hemorrhage management why during labor some of them do not empty their bladder, tissue checks, teas checked, and the occupation of participant whether nurse or midwives we were found nurses are not active in the management of PPH.

However, knowledge of nurses and midwives on the management of post-partum hemorrhage obtained in this study have been correlated with different risk factors such as Lecture on PPH were given to you in the past year or years, Postpartum hemorrhage is the excessive vaginal bleeding of 500ml post-delivery until 42 days after giving birth, Postpartum hemorrhage is fatal, Primary PPH is excessive vaginal bleeding occurring within 24 hours after childbirth, All women at risk for PPH should routinely have an IV line during labor, Give 20 IU oxytocin IM to the women with PPH, IV fluid, blood, blood product, and oxygen is given to prevent shock, 10 IU oxytocin IM was given to the women In one min, Uterine massage was done, Control cord

traction was done, 20 IU oxytocin IM was given to the women and Uterine massage was done. Although, this study revealed the management of post-partum hemorrhage it was done up on patients attending Kabutare District Hospital from January to March 2023.

5.2. RECOMMENDATIONS

As concluded, knowledge of midwives and nurses for active management of post-partum hemorrhage revealed by our study had a great association with different risk factors. We end up recommending the Minister of Health for the provision of planning training on active management of post-partum hemorrhage at kabutare District Hospital especially for the nurses. Even when all materials were available, very few providers performed all components of AMTSL. We recommend Kabutare District Hospital plan training and consistent supervision of nurses and Midwives as well as effective facility job aids are recommended to improve PPH prevention.

Further training and supervision of ANC providers are also necessary to ensure that prevention measures as taken as early in the pregnancy as possible.

5.3 SUGGESTIONS FOR FURTHER STUDY

As the researchers could not come up with everything about the knowledge and practice of nurses and midwives about management of postpartum haemorrhage, it was suggested for further research to be carried out on:

- The evaluation the knowledge and practice of nurses and midwives on active management of postpartum haemorrhage at KABUTARE District Hospital
- Assess the cause of poor knowledge and practice of nurses and midwives on active management of postpartum haemorrhage at KABUTARE District Hospital
- The consequences caused by poor knowledge and practice of nurses and midwives on active management of postpartum haemorrhage at KABUTARE District Hospital

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APPENDICES

Appendices 1: Participants Information Leaflet and Consent Form

Table 1: Participants' Information Leaflet and Consent Form

Title of Research Project:	
assessment of knowledge and practice of nurses and midwives on management postpartum haemorrhage (PPH) in Kabutare district hospital from January to March 2023	
DETAILS OF PRINCIPAL INVESTIGATOR (PI):	
Title, first name, surname:	Ethics reference number:
Full postal address:	PI Contact number:
SUPERVISOR:	Supervisor contact number:

Dear colleague

You are invited to take part in our research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the principal researcher and our supervisors any questions about any part of this research project that you do not fully understand. It is very important that you are satisfied and that you are voluntary and you are free to decline to participate. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by **Kibogora Polytechnic University**, Faculty of Nursing Department of General Nursing, and will be conducted according to the ethical guidelines and principles of the Kibogora Polytechnic University.

What is this research all about?

This research study is about the knowledge and practices for the management of postpartum hemorrhage (PPH) among midwives and nurses working at Kabutare district hospital. This study aims at investigating systematically the knowledge and practice for the management of PPH among midwives and nurses working at the hospital. This study does not aim to appraise or criticize the participant's knowledge.

It aims at identifying gaps in the assessment, diagnosis, prevention, and management of PPH in maternity or other departments. That is the reason why the researcher is conducting this research. The researcher will ensure that the identity of these hospitals is kept confidential.

Why have you been invited to participate?

You are invited to participate in this research study because you are a valued participant who is needed to provide this study with the information to meet its objectives.

