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THESIS ON COMMUNITY MEDICINE

Submitted in Partial Fulfilment of the Award of MBChB Degree in Medicine and Surgery

Topic: Incidence and Mortality of Postpartum Haemorrhage Cases at the Edward Francis Small Teaching Hospital, Banjul, January to December 2018

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DEDICATION

To my beloved Father, Mother, Joseph Blamo and Ashu Hailshamy, I dedicate this thesis to you all for so many reasons, one for standing by me through every storm and difficult times.
Dad, thank you for all your unflinching support, love, benevolence, and encouragement throughout the years. Thank you particularly for being that role model for me and my siblings.

Mummy, I thank you for being my backbone, best friend and intercessor every day and for always being there to counsel and encourage me when the going gets tough.

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ABSTRACT

BACKGROUND: Postpartum Haemorrhage (PPH) is define as blood loss of 500mls or above. It is the most common cause of premature maternal morbidity and mortality worldwide. Globally it occurs about 8.7 million times and results in 44,000 to 86,000 deaths per year making PPH the leading cause of postnatal death. In the Gambia, woman still die every day due to postpartum haemorrhage which is devastating for many families.

OBJECTIVE: To evaluate the incidence and mortality of postpartum hemorrhage cases, at the Edward Francis Small Teaching Hospital.

METHOD: A retrospective quantitative cross-sectional study conducted at the Edward Francis Small Teaching Hospital. 134 women who met the eligibility criteria were chosen and the data was collected from their folders at the Obstetrics department with no contact to the patients or caregivers. A questionnaire was used to collect the data and the data were analyzed using SPSS software version 24.0.

RESULTS: The study revealed that the incidence of PPH was 74.6% within the period under review. It also shows that the most common causes of PPH were specified (laceration) and unspecified causes, each of them having a value of 27.6%. Majority of the deliveries were spontaneous vaginal delivery (SVD) at a rate of 87.3%, referred cases at 78.4%, while 95.5% of the patients were managed medically. The total mortality was 21(100%) with the highest cause of mortality being PPH at 14(66.7%). The most common causes of PPH related deaths were unspecified at 33.3%, while the specified causes had uterine atony at 14.3% as the most common cause, which was not different from the study conducted in the Gambia in 2014 which revealed that hemorrhage (26.5%) was the commonest cause of maternal mortality in the period under review(3).

CONCLUSION: On the basis of the findings of this study, it was concluded that the incidence and mortality of PPH is still a major health concern in The Gambia among postpartum mothers which has not changed much, over the years.

CHAPTER 1

INTRODUCTION

BACKGROUND

Postpartum Hemorrhage (PPH) is the leading cause of maternal morbidity and mortality in low-income countries, and the primary cause of nearly one quarter of all maternal deaths globally(1). Women can quickly bleed and die soon after giving birth and most of the deaths occur during the first 24 hours after birth results from PPH. Women giving birth in low-resource settings are at a higher risk of death than their counterparts in resource-rich settings, which can be a withering for most families.

In the developing world about 1.2% of deliveries are associated with PPH and when PPH occurred about 3% of women died. Globally it occurs about 8.7 million times and results in 44,000 to 86,000 deaths per year making PPH the leading cause of death during pregnancy. About 0.4 women per 100,000 deliveries die from PPH in the United Kingdom while about 150 women per 100,000 deliveries die in sub-Saharan Africa(2).

A systematic review reported the highest rates of PPH in Africa (27.5%), and the lowest in Oceania (7.2%), with an overall rate globally of 10.8%. The rate in both Europe and North America was around 13%. The rate is higher for multiple pregnancies (32.4% compared with 10.6% for singletons), and for first-time mothers (12.9% compared with 10.0% for women in subsequent pregnancies)(2). The overall rate of severe PPH (>1000 ml) was much lower at an overall rate of 2.8%, again with the highest rate in Africa (5.1%) and The Gambia is not an exception.

