KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF HEALTH SCIENCES

FACULTY OF ALLIED HEALTH SCIENCE

DEPARTMENT OF NURSING

DIPLOMA PROGRAMMES

THE LEADING CAUSES OF MATERNAL MORTALITY AMONG HEALTH WORKERS AT ST. MARY'S HOSPITAL, DROBO, HAPPY HOSPITAL, BEREKUM AND ANUTY AGGIE MATERNITY HOME, BEREKUM.

AGYEIWAA SANDRA - 4781922

ANABA JENNIFER - 4832622

DARKWAH MARY - 4971222

[HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE, BEREKUM]

AFFILIATED TO KNUST, KUMASI

HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE, BEREKUM

THE LEADING CAUSES OF MATERNAL MORTALITY AMONG HEALTH WORKERS AT ST. MARY'S HOSPITAL, DROBO, HAPPY HOSPITAL, BEREKUM AND ANUTY AGGIE MATERNITY HOME, BEREKUM.

AGYEIWAA SANDRA - 4781922

ANABA JENNIFER - 4832622

DARKWAH MARY - 4971222

2023

DECLARATION

We hereby declare that this submission is our work towards the Diploma in Midwifery and that, to the best of our knowledge, it contains no material previously published by another person nor material which has been accepted for the award of the diploma of the University, except where due acknowledgement has been made in the text.

Agyeiwaa Sandra	.....	9/10/23
4781922	Signature	Date
Anaba Jennifer	.....	9/10/23
4832622	Signature	Date
Darkwah Mary	.....	9/10/23
4971222	Signature	Date
Certified by:		
Ms. Celestine Ahiawornu	.....	10/09/23 10/10/23
(Supervisor)	Signature	Date
Monica Nkrumah	.....	.....
(Principal)	Signature	Date

ABSTRACT

The study was focused on the leading causes of maternal mortality among health workers at St. Mary's hospital, Drobo, Happy hospital, Berekum and Anuty Aggie Maternity home, Berekum. A descriptive study design was used to collect in-depth information for the study. The sample population was obtained using a proportionate stratified sampling technique. A total of 90 students were sampled for the study. The data for the study was collected by administering the questionnaire to the participants.

The study found out that majority of the respondents (99%) had the knowledge that eclampsia is the leading cause of maternal mortality followed by abortion (96%), pre-eclampsia (89%), hemorrhage (78%), fever (74%) and sepsis (62%). Most of the respondents (98%) strongly agreed that early detection and treatment of abnormalities can reduce maternal mortality. The study recommends that all pregnancy women should visit the antenatal clinic regular for checkup and the government should provide adequate staffs at the maternity homes and hospitals to help pregnant women.

The study concludes that partograph is a tool that helps reduce maternal mortality among pregnant women, therefore every health facility (maternity homes and hospital) should ensure Midwives strictly use partograph.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION

MDG 5	Millennium Development Goal 5
MMR	Maternal Mortality Ratio
MMEIG	Maternal Mortality Estimation Interagency Group
WHO	World Health Organization
UNICEF	United Nation Children Fund
UNFPA	United Nation Population Fund
SDG	Sustainable Development Goal
ICD-9	Ninth International Classifications of Diseases
PIH	Pregnancy Induced Hypertension
HDP	Hypertensive Disorder of Pregnancy

ACKNOWLEDGEMENT

We would like to extend our deepest gratitude and praise to the Almighty God for providing us with strength and knowledge for this study.

We are much grateful to the Management and staff of the Holy Family Nursing and Midwifery Training College, Berekum for allowing us to conduct the study in the College.

We also thank the Department of Nursing of the Kwame Nkrumah University of Science and Technology for providing us with the guideline for the study.

Our deepest appreciation also goes to our supervisor, Ms. Celestine Ahiawornu for her constructive criticisms, objective guidance, and direction for the study and the entire staff of the College for their support throughout the study.

We are grateful to all the respondents for their contributions and efforts. Without them, the study would not be possible. We also appreciate our parents for their financial, emotional, psychological, and spiritual support throughout our education.

Finally, our sincere appreciation goes to the authors and publishers of pieces of literature used in the study. Thank you all and God bless you.

CHAPTER ONE

INTRODUCTION

1.0 Background to the study

Since the Millennium Declaration in 2000, unprecedented progress has been made in the reduction of global maternal mortality. Millennium Development Goal 5 (MDG 5: improving maternal health) includes two primary targets 5A and 5B. Target 5A aimed for a 75% reduction in the global maternal mortality ratio (MMR) and 5B aimed to achieve universal access to reductive health (Vogel, et al., 2019). An estimated number of 1,000 women die worldwide each day due to pregnancy complicated conditions and childbirth (Mills, Williams, Wak, & Hodgson, 2018). Sub-Saharan Africa recorded the highest maternal mortality rate (MMR) of 640 per 100,000 births (Mills, Williams, Wak, & Hodgson, 2018). The Maternal Mortality Estimation Interagency Group (MMEIG), composed of the World Health Organization (WHO), the United Nation Children Fund (UNICEF), the United Nation Population Fund (UNFPA) and the World Bank, reported that most of the complications leading to maternal deaths can occur without any warning sign during pregnancy, and child birth. It states that developing countries continue to account for 99% of the maternal deaths (Mills, Williams, Wak, & Hodgson, 2018).

Ghana's MMR continues to be unacceptably high despite efforts made in an attempt to meet Millennium Development Goal (MDG) (Moussa & Stafstrom, 2018). The Ministry of Health has been called on to treat maternal mortality as a national emergency. Maternal mortality is difficult to measure and existing data is likely to be misinterpreted and under reported. Measuring maternal death needs a lot of information than merely knowing that a death has occurred (Goodman & Callaghan, 2019). In order to categorize maternal death, accurate information regarding cause of death, pregnancy status and timing of death in relation to

pregnancy must be obtained. Information such as this is difficult to come by, especially in developing countries where most deaths occurred at homes. The developed countries sometimes have such difficulties too (Goodman & Callaghan, 2019).

Estimation of Maternal Mortality Ratio in Ghana varies by source and method of estimation. Figures from the WHO, UNICEF and UNFPA for Ghana indicate 740 maternal deaths in 1990, 590 in 1995, 540 in 2000 and 560 in 2005 per 100 000 live births. This contrasts with lower estimation from the Ghana Statistical Service which were 214 in 1992 and 378 per 100 000 live births between 2000 and 2005. This high level of uncertainty and discrepancy makes MMR unsuitable for monitoring maternal mortality/maternal health trends in short term (Asamoah, 2018).

The number of women who died from pregnancy related causes every year is 585,000 at a rate of 430 deaths per 100,000 live births. The maternal death is at a risk of 1 in every 1,800 in the developed world while the case of Africa is different. In Africa 1 out of 16 has a chance of maternal death. In America it is at rate of 1 in 130 live births (WHO, 2017). Globally, 1,600 women died each day of pregnancy related problems or childbirth of which many are preventable (WHO, 2017).

About 287,000 women died during and following pregnancy and childbirth in 2020. Almost 95% of all maternal deaths occurred in low and lower middle-income countries in 2020, and most could have been prevented (WHO, 2023).