What will your responsibilities be? You will participate in this study by completing a questionnaire that will take you approximately 30 minutes to complete. The questionnaire is available in English only. The researcher is 100% confident that all participants are fluent in English. Their day-to-day activities take place in English as a medium language of communication. The questionnaire will be handed over to you by the researcher or the field worker. Data collection will take place during morning hours between 07h00 - 11h00, in the afternoon between 14h00 - 18h00, and in the evening between 19h00 - 23h00.

You are required to complete a consent form before completing the questionnaire. This is an important document that indicates that you have chosen freely to participate in the study.

Will you benefit from taking part in this research? You will not benefit immediately from taking part in this research study. However, findings from this study will be disseminated to the relevant authorities which in the future will determine if training on postpartum hemorrhage is required or not.

Are there risks involved in your taking part in this research study? There are no risks involved in your taking part in this study. This study is strictly anonymous. Your name is not required which protects your identity.

This study is also of low risk and the researcher does not foresee any emotional problems if taking part in this study.

If you do not agree to take part, what alternatives do you have? Your participation is entirely voluntary and you are free to decline to participate from which you will not be penalized.

Who will have access to data obtained from this research study? The data from this study will be kept strictly confidential. Only the researcher and our supervisors will have access to this data.

What will happen in the unlikely event of some form of injury occurring as a direct result of you taking part in this research study? This study is of low risk and the researcher does not foresee any injury that could occur from this research project.

Will you be paid for taking part in this study and are there any costs involved? No, you will not be paid for taking part in this research study and there are no costs involved in taking part in this research project.

Is there anything else that you should know or do? Ask questions relating to the study

You can contact the supervisor Mr. NSENGIYUMVA Jean Paul at +250788859408

Declaration by the participant

By signing below, I…… have agreed to take part in a research project entitled the assessment knowledge and Practice of postpartum hemorrhage among midwives and Nurses working at Kabutare District Hospital in Rwanda.

I declare that:

• I have read this information and consent form and it is written in a language with which I am fluent and comfortable.

• I have a chance to ask questions and all my questions have been adequately answered.

• I understand that taking part in this study is **voluntary** and I have not been pressurized to take part.

• I may choose to leave the study at any time and will not be penalized or prejudiced in any way.

• I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan as agreed to.

Signed at……on this date……2023 …….

……. **Signature of participant**

Signature of witness

Declaration by the investigator

I …..... declare that:

• I explained the information in this document to…….....

• I encouraged him/her to ask questions and took adequate time to answer them.

• I am satisfied that she/he adequately understands all aspects of the research, as discussed above.

• I did not use an interpreter.

Signed at……. on this date…….2023

……

……. **Signature of investigator**

Signature of witness

Appendices 2: Postpartum Haemorrhage (PPH) Questionnaire

Title of the study: assessment of knowledge and practice of nurses and midwives on active management postpartum hemorrhage (PPH) in Kabutare district hospital from January to March 2023

Instructions

It will take approximately thirty (30) minutes to complete this questionnaire.

Please answer all the questions.

Section A: socio-demographic information

Please Complete the questionnaire by marking your answer with X where applicable.

Table 2: socio-demographic information

Variables		**Yes**	**No**
Gender	Female		
	Male		
Age distribution in years	20-29		
	30-39		
	40-49		
	50-59		
Occupation	Midwives		
	Nurses		
Highest academic qualification	Diploma		
	Bachelor's degree		
	Masters		
Years of experience in obstetrics care	<1-5		
	6-10		
Participation in training courses of PPH	Yes		
	NO		

Section 2: Responses on knowledge of midwives and nurses toward management of PPH

Please Complete the questionnaire by marking your answer with X where applicable.