In 2014, a study was conducted from the period (January 1st 2007-December 31st 2014) citing that maternal mortality including PPH in the Gambia has been on a decrease since the 1990s, currently at 2.29% decrease but not much decline in the maternal mortality ratio as well as PPH has occur at the EFSTH, which accounts for 30% of the 340 annual maternal deaths in the Gambia with death from Hemorrhage being (26.5%)(3).

Common causes of PPH are uterine atony, trauma, retained placenta or placental abnormalities, and coagulopathy, commonly referred to as the "four Ts." Other risk factors include obesity, fever during pregnancy, bleeding before delivery, and heart disease(2).

The majority of PPH could be avoided through the use of prophylactic uterotonics after the delivery of the baby and active management of the third stage of labor timely and appropriately.

This study is a retrospective study designed to determine the incidence and mortality rates of PPH at Edward Francis Small Teaching Hospital, the only tertiary and main referral hospital in The Gambia.

1.1. Significance of the study

This study evaluated the burden of postpartum hemorrhage and its degree of impact at the Edward Francis Small Teaching Hospital. This study revealed that the incidence and mortality level of PPH is still very high and more awareness needs to be made. It is intended and hoped that the results of this research will also serve as a resource, (a source of reference) for further research in this field and to help guide and inform policies aimed at reducing the incidence of PPH in the obstetrics and gynecology department of the EFSTH and other hospitals in the country.

1.2. Research Problem

Postpartum Hemorrhage is still the major cause of maternal morbidity and mortality in sub-Saharan Africa. In the Gambia, women giving birth at health facilities or home are still at a greater risk of developing PPH because reasons have not changed remarkably either. As late arrival to hospital due to delay in decision and transport, poor awareness, late recognition and detection of signs and symptoms and poor management strategies still persist. Also, availability of compatible blood and donors has remained a challenge. A study conducted in 2014 by Idoko et al(3) at the EFSTH, found out that PPH was the most common cause of maternal mortality under the period of review(3).

1.3. Research Question

The following questions were answered through this research:

- What is the incidence and mortality of postpartum hemorrhage cases at the EFSTH from January 1 – December 31 2018?
- What is the overall mortality rates of postpartum hemorrhage?
- What are the common causes of mortality amongst patients diagnosed with postpartum hemorrhage?
- What are the main socio-demographic characteristics of patients diagnosed with postpartum hemorrhage?
- What are the common obstetrics characteristics of patients?

1.4. Objectives of the study

General objective:

- To evaluate the incidence and mortality of Postpartum Hemorrhage cases at the EFSTH from January 1 – December 31 2018.

Specific objectives:

- To know the common causes of postpartum hemorrhage cases.
- To determine the mortality rate of postpartum hemorrhage.
- To identify the socio-demographic of patients diagnosed of postpartum hemorrhage.

1.6. Delimitation of the study

PPH is a serious issue, affecting postpartum women in the entire country, but only woman that was diagnosed or admitted at the EFSTH in relations to PPH will be considered in the research. All hospital records of patients diagnosed of postpartum hemorrhage in the department from January 1st - December 31st 2018 were reviewed.

1.7. Limitation of the study

- Due to poor record keeping, important information for the purpose of this research was missing (some details like causes of PPH related deaths) or some patient's folders were not seen.
- EFSTH is a referral hospital, some patients are likely brought in as emergencies and they did not have their pre and intra partum history correctly filled.
- Because this is a retrospective study, I won't be able to interview patients directly about their pre, intra and postpartum experiences.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

The lifetime risk of dying from pregnancy or childbirth ranges from about one in 39 in sub-Saharan Africa to 1 in 3800 in developed countries(4). Hemorrhage continues to be one of the leading causes of maternal death in developing countries, and the predominant cause in Africa (34%) and Asia (31%)(4). PPH defined as blood loss ≥ 500 mL following spontaneous virginal delivery (SVD), occurs in approximately 6% of deliveries globally and severe PPH (≥ 1000 mL) following cesarean section in an additional 1.8%, with wide variation across regions of the world(4).