Sustainable Development Goal (SDG) regions and sub-regions are used here. Sub-Saharan Africa and Southern Asia accounted for around 87% (253 000) of the estimated global maternal deaths in 2020. Sub-Saharan Africa alone accounted for around 70% of maternal deaths (202 000), while Southern Asia accounted for around 16% (47,000) (WHO, 2023). At the same time, between 2000 and 2020, Eastern Europe and Southern Asia achieved the greatest overall reduction in maternal mortality ratio (MMR): a decline of 70% (from an

MMR of 38 to 11) and 67% (from an MMR of 408 down to 134), respectively. Despite its very high MMR in 2020, Sub-Saharan Africa also achieved a substantial reduction in MMR of 33% between 2000 and 2020. Four SDG sub-regions roughly halved their MMRs during this period: Eastern Africa, Central Asia, Eastern Asia, and Northern Africa and Western Europe reduced their MMR by around one third. Overall, the maternal mortality ratio (MMR) in least-developed countries* declined by just under 50%. In land locked developing countries, the MMR decreased by 50% (from 729 to 368). In small island developing countries the MMR declined by 19% (from 254 to 206) (WHO, 2023).

Globally, 1,600 women died each day of pregnancy related problems or childbirth of which many are preventable (WHO, 2017).

This still need to be examined critically to clearly diagnose the situation and adequate and effective interventions formulated and appropriately implemented.

In all Ghanaian societies, the death of a woman from pregnancy-related complications is a sad event, sometimes requiring ritual purification of the society (Ohaja & Anyim, 2021). For instance, at Osu, in Accra, in the event of such an occurrence, all pregnant women are traditionally required to have a ritual bath in the sea soon after the burial of their colleague. In some communities in the Volta Region, the bodies of women who die in pregnancy are quickly buried, usually at midnight. In recent times, maternal mortality is considered a violation of the rights of women and its rate is perceived as a critical index of the level of development of a country. Nations all over the world have instituted programs and policies within their available resources to stop this menace (Jasper, 2018).

The causes of maternal mortality are usually sub-grouped into direct and indirect causes. Direct causes of maternal mortality as indicated in previous studies conducted in Ghana include hemorrhage (postpartum and ante partum), abortion, miscarriage, sepsis, obstructed labour, ectopic pregnancy, pre-eclampsia, eclampsia and embolism. The indirect causes of

maternal mortality are mostly infectious and non-infectious diseases and other miscellaneous causes. These indirect causes include mainly malaria, HIV/AIDS, hepatitis, respiratory infections, anaemia, sickle cell disease, meningitis, cerebrovascular diseases and others. Deaths resolved by the indirect causes of maternal mortality are known as false maternal deaths (Asamoah, 2018).

Women in low-income countries have a higher lifetime risk of death of maternal death. A woman's lifetime risk of maternal death is the probability that a 15-year-old woman will eventually die from a maternal cause. In high income countries, this is 1 in 5300, versus 1 in 49 in low-income countries (WHO, 2023). There are many reasons why developing countries have poor healthcare systems. Some of these reasons includes poverty, poor sanitation, malnutrition, underdeveloped public health services, war and conflict, patriarchy and traditional values and environmental factors (Thompson, 2021)

1.1 Problem Statement

The high number of maternal deaths in some areas of the world reflects inequalities in access to quality health services and highlights the gap between rich and poor. The MMR in low-income countries in 2020 was 430 per 100 000 live births versus 12 per 100 000 live births in high income countries (WHO, 2023). It is indeed a tragedy for a woman to die. The death of a woman during pregnancy, at delivery, or soon after delivery is a tragedy for her family and for society as a whole. This is because her contribution to the nation is lost and also her family loses her love and her nurturing (CDC, 2023). Deducing from the above statement, to solve maternal mortality, government must look beyond dealing with only the preventable causes of death and try to find out other contributing factors to tackle in which many have tried to unearth (Mhyre, 2018).

WHO (2017), estimated that 500,000 women died from pregnancy and childbirth related causes. It stated that, a woman in the developing countries is 97 times more likely to die due

to pregnancy related complications than a woman in the developed countries. Majority of these deaths occur during and immediately after childbirth. Severe bleeding accounts for 25% of maternal deaths, infection 13%, Eclampsia 12%, obstructed labour 8%, unsafe abortions 13%, other direct causes, 8% and indirect causes such as HIV and anemia in pregnancy is 20%. Technologies needed to prevent these causes exist, for this reason WHO labeled these deaths as "avoidable".

Charities working to reduce maternal mortality are involved in training traditional birth attendants (TBAs), providing skin care at birth, distributing delivery kits, safe abortion and post abortion care, family planning and obstetrical care (WHO, 2017).

Notwithstanding the SMI and other strategies by WHO (MDG5), an estimated 358,000 maternal deaths occurred globally in 2008. This means that each day 1,000 women died worldwide because of pregnancy related complications (WHO, 2018). This indicates that maternal mortality is still very high globally. In Ghana many policies were implemented to arrest the situation but maternal mortality rate remains, alarming and the MDG5 seems not attainable.

Given these we would conduct an exploratory study to determine the leading causes of maternal mortality among health workers at Holy Family Hospital, Berekum, Happy Hospital, Berekum and Anuty Aggie Maternity home, Berekum.

1.2 General objective

To explore the leading causes of maternal mortality among health workers at St. Mary's Hospital, Drobo, Happy Hospital, Berekum and Anuty Aggie Maternity home, Berekum.

1.3 Specific objective

1. To find out the prevalence of maternal mortality at St. Mary's Hospital, Drobo, Happy Hospital, Berekum and Anuty Aggie Maternity home, Berekum.

2. To determine the causes of maternal mortality among health workers at St. Mary's Hospital, Drobo, Happy Hospital, Berekum and Anuty Aggie Maternity home, Berekum.
3. To identify measures/interventions to reduce maternal mortality among health workers at St. Mary's Hospital, Drobo, Happy Hospital, Berekum and Anuty Aggie Maternity home, Berekum.

1.4 Operational definition

Safe motherhood: giving women the care they need to have to be safe and healthy during pregnancy.

Maternal mortality: the death of a woman during, pregnancy labour and after six weeks of child birth

Maternal mortality ratio/rate (MMR): the number of maternal deaths per 1000 live births.

Miscarriage: spontaneous expulsion of fetus from the womb before is able to survive independently.

Sepsis: presence of harmful bacteria and their toxins in a tissue.

Obstetrics: a branch of medicine that deal with women and child birth

Postpartum haemorrhage: bleeding occurring after birth.

Antepartum haemorrhage: bleeding occurring before birth

Antenatal care: care of a woman before birth

Postnatal care: care of a woman after birth

Nulliparous: a woman who have never to a child

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter contains review of relevant literature related to the research topic. A well-structured literature review begins with broad or general information, then narrows the focus to those studies most closely related to the research problem.

2.1 Definition of Maternal Mortality (Mm) and Maternal Mortality Rate (MMR)

The ninth international classifications of diseases (ICD-9) define maternal mortality as *"The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes"* (Lewis & Drife, 2021). Maternal Mortality Ratio (MMR) is the ratio of the number of maternal deaths per 100,000 live births. The MMR is used as a measure of the quality of a health care system.

2.2 Prevalence of Maternal Mortality

Maternal mortality is unacceptably high. About 830 women die from pregnancy or childbirth related complications around the world every day. It was estimated that in 2015, roughly 303,000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented (African health Organization, 2020).