Table 3: Responses on knowledge of midwives and nurses toward management of PPH

Variable	**Agree**	**Natural**	**Disagree**
Lectures on PPH were given to you in the past year or years			
Postpartum hemorrhage is the excessive vaginal bleeding of 500ml post-delivery until 42 days after giving birth			
Postpartum hemorrhage is fatal			
Primary PPH is excessive vaginal bleeding occurring within 24 hours after childbirth			
All women at risk for PPH should routinely have an IV line during labor			
Give 20 IU oxytocin IM to the women with PPH			
An IV infusion with 20 IU oxytocin in 1000 ml Ringer's lactate is given to PPH woman			
The most effective strategy to prevent PPH is active management of the third stage of labour			
Methylergometrine or oral misoprostol 600Ug is recommended in the absence of oxytocin to manage PPH			
IV fluid, blood, blood product and oxygen is given to prevent shock			
Always inform the mother that she is having excessive bleeding			
Primary and secondary postpartum haemorrhage is treated the same way			

Appendices 3: Responses of participants on practice toward PPH

Checklist

Variable	**Activities** All materials used are available	**yes**	**no**
PPH management	10 IU oxytocin IM was given to the women In one min		
	The uterine massage was done		
	Control cord traction was done		
	Tissues were checked		
	Teas were checked		
	Bladder was emptied		
	20 IU oxytocin IM was given to the women		
	Manuel uterine compression		

Appindex :4 Letter for Data Collection

KIBOGORA POLYTECHNIC

Granted Accreditation and Legal Personality by the Ministerial Order N° 7/2015Official Gazette N° 03 of 19/01/2015

P.O.Box: 31 Rusizi-Rwanda Tel:(+250)280100759 E-mail: [illegible] Website: www.kp.ac.rw

SECRETARIAT - HOPITAL KABUTARE POUR Reception

1st December 2022

To: Director General of Kabutare District Hospital

Dear DG,

Subject: request for data collection

We would like to submit this request for data collection at **Kabutare District Hospital** for completion bachelor degree dissertation of **Miss. NIYOKWIZERWA *Mediatrice* *(Registration number: 1900261)*** and **Miss. NIRERE Emertha (registration number: *1900370)***. *The above mentioned are Bonafide students of Kibogora Polytechnic pursuing Bachelor degree in general nursing with honor program. They will need to conduct interviews with the nurses and midwife at Kabutare district hospital.*

The title of this research is: Assessment of Knowledge and practice of nurses and midwife regarding management of PPH at Kabutare district hospital within 2022-2023

Kibogora polytechnics pledges to ensure that all provided information will be confidential and used in the strict academic purpose only.

Any assistance rendered to the candidate's will be highly appreciated. Please don't hesitate to contact me in case you need to do so.