PPH can be divided into two types: Early(primary) PPH which occurs within 24 hours of delivery, and Late(secondary) postpartum hemorrhage, which occurs 24 hours to 6 weeks after delivery(5). Most cases of postpartum hemorrhage, greater than 99%, are early PPH(5).

2.1.1. Causes:

The causes of PPH include: Uterus without muscle tone or Uterine atony(most common cause of PPH), Trauma, Retained tissues, Drugs and Coagulation disorders(6). A study was conducted in India in 2014 that reported uterine atony as the leading cause of PPH in 79.17% of cases, traumatic was in 16.67% and retained placenta in 4.16%(7). Also in Suriname (South America), December 18, 2020 a study done showed that uterine atony (56.7%) and retained placenta (19.4%), were the main causes of severe PPH(8).

2.1.2. Risk Factors:

Risk factors includes: Retained placenta, Failure to progress during the second stage of labor, Placenta accrete, Lacerations, Instrumental delivery, Large-for-gestational-age (LGA) newborn, Hypertensive disorders, Induction of labor, Augmentation of labor with oxytocin(9). Women with a history of severe PPH are at highest risk of severe PPH. The strongest risk factors for severe PPH is history of severe PPH, anticoagulant medication, anemia, severe preeclampsia or HELLP syndrome, uterine fibromas, and multiple pregnancy(10).

Risk factors of PPH also varies relatively between studies, from one region to another. A recent study, Fukami T. 2019 found that the risk factors of PPH include: the use of assisted reproductive treatment (ART), Pregnancy Induced Hypertension, severe vaginal/perineal lacerations and macrosomia, while another study by Oyelese and Ananth conducted in America, reported spontaneous delivery, caesarean section, forceps delivery, labour induction, non-use of oxytocin or other uterotonic agents in the third stage of labour, history of PPH, multiple pregnancies and fetal macrosomia as risk factors of PPH(11).

2.2. Incidence of Postpartum Hemorrhage:

Globally, PPH is the leading cause of maternal deaths and is responsible for 25% of deaths annually(12). It is the leading cause of maternal mortality in sub-Saharan Africa. The region has poor health care facilities that are inadequate and inaccessible due to financial constraints. Most of the maternal deaths in this region are avoidable. Women giving birth in these regions face a far greater risk of dying in childbirth than their counterparts in resource-rich regions (13).

A study done among rural women in Uganda in April 2016, revealed that the magnitude of PPH in sub-Saharan Africa is high at 10.5 % and in Uganda, PPH causes 25 % of all maternal death. The incidence of postpartum hemorrhage was high in their setting despite use of uterotonics(14). Also in a recent study conducted in Mozambique in March 2020,

stated that Mortality due to PPH is especially high in the immediate postpartum period, accounting for 30% to 50% of maternal deaths(15).

2.3. Prevalence of Postpartum Hemorrhage:

According to a study done in July 2012, it was estimated that the global prevalence of PPH (≥500 ml) to be 10.8% and of severe PPH (≥1000 ml) to be 2.8%. However, there was wide regional variation in PPH prevalence, ranging from 7.2% of women giving birth in Oceania, Just over 8% ml in both Latin America and Asia, 13% in Europe and in Northern America to 25.7% in Africa. Whilst the overall prevalence of severe PPH was much lower, Africa had the highest prevalence of 5.1%, followed by 4.3% in Northern America, with the lowest prevalence in Asia at 1.9%(16).

The reported prevalence of PPH in the Democratic Republic of Congo in 1997 was 16%, Mozambique 2007/08 was 14%, Senegal 2002 was 22%, South Africa 2002/03 was 10%, Tanzania 1998 was 23%, Zambia 1998 was 28 and Zimbabwe 2001 was 19%(17). In south Ethiopia, in 2017, the prevalence of primary postpartum hemorrhage was 5.9% and 3.8% of mothers died during the study period(18). In April 2013, a study done in Nigeria revealed that the prevalence of PPH during the study period was 1.6, 3.9 and 3.4% in the tertiary, secondary and primary healthcare institutions respectively. This study showed that prior booking of pregnant women for antenatal care was associated with lower prevalence of PPH as higher prevalence was recorded among unbooked clients (17).