According to Lucy (2023), the annual count of maternal deaths amounts to several hundred across all states a figure comparatively lower than fatalities from other medical conditions. But more than 80 percent of these cases are preventable, leaving researchers scrambling to understand why the rates are rising. Research has shown that the proportion of people who are having children later in life or entering pregnancy with chronic conditions, such as

obesity or cardiovascular disease, has grown over the past few decades. Both factors raise the likelihood of experiencing complications during pregnancy and childbirth. The increasing number of caesarean sections a major surgery that isn't always necessary has also been linked to a greater risk of maternal death (Lucy, 2023).

In sub-Saharan Africa, a number of countries halved their levels of maternal mortality since 1990. Between 1990 and 2015, the global maternal mortality ratio (the number of maternal deaths per 100 000 live births) declined by only 2.3% per year between 1990 and 2015. However, increased rates of accelerated decline in maternal mortality were observed from 2000 onwards. In some countries, annual declines in maternal mortality between 2000–2010 were above 5.5% (African health Organization, 2020).

According to WHO (2019), the high number of maternal deaths in some areas of the world reflects inequities in access to health services, and highlights the gap between rich and poor. Almost all maternal deaths (94%) occurred in low-income and lower-middle-income countries, and almost two thirds (65%) occurred in the World Health Organization (WHO) African Region. The maternal mortality ratio in the least developed countries is as high as 415 per 100 000 births versus 12 per 100 000 in Europe and Northern America and 7 in Australia and New Zealand. There are large disparities between countries, with 11 countries having extremely high maternal mortality ratios of 600 or more per 100 000 live births in 2017 (WHO, 2019).

2.3 Causes of Maternal Mortality

The causes of maternal mortality are usually sub-grouped into direct and indirect causes. Direct causes of maternal mortality as indicated in previous studies conducted in Ghana include haemorrhage (postpartum and ante partum), abortion, miscarriage, sepsis, obstructed labour, ectopic pregnancy, pre-eclampsia, eclampsia and embolism. The indirect causes of

maternal mortality are mostly infectious and non-infectious diseases and other miscellaneous causes. These indirect causes include mainly malaria, HIV/AIDS, hepatitis, respiratory infections, anaemia, sickle cell disease, meningitis, cerebrovascular diseases and others (Asamoah, 2018).

The six main causes of maternal mortality are: thrombosis and thromboembolism, early pregnancy death (ectopic pregnancy, miscarriage, termination), pregnancy induced hypertension, sepsis, amniotic fluid embolism, and haemorrhage (Lewis & Drife, 2021). The main direct causes of maternal morbidity and mortality include haemorrhage, infection, high blood pressure, unsafe abortion, and obstructed labour (WHO, 2023)

In developing countries, the most common cause of maternal death is hemorrhage, followed by deep vein thrombosis in contrast to developed countries, for which the most common cause is thromboembolism. Primary Postpartum haemorrhage (PPH) is the loss of 500mls or more blood within 24hours after delivery while secondary PPH is the one that occurs from 24hours-12weeks after childbirth. The causes of this PPH are atony uterus, trauma, uterine rupture, retained placenta and maternal bleeding disorders. Uterine atony related PPH is the most common cause of maternal death worldwide. The risk factors of atonic uterine and PPH in general are grande parity and multiparity (WHO, 2019).

In Ghana, malaria and other anemia provoking conditions, contributes a percentage of 9.4% of maternal mortality ([GHS], 2017).

Globally, it is estimated that 20 million unsafe abortions take place every year, causing 68,000 maternal deaths (Faundes & Alvarez, 2018). Unintended pregnancy is a major cause of maternal deaths. Worldwide, unintended pregnancy resulted in almost 700,000 maternal deaths from 1995 to 2000 (approximately one-fifth of the maternal deaths during that period). The majority (64%) resulted from complications from unsafe or unsanitary abortion.

High level of maternal mortality in the developing countries is associated with poverty. Comparing the maternal mortality ratio in the developing countries and developed countries, the developed countries have high per capita income while the developing countries have very low per capita income. However, this relationship cannot be straightforward stated as the major cause of maternal mortality. Nevertheless, it is obvious that countries that have low per capita income have high maternal mortality ratios (Lewis & Drife, 2021).

A study in Southwest Nigeria by Jasper, Linksvayer, Atallah and Friedman (2019), reveal a death rate of 29 per 1000 deliveries among women who received no formal education and no prenatal care. This was not so in the case of those who had formal education (2.5 deaths per 1000). Furthermore, observations made on women in the Southern Nigeria revealed: a) Lack of knowledge of the warning signs and risks factors of haemorrhage during pregnancy and delivery and of the potential danger of bleeding after delivery; b)some foodstuffs where not to be eaten by pregnant women; c) A believe that supernatural powers were responsible for some cases of haemorrhage in pregnancy and delivery, as a result, such cases could not be handled in modern day obstetrics care and d) Pregnant women continued to seek for the services of TBAs and traditional healers even when haemorrhage was obvious.

Eclampsia is the third cause of maternal death, emerges as pre-eclampsia, a common hypertensive disorder which can be detected during pregnancy (WHO, 2017). There are three types of high blood pressure in pregnant women. One is chronic hypertension where high blood developed before the 20^{th} week of pregnancy or present before the women becomes pregnant. The second is gestational hypertension, where some women get high blood pressure near the end of pregnancy, while the third is pregnancy induced hypertension (PIH), which condition can cause serious problems for both the mother and the baby if left untreated. PIH develops after 20^{th} week of pregnancy. A hypertensive disorder of pregnancy (HDP) is one of the direct causes of maternal mortality worldwide. Cerebral haemorrrhage is the main cause

of hypertensive deaths and might imply that doctors are reluctant to treat sustained high blood pressure effectively during pregnancy (Kwame, 2016).

A study by Thonneau (2018), carried out in twelve maternities in Benin, Ivory Coast and Senegal; found that hypertensive disorders and post-partum haemorrhage caused 29% and 15% respectively of maternal mortalities in these three African countries. These were the highest causes of maternal mortality among this group. Inconsistency in clinical diagnosis of the causes of maternal deaths has also been reported as a possible reason for why this challenge remains. Infectious diseases related to maternal mortalities are often under-diagnosed whilst hypertensive disorders related to pregnancy (including Eclampsia) are in most cases, over-diagnosed (Asamoah, 2018).

Infection occurs when aseptic procedures are not followed, when the amniotic sac ruptures long before delivery occurs, when vaginal examinations are too frequent or when obstructed labour occurs. Long term consequences of puerperal sepsis include pelvic inflammatory diseases, secondary infertility and in rare cases, maternal tetanus (Kodjo, 2016).

Another frequent cause of maternal death is obstructed labour, which occurs when the fetus head is too big compared with the mother's pelvis or if the baby is abnormally position. This is a complication in which the process of labour does not occur normally due to mechanical blockage of the birth canal. In very severe cases, it may lead to fistulation in which urine and faecal matter gain entry into the reproductive system. Obstructed labour may be due to early pregnancy, inadequate nutrition during childhood, foeto-pelvic disproportion, multiparity and abnormal foetal presentation (Kodjo, 2016).

The leading cause of death for young women of age 15-19 is pregnancy related conditions. Adolescent aged 15-19 are twice likely to die during pregnancy or childbirth than those over age 20. Many biological, economic and cultural factors such as poverty, malnutrition, child

marriage and gender inequities may undermine the health of pregnant adolescents. Illiteracy can affect health when it limits young women knowledge about nutrition, birth spacing and contraception (Graczyk, 2017).