Sincerely

TWAHIRWA Jean Claude

Head of department/ General nursing

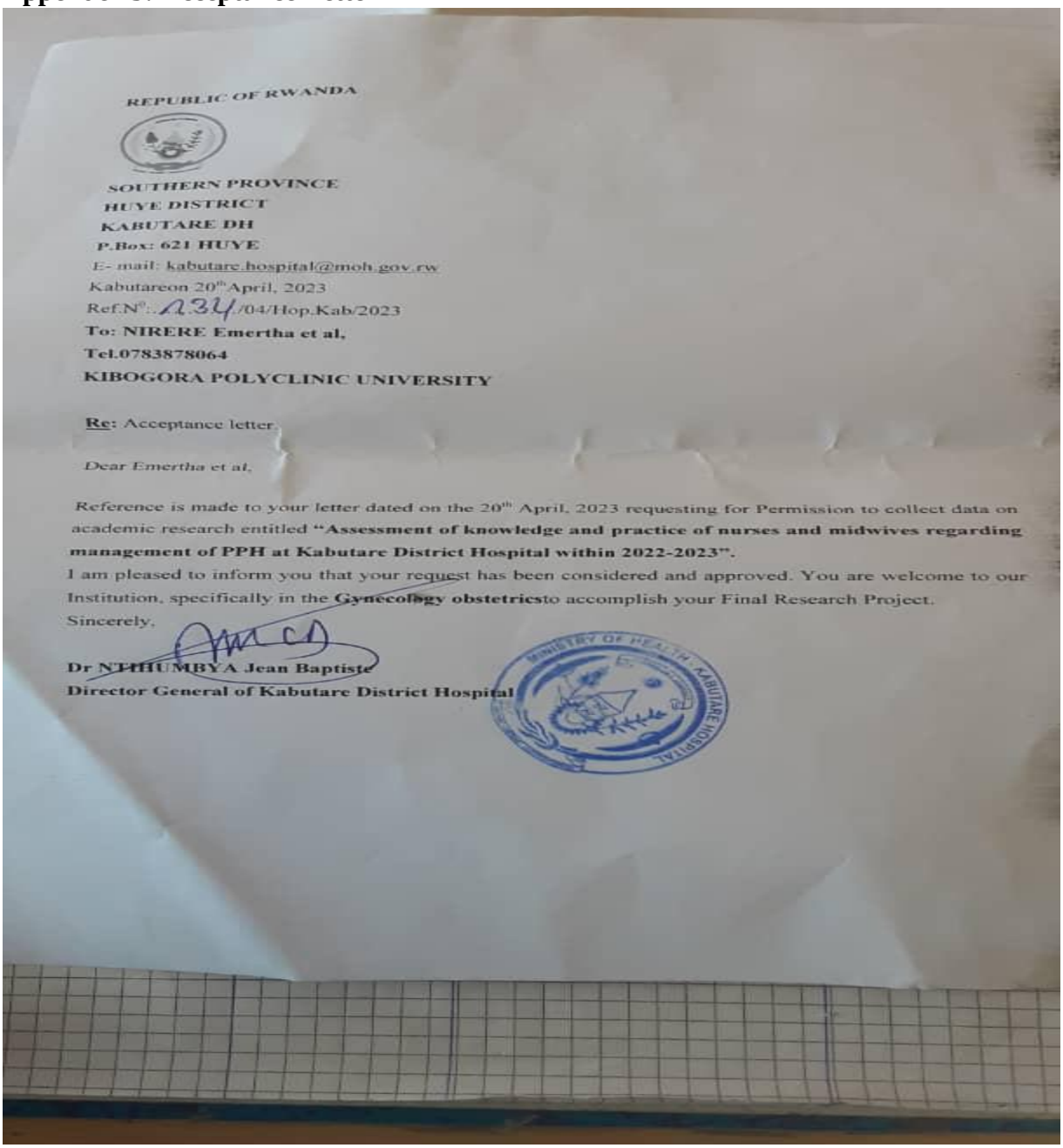
Email: twahirwajeanclaude1@gmail.com

Tel: 0784810644

Dear clinical director with ethics committee,
Your action
20/12/2022
DG PO

Figure 2: Letter for Data Collection

Appendix 5: Acceptance Letter



REPUBLIC OF RWANDA

SOUTHERN PROVINCE
HUYE DISTRICT
KABUTARE DH
P.Box: 621 HUYE
E- mail: kabutare.hospital@moh.gov.rw
Kabutareon 20th April, 2023
Ref.N°: 134/04/Hop.Kab/2023

To: NIRERE Emertha et al,
Tel.0783878064
KIBOGORA POLYCLINIC UNIVERSITY

Re: Acceptance letter

Dear Emertha et al,

Reference is made to your letter dated on the 20th April, 2023 requesting for Permission to collect data on academic research entitled **"Assessment of knowledge and practice of nurses and midwives regarding management of PPH at Kabutare District Hospital within 2022-2023".**
I am pleased to inform you that your request has been considered and approved. You are welcome to our Institution, specifically in the **Gynecology obstetrics** to accomplish your Final Research Project.
Sincerely,

Dr NTIHUMBYA Jean Baptiste
Director General of Kabutare District Hospital

MINISTRY OF HEALTH KABUTARE HOSPITAL

Figure 3: Acceptance Letter