2.4. Postpartum Hemorrhage in relation to maternal morbidity:

PPH remains a major cause of maternal mortality and morbidity like hypovolemic shock, anemia, multi organ failure, consumptive coagulopathy, disseminated intra vascular coagulation (DIC), blood transfusion related complications and hysterectomy leading to loss of childbearing potential(19). It has furthermore been suggested that PPH contributes disproportionately to severe maternal morbidity. Maternal morbidity and mortality are of

significant importance not only to individual patients and clinicians, but also those involved in health policy research and development(20).

Severe bleeding is related to severe maternal morbidity. Severe maternal morbidity from PPH has long-term effects on woman's health, with consequences such as severe anemia, renal failure and infertility, and on psychological wellbeing(21).

2.5. Postpartum Hemorrhage in relation to maternal mortality:

Although accountable for only 8% of maternal deaths in developed countries, postpartum hemorrhage is the second leading single cause of maternal mortality, ranking behind preeclampsia/eclampsia. The condition is responsible for 25% of delivery-associated deaths, and this figure is as high as 60% in some countries(22). In sub-Saharan Africa, where blood supply is critically inadequate, severe hemorrhage is a leading cause of maternal deaths(23). In September 2015, a cross-sectional study was done in Mali and Senegal which showed that living in Mali is associated with a higher risk of PPH maternal mortality than in Senegal(24). No difference in the characteristics of women, pregnancy and childbirth between the two countries could explain this result. However, the prevalence of PPH in their study is higher in Senegal than in Mali(24).

In rural Gambia, between 1993- 1998 it was reported that a total of 9 of the 18 maternal deaths had a direct obstetric cause, hemorrhage (6 deaths), early pregnancy (2), and obstructed labour (1). Indirect causes of obstetric deaths were anaemia (4 deaths), hepatitis (1), and undetermined (4 deaths)(25). In 2014, a study conducted in the Gambia revealed that hemorrhage (26.5%), hypertensive disease (19.8%), sepsis (10.6%) and anaemia (8.9%) were consistently the commonest causes of maternal mortality in the period under review(3). Obstetrics hemorrhage remained the commonest cause (26.5%) and advancing maternal age and parity has strongly been associated with maternal deaths(3). Previous studies conducted in the Gambia on maternal mortality in rural and tertiary hospitals revealed hemorrhage as the consistent commonest cause of maternal death(3). This study will focus on the incidence of PPH, the demographic of women with PPH, the outcome of patients diagnosed of PPH and the mortality rate of PPH at the EFSTH.

2.6. Maternal near-mis and death in relation to postpartum Hemorrhage:

Maternal near-miss includes hysterectomy, blood transfusion, and admission to ICU and hypovolemic shock(26). “Near-miss” morbidity is considered to be an underestimated but more sensitive indicator of maternal health than mortality(27).

In February 2015, a study was conducted in Brazil which revealed that overall, 1192 (12.5%) of the 9555 women in the study experienced complications owing to PPH (981 had potentially life-threatening conditions, 181 maternal near miss, and 30 had died) (11). The severe maternal outcome (SMO) ratio was 2.6 per 1000 live births among women with PPH and 8.5 per 1000 live births among women with other complications(22).

In March 2019, a study was done in Nigeria focusing on maternal near-mis and death in relation to PPH which cited that apart from the immediate threat to maternal survival, PPH is associated with significant long-term complications as an estimated 12% of survivors develop severe anaemia postpartum(28). In addition, a woman who was a PPH near-miss has significant risk of dying in the following year from the effects of PPH(28).

With the above findings of various studies conducted in the sub-Sahara Regions clearly supports some of the reasons for which I choose this topic for my research.