Other factors that prevent women from receiving or seeking care during pregnancy and childbirth are: distance, lack of information, inadequate services and cultural practices (WHO, 2018).

According to Mensah (2018), the alarming rates of maternal mortality in Ghana can be linked to the shortage of health workers in the country's health centres; and this, is mainly due to the migration of health staff. Within the country, health workers refuse to be posted to the rural areas. All the health professionals prefer staying in the urban areas. Even those from the rural areas refuse to go back after their training. This makes health delivery in the rural areas very poor. Another reason is the migration of health workers to the Western countries. The 2010 health report taken in the Sissala District indicated inadequate skilled personnel and equipment in the area. The high doctor-patient ratio of 1: 54 000, forces one doctor to work in six health centers.

The government of Ghana has realized that it may be difficult to meet the MDG5 target, but all efforts are being made to reduce it to 0%. As a result, Ghana has increased the training of midwives to least 500 being trained every year. The vice-president of Ghana, John Dramani Mahama, has also appealed to newly trained health professionals, especially nurses and midwives to accept postings to the deprived areas while the government make effort to improve conditions of service and incentive packages for them. Also, the Ghana Health Service has it in mind to set up clinics in all the rural areas so that the people could access health care delivery. Family planning centres have also been set up in all the health centres to

counsel people on birth-control and prevention of Sexually Transmitted Infections (Mensah, 2018).

Factors influencing maternal mortality rate according to Diane, Cooper & Anna (2006) are:

1) Prenatal care: maternal mortality mostly occurs amongst pregnant women who had no prenatal. Anemia and cardiovascular conditions play a vital role here. Being late to hospital with an acute problem is another factor.
2) Parity: primigravidae usually have higher MMR whiles Secundigravidae have lower MMR. This is because septic abortions occur more in first pregnancies. MMR is also higher in grande multigravida, because more medical complications amongst this group.
3) Age: The lowest MMR is between ages of 20 and 29 years in pregnant women. It is higher in young pregnant women, especially those under the age of 15years. At 40years the MMR increases sharply but with adequate medical measures, this increase is much lower than in the past.
4) Socio-economic factors: MMR is very high among patients who do not utilize prenatal care and also patients who patients who are poor.

2.4 Interventions to stop Maternal Mortality

A new program launched by WHO is making pregnancy safe (MPS), it was initiated to address three targets: Prevention and management of unwanted pregnancy and unsafe abortion; skilled care during pregnancy and childbirth and access to referral care when complication arises (WHO, 2016).

Maternal haemorrhage accounted for over 40% of all obstetric complications admitted and also 27% of all maternal deaths in the period under review. However, the case fatality rate for maternal hemorrhage decreased from 1.34% in 1981 to 0.7% in 1989. The cesarean section

rate increased from 6.7% in 1981 to 9.1% in 1989. The maternal mortality rate over the period was 1140 per 100, 000 births (Walfish, Neuman, & Wlody, 2019).

Accesses to effective contraception, sex education, and appropriate support for women who want to have children are effective means of reducing induced abortion, and less restrictive laws almost completely eliminate the problem of unsafe abortion and its health consequences. In the 1994 International Conference on Population and Development and the 1995 Fourth World Conference on Women, world governments agreed to "deal with the health impact of unsafe abortion as a major public health concern" (UN, 1995). Nevertheless, implementation of this commitment is still missing in many countries (Faundes & Alvarez, 2018).

Maternal deaths from HDP can probably be reduced drastically by: Promoting antennal care and instituting a recall system for defaulters; instituting regional centers and regional obstetricians to provide advice on, or care for, women with severe pre-eclampsia and educating health professional through professional education; the use of clinical guidance of management and informing the general public of complications associated with the pre-eclampsia /eclampsia. Sepsis is the second most frequent cause of maternal mortality and it can eliminate if aseptic techniques are respected and if early signs of infections are recognizing and treated in a timely manner. Although pre-eclampsia cannot be completely cured before the delivery, administering drugs such as magnesium sulphate can lower a woman risk of developing convulsions (eclampsia), which can be fatal (WHO, 2016).

The simple tool in for monitoring labour is the partograph; this is a graph use to monitor the progress of labour, maternal and fetal conditions. Skilled practitioners can use the partograph to identify and deal with slow progress before labour becomes obstructed and if necessary, ensured caesarean section is performed in time to save the mother and the baby (WHO, 2017)

The US agency for international development (USAID) identifies critical factors for improving adolescent maternal health: encouraging young women to use prenatal to identify and treat malaria, anemia, and other health issues; providing obstetric care to ensure safe delivery of young mothers and their infants; and postnatal care to identify postpartum health issues, and offer contraception to accomplish birth spacing (Graczyk, 2017).

Bleeding during early pregnancy may indicate threatened abortion. In late pregnancy, it suggests problems in placentation. The danger of haemorrhage is that in anaemic women, even a small amount of blood loss can be fatal. Postpartum haemorrhage is one of the most common reasons for blood transfusion, an intervention that has become dangerous with the advent of HIV/AIDS (Kodjo, 2016).

Severe bleeding after delivery can kill a healthy woman within 2hours if she is unattended. Injection of oxytocin immediately after childbirth effectively reduces the risk of bleeding (WHO, 2017).

CHAPTER THREE

MATERIALS AND METHODS

3.0 Introduction

This chapter details, the study area and study population, study design, sampling techniques, data collection method and instrument, data analysis techniques, ethical consideration, and the limitations of the study.

3.1 Study area

The study was conducted at the Holy Family Hospital, Berekum, Happy Hospital, Berekum and Aggie maternity home. Holy Family Hospital is a Christian Health Association of Ghana (CHAG) facility under the National Catholic Health Service (Catholic Diocese of Sunyani). The facility is located on the Biadan road, and 36.8km from Sunyani which serves as a Municipal Hospital. Due to the strategic location of the hospital, patients from other parts of Ghana and neighboring countries like La Cote D'Ivoire visit the hospital. The hospital has a bed capacity of about 250 beds and provides services such as; inpatient (Paediatric, Males, Females, and Surgical) wards, outpatient, Reproductive and Child Health Clinic, Maternity and Labour and Emergency, Psychiatric unit, Eye clinic: Ear, Nose and Throat clinic, Dental clinic and Theater. The Post-Natal services are part of the Reproductive and child health department where care is provided for babies and mothers on five (5) working clinic days per week.

Happy hospital is private hospital located in Berekum off the old Sunyani Road. The hospital has provided services such as; inpatient, out-patient and emergencies.

Aggie maternity clinic is a private maternity home which is also located in Berekum. It renders care to pregnant women who visits for antenatal, delivery and post-natal.

3.2 The study population

The target population is the health workers at Holy Family Hospital, Happy Hospital and Aggie maternity home whereas the accessible population are all midwives at these hospitals.

3.3 Study design

A descriptive study design was used for the study. This design was used for the study because there was the need to describe the characteristics of the phenomenon being studied. The design also allows for us to observe the students in their natural and unchanged environment. The data collection in descriptive research allows for the gathering of in-depth information about the research problem.

3.4 Sampling technique and Size

The proportionate stratified sampling technique was used to select samples for the study. This was chosen because sampling is made from all the strata thereby making the overall sample unbiased as well as ensuring that equal proportions of each stratum are well represented.