2.7. Estimating blood loss in the postpartum period:

In addition to a complete medical history and physical examination, diagnosis is usually based on symptoms, with laboratory tests often helping with the diagnosis(29). The two most common methods used for estimating blood loss postpartum are quantification method which include using of graduated drapes or weighing and Visual estimation method. Quantitative methods of measuring obstetric blood loss have been shown to be more accurate than visual estimation in determining obstetric blood loss(30). In April 2016, a study was conducted in low resource countries (LRC) settings which cited that blood loss is often estimated by visual estimation by attending health workers (HWs), due to lack of neither adequate skilled labor nor reliable laboratory infrastructure to quantify blood loss(31).

Attempts to standardize this visual inspection method by training HWs to estimate soakage have not been successful, because it has been found to have poor validity and reliability. While other methods of blood loss measurement have been better validated, they remain unadopted in LRC due to their complexity and/or cost(31). This study will focus on the visual estimation method which is the most commonly used method at the EFSTH, as well as our sub region.

CHAPTER 3

METHODOLOGY OF THE STUDY

3.1 Study setting:

This study was conducted at the Obstetrics and Gynecology Department of the EFSTH the only teaching hospital in The Gambia and it contains 547-beds, where hundreds of medical students interact with patients on a daily basis throughout the year. The Obstetrics and Gynecology department has a staff strength of 32 doctors, 23 nurses and 21 Midwives. It has 5 wards: Gynecology (21beds), High Dependency Unit (HDU) (8beds), Antenatal (17beds), Postnatal (26beds) and Labour wards (10beds) respectively.

3.2 Study design:

This is a retrospective, quantitative, cross-sectional study with secondary data analysis through revision of patient's folders from the record department.

3.3 Sample selection:

Inclusion criteria: All confirmed cases of postpartum hemorrhage during the period under review.

Exclusion criteria: all women who were diagnosed before or after the period of review.

3.4 Study Variables and Operationalization:

a. The dependent variable:

Causes of PPH mortality

b. The independent variable:

- Socio- demographic characteristics (age, address, ethnicity, parity)
- Obstetrics characteristics (referred, mood of presentation, mood of delivery, amount of blood loss, clinical diagnosis, management received, length of hospital stay, and hospital records of mortality).

Table: ***Study variables and Operationalization***

VARIABLES	**DIMENSIONS**	**CLASSIFICATION/TYPE**
Age	15-25, 26-35, 36-45	Quantitative (Continuous)
Address	Urban/Rural	Qualitative (Nominal)
Ethnicity	Mandinka, Wollof, Jola, Fula, Others	Qualitative (Nominal)
Parity	Primiparous, multiparous, grand-multiparous	Quantitative (Continuous)
Referred	Yes/ No	Qualitative (Nominal)
Mode of presentation	Conscious/Unconscious	Qualitative (Nominal)
Mood of delivery	Vaginal delivery, Caesarean section, Assisted vaginal delivery	Qualitative (Nominal)
Clinical diagnosis	PPH/ Others	Quantitative (Continuous)
Common causes of diagnosis	Specified/ Unspecified	Qualitative (Nominal)
Management received	Medical/ surgical	Qualitative (Nominal)
Duration of hospital stay in days	1-3, 4-7, >7	Quantitative (Continuous)
Mortality	Yes/No	Qualitative (Nominal)

3.5 Data Collection and Tool and Analysis:

The study was conducted using patient's records from the Obstetrics department of Edward Francis Small Teaching Hospital with no contact with the patients or caregivers. I created 4 tables. Table one contained socio-demographic characteristics of the study population which were gotten directly from the patient's folders.

Table two was for obstetrics characteristics such as referral, mood of presentation, mood of delivery, clinical diagnosis, management received, and length of hospital stay which was from the patient's folders as well.

Table three focused on the incidence and common causes of PPH in the affected women by going through the patient's folders. And finally for table four, I looked at the hospital records of mortality and the common causes. The information needed will be obtained by using a structured data collection tool and a form of data collection tool will be used to guide the filling of the needed information.

3.6 Statistical Analysis:

The data collected was reviewed to make sure no errors were made. The data was then entered in IBM SPSS 24.0 for analysis. Analysis and interpretation of the findings were done with the help of descriptive statistics (frequency and percentage,). The results were presented in tables and text.