The accessible population for the study is midwives at Holy Family Hospital, Happy Hospital and Aggie maternity home, Berekum. They were grouped into their various classes (stratum), that is Midwives at Holy Family Hospital (G1), midwives at Happy Hospital (G2), and midwives at Aggie maternity home (G3). The sample size for the study was 90 midwives. The total number of midwives from each stratum was obtained by dividing the sample size of the study by the population size and multiplying the result by the total number of students in each stratum. A lottery method was used to recruit the midwives for the sample.

3.5 Data collection methods and instruments

Data collection was done through the use of structured questionnaires consisting of both closed-ended and open-ended questions for easy expression of views and ideas. This was chosen as the method of data collection because it is relatively cheaper, avoided

embarrassment on the part of the respondents, and the complete anonymity of respondents. Questionnaires were shared with the students in their various groups during the work period. We explained to them how the questionnaires were to be filled. Each student used a maximum of 20 minutes to complete the questionnaire.

3.6 Data analysis techniques

The data obtained from the study were checked for accuracy, utility, and completeness. The data were coded and analyzed using Microsoft Excel and the results were presented in tables or figures.

3.7 Ethical consideration

An introductory letter was sent to the Management of these Hospitals for approval to conduct the study. Participants were informed of the benefits, risks, purpose, and procedure of the study and their right to withdraw from the study at any point without penalty. All participants agreed voluntarily to be part of the study. Respondents were assured of anonymity and confidentiality by not providing any form of identification on the questionnaire. However, identification codes were used to represent the respondent according to their chronologic entry into the study.

3.8 Limitation of the study

The limitations to this study were, the limited time with which we had to complete the study and the smaller sample size that was chosen for the study. Because the sample size was small, we could not generalize the study findings.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.0 Data Presentation & Analysis

This chapter deals with the analysis of data collected from the field of study and the results obtained from the analysis. The study findings are presented in tables or figures.

4.1 Demographic Profile of Respondents

Table 1: Age Distribution of Respondents

Variable	**Categories**	**Frequency (n)**	**Percentage (%)**
Age	18-22	10	11
	23-27	45	50
	28-32	20	22
	Above 32	15	17

From Table 1, half of the respondents (50%) were aged between 23-27 years, less than half of the respondents (22%) were aged between 28-32 years. Few of the respondents (17%) were aged above 32 and 11% were aged between 18-22 years.

Table 2: Marital Status of Respondents

Variable	Categories	Frequency (n)	Percentage (%)
Marital Status	Single	20	22
	Married	68	76
	Divorced	2	2

Most of the respondents (76%) were married and 20% of the respondent were single. Only 2% of the respondents were divorced.

Table 3: Profession of Respondents

Variable	Categories	Frequency (n)	Percentage (%)
Program	Registered Nurse	0	0
	Registered Midwife	90	100
	Medical Doctor	0	0

All of the respondents were registered midwives by profession.

4.2 Prevalence of Maternal Mortality

Table 4: Number of deliveries by Respondents

Variable	Categories	Frequency (n)	Percentage (%)
Number of deliveries in a month	5-10	17	19
	11-15	57	63
	16-20	16	18

From table 4, majority of the respondents (63%) delivers 11-15 pregnant women in a month, 19% of the respondents delivers 5-10 pregnant women in a month and 18% of the respondents delivers 16-20 pregnant women in a month.

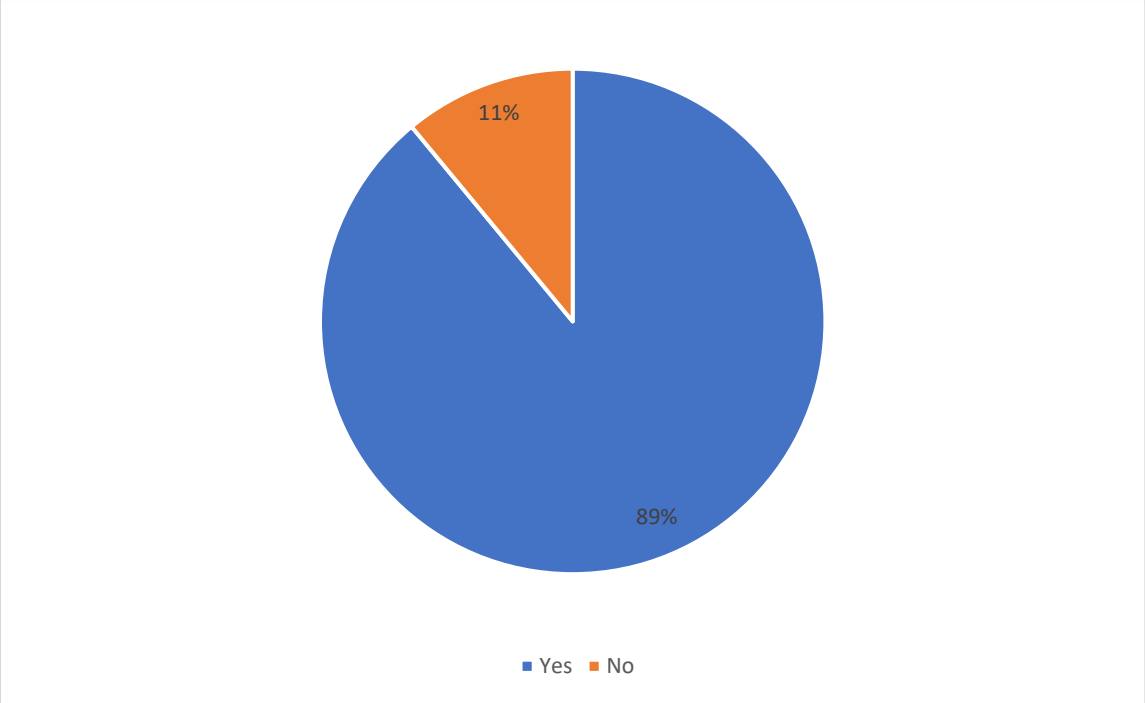

Figure 1: Respondents observance of maternal mortality

From figure 1, majority of the respondents (89%) indicated that they have observed maternal mortality while 11% of the respondents indicated they have not observed maternal mortality.

Table 5: Number of maternal deaths

Variable	Categories	Frequency (n)	Percentage (%)
Number of maternal deaths in a month.	1-3	2	2
	4-7	5	6
	Above 7	1	1

From table 5, majority of the respondents (6%) recorded 4-7 maternal deaths in a month, 2% of the respondents records 1-3 maternal deaths in a month and only 1% of the respondents records above 7 maternal deaths in a month.

4.3 Causes of Maternal Mortality

Table 6: Leading cause of maternal mortality.

Variable	Categories	Frequency (n)	Percentage (%)
Leading cause of maternal mortality	Haemorrhage	70	78
	Sepsis	56	62
	Diarrhea	30	33
	Eclampsia	89	99
	Pre-eclampsia	80	89
	Abortion	87	96
	Fever	67	74
	Malaria	52	58

From table 6, majority of the respondents (99%) indicated eclampsia to be the leading cause of maternal mortality, 89% indicated pre-eclampsia as the leading cause of maternal mortality, 96% of the respondents indicated abortion as the leading cause of maternal mortality, 78% of the respondents indicated haemorrhage as the leading cause of maternal mortality, 74% of the respondents indicated fever to be the leading cause of maternal mortality, 62% of the respondents indicated sepsis to be the leading cause of maternal mortality, 58% of the respondents indicated malaria as the leading cause of maternal mortality and only a few of the respondents (33%) indicated diarrhea as the leading cause of maternal mortality.

Table 7: Cause of maternal mortality.

Statement		Strongly Disagree	Strongly Agree	Neutral
Hypertension can cause maternal mortality?	n	2	88	0
	%	3	97	0
Not attending antenatal care can cause maternal mortality?	n	16	69	5
	%	17	76	7
Young age can cause maternal mortality?	n	26	56	8
	%	28	62	10

From table 7, 97% of the respondents strongly agreed that hypertension can cause maternal mortality and 3% of the respondents strongly disagreed to this assertion.

Majority of respondents (76%) strongly agreed that not attending antenatal care can cause maternal mortality, 17% of the respondents strongly disagreed to this assertion and only 7% of the respondents indicated neutral to this assertion.

Most of the respondents (62%) strongly agreed that young age can cause maternal mortality, 28% strongly disagreed that young age can cause maternal mortality and 10% of the respondents indicated neutral to this assertion.

In soliciting for ideas on the causes of maternal mortality, respondents were asked the risk factors of maternal mortality. The following were their respondents; obesity (89%), diabetes (78%), thyroid disease (54%), heart diseases (67%), smoking cigarettes (80%), drinking alcohol (66%) and infection (90%).

4.4 Interventions to reduce Maternal Mortality

Respondents asked to mention ways to reduce maternal mortality. The following were the responses provided; attending regular antenatal visit, early detection and treatment of diseases, controlling of hemorrhage and provision of quality services helps to reduce maternal mortality.

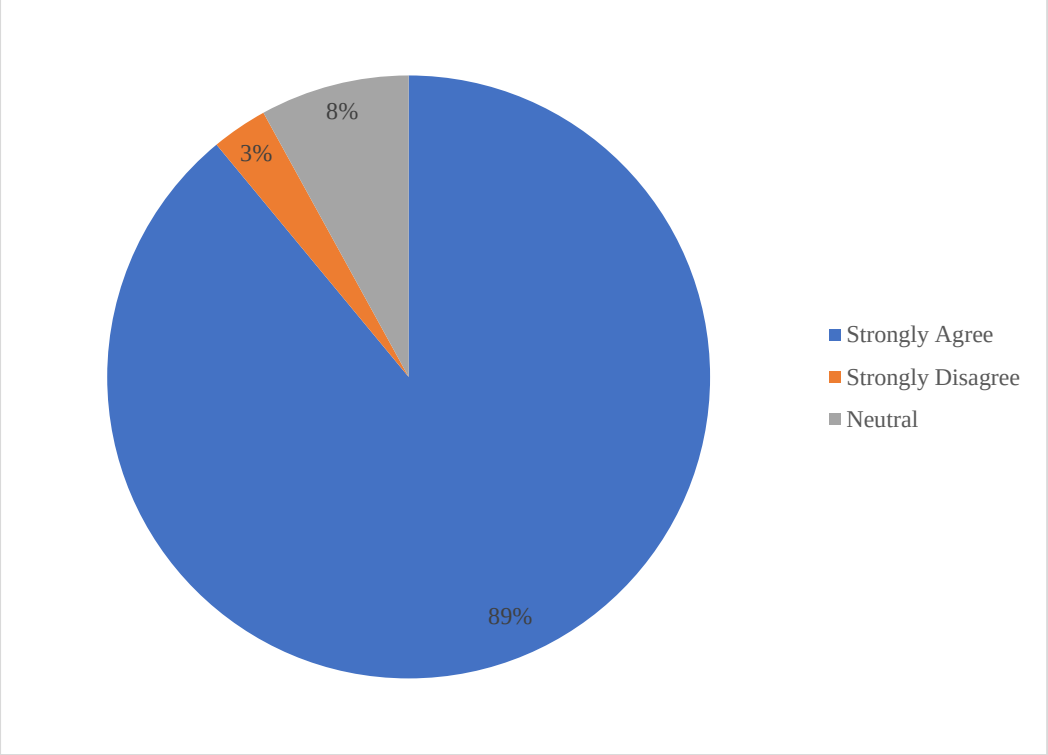

Figure 2: Partograph as tool to reduce maternal mortality

From figure 2, majority of the respondents (89%) strongly agreed that partograph is a tool used that helps reduce maternal mortality, 3% of the respondents strongly disagreed and 8% of the respondents indicated neutral to this assertion.

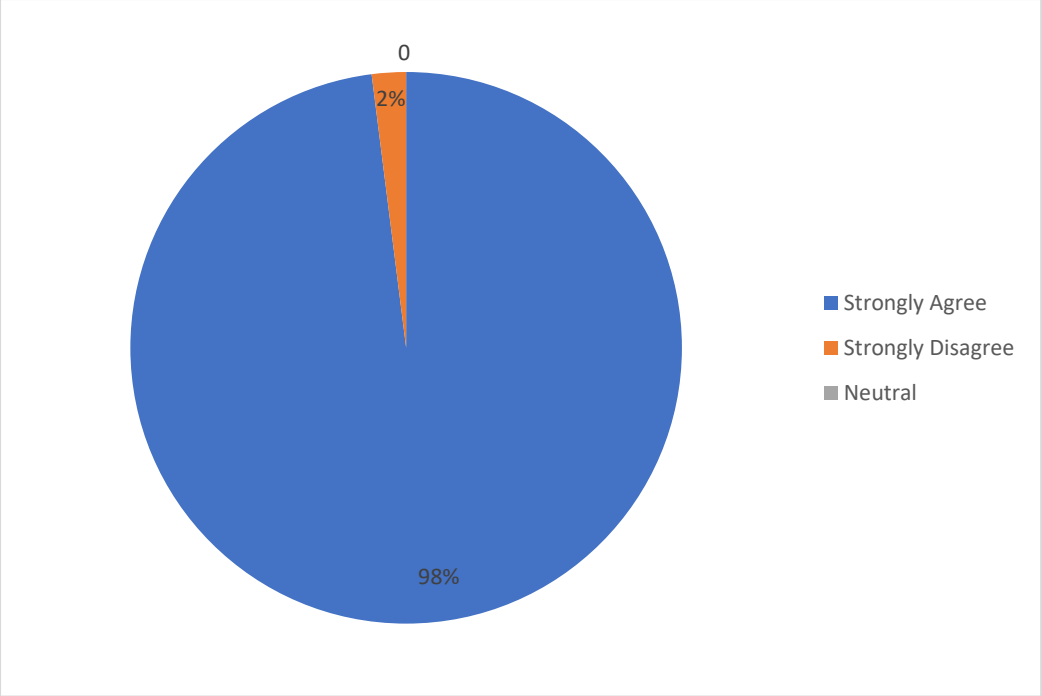

Figure 3: Early detection and treatment of abnormalities can reduce maternal mortality

From figure 3, almost all of the respondents (98%) strongly agreed that early detection and treatment of abnormalities can reduce maternal mortality while only 2% of the respondent strongly disagreed to this assertion.

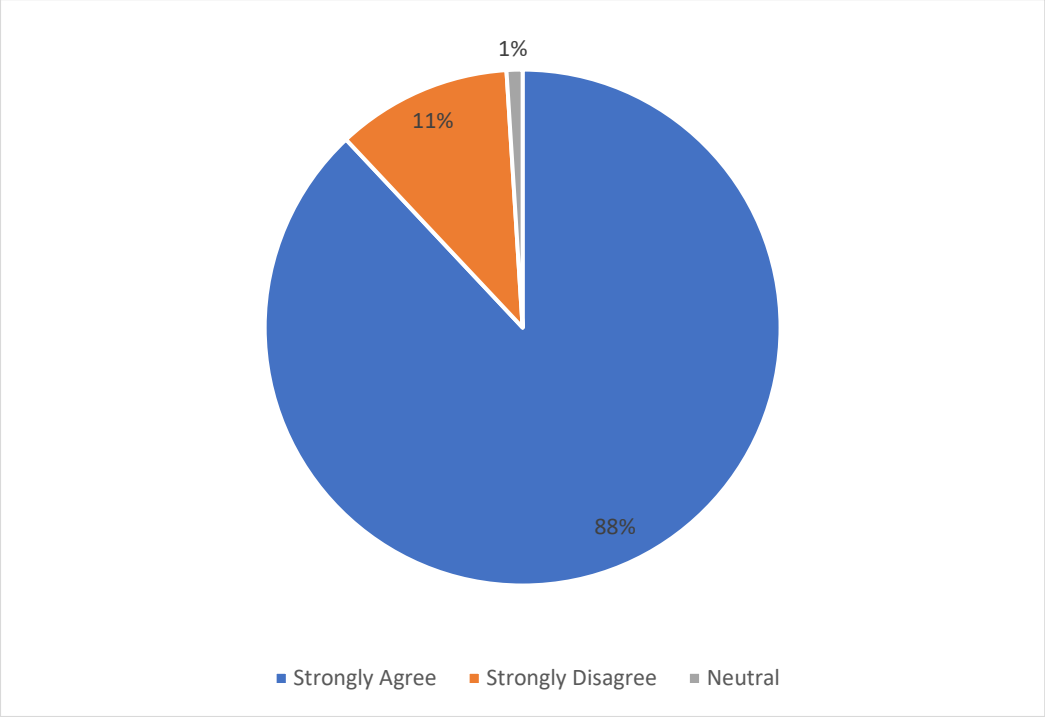

Figure 4: Adequate staffing can reduce maternal mortality.

From figure 4, 88% of the respondents strongly agreed that provision of adequate staffs at the hospital is a best way to reduce maternal mortality, 11% strongly disagreed and only 1% of the respondent indicated neutral to this assertion.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This chapter provides an in-depth look at the major findings that emerged out of the research, comparison of the analyzed data with findings from other literature, conclusion, and recommendations.

5.1 Discussions

5.1.1 Prevalence of Maternal Mortality

Majority of the respondents (89%) indicated that they have observed maternal mortality and majority of the respondents (6%) recorded 4-7 maternal deaths in a month, 2% of the respondents records 1-3 maternal deaths in a month and only 1% of the respondents records above 7 maternal deaths in a month. These studies are in line with a study conducted by Lucy (2023), which states that the annual count of maternal deaths amounts to several hundred across all states a figure comparatively lower than fatalities from other medical conditions. Again, African health Organization (2020), conducted a study that Maternal mortality is unacceptably high. About 830 women die from pregnancy or childbirth related complications around the world every day.

5.1.2 Causes of Maternal Mortality

Majority of the respondents (99%) indicated eclampsia to be the leading cause of maternal mortality, 89% indicated pre-eclampsia as the leading cause of maternal mortality, 96% of the respondents indicated abortion as the leading cause of maternal mortality, 78% of the respondents indicated haemorrhage as the leading cause of maternal mortality, 74% of the respondents indicated fever to be the leading cause of maternal mortality, 62% of the respondents indicated sepsis to be the leading cause of maternal mortality, 58% of the

respondents indicated malaria as the leading cause of maternal mortality and only a few of the respondents (33%) indicated diarrhea as the leading cause of maternal mortality. Also, most of the respondents strongly agreed that hypertension (97%), not attending antenatal care (76%) and young age (62%) can cause maternal mortality.

This study is in line with a study conducted by Asamoah (2018) on the causes of maternal mortality. He stated that the causes of maternal mortality are usually sub-grouped into direct and indirect causes. Direct causes of maternal mortality as indicated in previous studies conducted in Ghana include haemorrhage (postpartum and ante partum), abortion, miscarriage, sepsis, obstructed labour, ectopic pregnancy, pre-eclampsia, eclampsia and embolism. The indirect causes of maternal mortality are mostly infectious and non-infectious diseases and other miscellaneous causes. These indirect causes include mainly malaria, HIV/AIDS, hepatitis, respiratory infections, anaemia, sickle cell disease, meningitis, cerebrovascular diseases and others. Again, Lewis and Drife (2021) stated that the six main causes of maternal mortality are: thrombosis and thromboembolism, early pregnancy death (ectopic pregnancy, miscarriage, termination), pregnancy induced hypertension, sepsis, amniotic fluid embolism, and haemorrhage.

5.1.3 Interventions to reduce Maternal Mortality

Respondents asked to mention ways to reduce maternal mortality. The following were the responses provided; attending regular antenatal visit, early detection and treatment of diseases, controlling of hemorrhage and provision of quality services helps to reduce maternal mortality. This finding is in line with a study conducted by WHO (2016), the study concluded that a new program which was launched by WHO is making pregnancy safe (MPS), it was initiated to address three targets: Prevention and management of unwanted pregnancy and unsafe abortion; skilled care during pregnancy and childbirth and access to referral care when complication arises. Maternal deaths from HDP can probably be reduced

drastically by: Promoting antennal care and instituting a recall system for defaulters; instituting regional centers and regional obstetricians to provide advice on, or care for, women with severe pre-eclampsia and educating health professional through professional education.

Majority of the respondents (89%) strongly agreed that partograph is a tool used that helps reduce maternal mortality. This finding is similar to a study conducted by WHO (2017). The study concluded that the simple tool in for monitoring labour is the partograph; this is a graph use to monitor the progress of labour, maternal and fetal conditions. Skilled practitioners can use the partograph to identify and deal with slow progress before labour becomes obstructed and if necessary, ensured caesarean section is performed in time to save the mother and the baby.

5.2 Conclusion

1. Majority of the respondents (63%) delivers 11-15 pregnant women in a month.
2. Majority of the respondents (89%) indicated that they have observed maternal mortality.
3. Majority of the respondents (99%) indicated eclampsia to be the leading cause of maternal mortality.
4. Most (78%) of the respondents indicated haemorrhage as the leading cause of maternal mortality.
5. Almost all (97%) of the respondents strongly agreed that hypertension can cause maternal mortality.
6. Majority of the respondents (89%) strongly agreed that partograph is a tool used that helps reduce maternal mortality.
7. Almost all of the respondents (98%) strongly agreed that early detection and treatment of abnormalities can reduce maternal mortality.

5.3 Recommendation

1. All pregnancy women should visit the antenatal clinic regularly for checkup.
2. Early detection and treatment of disease should be enhanced by healthcare providers to help reduce maternal mortality.
3. Government should provide adequate staffs at the maternity clinics and hospitals to aid pregnant women before, during and after pregnancy.

REFERENCES

Asamoah, T. (2018). Distribution of causes of maternal mortality among different socio-demographic groups in Ghana; a descriptive study. *Journal of health science*.

Faundes, R., & Alvarez, T. (2018). Losing lives in the process of giving lives: How is Ghana Dealing with Maternal Mortality? *Journal of health sciences*.

Goodman, D., & Callaghan, W. (2019). Measuring maternal mortality.

Ghana Health Service (GHS) (2017). Macro International: Ghana Maternal Health Survey.

Graczyk, K. (2017). Adolescent Maternal Mortality: An overlook Crisis.

Jasper, C. (2018). Causes of maternal mortality in a semi-urban Nigeria setting. *World health forum*.

Kodjo, S. (2016). Maternal Mortality in Ghana: The Other side. *Research review of the Institute of African Studies*.

Kwame, S. (2016). Maternal mortality in Ghana: the other side. *Research Review* , 47-55.

Lewis, F., & Drife, H. (2021). Applying the WHO ICD-MM classification system to maternal deaths in a tertiary hospital in Nigeria: A retrosepctive analysis from 2014-2018. *Journal pone*.

Lucy, T. (2023). Why maternal mortality rates are getting worse across the U.S. *Scientific American*.

Mensah, R. (2018). Losing one's live in birth delivery.

Mhyre, J. M. (2018). Maternal Mortality.

Mills, S., Williams, J., Wak, G., & Hodgson, A. (2018). Maternal MortalityDeclince in the Kassena-Nankana District of Northern Ghana. *Maternal Child Health Journal* , 577-585.

Moussa, G., & Stafstrom, M. (2018). Distribution of causes of maternal mortality in Ghana.

Ohaja, M., & Anyim, C. (2021). Rituals and Embodies cultural practices at the beginning of life: African Perspectives.

Thompson, K. (2021). Why do Developing Countries have so many Health Problems?

Vogel, J. P., Pileggie-Castro, C., Chandra-Mouli, V., Pileggi, V. N., Souza, J. P., Chou, D., & Say, L. (2019). Millennium Development Goal 5 and adolescents: looking back, moving forward. *Archieves of disease in childhood*.

Walfish, M., Neuman, A., & Wlody, D. (2019). MAternal Haemorrhage. *Bristish Journal of Anaethesia*.

APPENDIX

HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE, BEREKUM

QUESTIONNAIRE

INTRODUCTION

Dear Respondent,

We are students of the above institution researching the topic; The leading causes of maternal mortality among health workers at St. Mary's Hospital, Drobo, Happy Hospital, Berekum and Anuty Aggie Maternity home, Berekum

Kindly answer the under-listed questions by ticking (√**)** the appropriate box or writing in the space provided. Any information you provide is confidential. Your opinion is neither considered right nor wrong. You can choose to withdraw your participation at any time. It will take approximately 30 minutes to answer this questionnaire.

Thank you.

PLEASE TICK [√] THE APPROPRIATE BOX WHERE APPLICABLE

SECTION A: Demographic Data

1. Age: A. 18-22 [ ] B. 23-27 [ ] C. 28-32 [ ] D. Above 32 [ ]

2. Marital status: A. Single [ ] B. Married [ ] C. Divorced [ ]

3. Profession: A. Registered Nurse [ ] B. Registered Midwife [ ] C. Medical Doctor [ ] D. Others; Specify……

PLEASE TICK [√] THE APPROPRIATE BOX WHERE APPLICABLE

SECTION B: Prevalence of Maternal Mortality

4. How many pregnant women do you deliver in a month?

a. 5-10 [ ] b. 11-15 [ ] c. 16-20 [ ] d. Specify [ ]……

5. Have you ever witnessed or observed maternal mortality?

a. Yes [ ] b. No [ ]

6. How many maternal deaths do you record every month?

……

SECTION C: Causes of Maternal Mortality

Select all that apply

7. What is the leading cause of maternal mortality

a. Haemorrhage [ ]
b. Sepsis [ ]
c. Diarrhea [ ]
d. Eclampsia [ ]
e. Pre-eclampsia [ ]
f. Abortion [ ]
g. Fever [ ]
h. Malaria [ ]
i. Others (specify):……..

No.	Statement	Strongly Disagree	Strongly Agree	Neutral
8.	Hypertension can cause maternal mortality?			
9.	Not attending antenatal care can cause maternal mortality?			
10.	Young age can cause maternal mortality?			

11. Mention 5 risk factors of maternal mortality

a. ……

b. ……

c. ……

d. ……

e. ……

SECTION D: Interventions to reduce Maternal Mortality

12. State any 3 ways to reduce maternal mortality

a. ……

b. ……

c. ……

13. Partograph is a tool used to help reduce maternal mortality

a. Strongly agree [ ] b. Strong Disagree [ ] c. Neutral [ ]

14. Early detection and treatment of abnormalities can reduce maternal mortality?

a. Strongly agree [ ] b. Strong Disagree [ ] c. Neutral [ ]

15. Provision of adequate staffs in the hospital is a best way to reduce maternal mortality?

a. Strongly agree [ ] b. Strong Disagree [ ] c. Neutral [ ]

RESEACH TOPIC

AN EXPLORATORY STUDY TO DETERMINE THE LEADING CAUSES OF MATERNAL MORTALITY AMONG HEALTH WORKERS AT ST. MARY'S HOSPITAL, DROBO, HAPPY HOSPITAL, BEREKUM AND AUNTY AGGIE MATERNITY HOME, BEREKUM.

STUDENTS NAME

1. ANABA JENNIFER
2. DARKWAH MARY
3. AGYIEWAA SANDRA

THE SUPERVISOR
NAME: MS. CELESTINE AHIAWORNU
SIGNATURE .....

THE MANAGER,

ST. MARY'S HOSPITAL

POST OFFICE BOX 14

DROBO.

THE MANAGER

HAPPY HOSPITAL

POST OFFICE BOX 167

BEREKUM.

THE MANAGER

AUNTY AGGIE MATERNITY HOME

POST OFFICE BOX 396

BEREKUM.

NATIONAL CATHOLIC HEALTH SERVICE (DIOCESE OF SUNYANI)
HOLY FAMILY NURSING AND MIDWIFERY TRAINING COLLEGE
BEREKUM

BANKERS:
Ghana Commercial Bank, Berekum
Agric Development Bank, Berekum
Fidelity Bank, Berekum

P. O. Box 21,
Berekum, B/A
Ghana, W/Africa
Tel. 0352222124
Fax: 0352222474

Our Ref. HFNMTC/GC/011/080723

Your Ref. .....

Date August 07, 2023

TO WHOM IT MAY CONCERN

PERMISSION TO CONDUCT RESEARCH

I wish to introduce to you the under listed names of final year students of the College:

1. **Anaba Jennifer**
2. **Darkwah Mary**
3. **Agyeiwaa Sandra**

As part of the pre-requisite for the award of Diploma in Midwifery they are to conduct a research study, on the topic **'An exploratory study to determine the leading cause of Maternal Mortality among Health Workers at St. Mary's Hospital, Drobo, Happy Hospital, Berekum and Aunty Aggie Maternity Home, berekum.'**

I would be grateful if you could assist them with any material or help they may need to accomplish this task.

Thank you.

Yours sincerely

.....
Celestine Ahiawornu
Supervisor

For: Principal

Website: nmtcberekum.edu.gh **E-mail.** nmtcberekum@yahoo.com, nmtcberekum@gmail.com