3.7 Ethical Consideration:

The proposal was presented to the Ethical Review Committee of the Edward Francis Small Teaching Hospital and the community medicine department for approval. Letter of consent were written to the administrators of the concerned departments, seeking permission to carry out the study and to have access to the Obstetrics folders needed for data collection.

3.8 Dissemination Plan:

A copy of the research will be provided to the school of Medicine for the library, the department of Obstetrics and Gynecology at EFSTH and to my supervisor. A final thesis will be presented to the thesis committee of the School of Medicine, University of The Gambia.

CHAPTER 4

RESULTS OF THE STUDY

4.1. Socio- demographic:

The study included a total of 134 patients, a greater percentage of the population both from the PPH and non PPH women were found to be between 26-35years. Of the 134 women that participated in the study, 41.8% were from the combination of other tribes, 64.9% lived in the urban area

Table 1: ***Socio-demographic characteristic of the study participants at EFSTH, Banjul, The Gambia, from January 1st- December 31st 2018 (N= 134)***

Variable	Category	Percentage(s)
Age	15-25	49 (36.6%)
	26-35	56 (41.8%)
	36-45	29 (21.6%)
Address	Rural	47 (35.1%)
	Urban	87 (64.9%)
Ethnicity	Mandinka	23 (17.2%)
	Wolof	11 (8.2%)
	Jola	12 (9.0%)
	Fula	32 (23.9%)
	Others	54 (41.8%)

SOURCE: The Information on the patient's socio-demographic characteristics were gotten from the patients' folders.

4.2. Obstetrics characteristics:

Out of the total participants, about 79.0% of women were primi-parous, 78.4% were referred from other health centers and hospitals, 87.3% had spontaneous vaginal delivery. 85.8% presented conscious, 95.5% patients received medical management while 91.8% of patients only stayed few days in the hospital.

Table 3: ***Obstetrics characteristics of the study participants***

Variable	**Category**	**percentage(s)**
Parity	Primi-parous	79 (59.0%)
	Multi-parous	44 (32.8%)
	Grand-multiparous	11 (8.2%)
Referred	Yes	105 (78.4%)
	No	29 (21.6%)
Mood of presentation	Conscious	115 (85.8%)
	Unconscious	19 (14.2%)
Mood of delivery	Spontaneous vaginal delivery	117 (87.3%)
	Assisted vaginal delivery	6 (4.5%)
	Cesarean section	11 (8.2%)
Management received	Medical	128 (95.5%)
	Surgical	6 (4.5%)

Length of hospital stay in days	1-3	123 (91.8%)
	4-7	9 (6.7%)
	>7	2 (1.5%)

SOURCE: The Information on the patient's obstetrics characteristics were gotten from the patients' folders.

4.3. Incidence and causes of Postpartum Hemorrhage:

The research reveals that PPH occurs most commonly with (74.6%) while other causes were 25.4% for the period under reviewed. The most common causes of PPH were specified (with laceration being the most common at 27.6%) and unspecified cause at 27.6% as well.

Table 4 a. *showing the Incidence of cases*

Variable	**Category**	**Percentage(s)**
Incidence	Postpartum Hemorrhage	100 (74.6%)
	Others	34 (25.4%)
	Total	134 (100%)

SOURCE: The Information on the incidence of cases were gotten from the patients' folders.

Table 4 b: *Common causes of PPH for the period under review:*

Variable	**Category**	**Percentage(s)**
Postpartum Hemorrhage Causes		
Specified	Uterine atony	10 (7.5%)
	Laceration	37 (27.6%)
	Retained placenta	13 (9.7%)
	Thrombin	3 (2.2%)

Unspecified	Unspecified	37 (27.6%)
	Total	**100(100%)**

SOURCE: The Information on the common cause of PPH cases were gotten from the patients' folders.

4.4. **Mortality and common causes:**

The total mortality of the year was 21(100%), with unspecified cause of PPH being the highest cause of mortality at 7(33.3%), followed by the specified causes with Uterine atony at 3(14.3%) and Thrombin at 2(9.5%), while other causes of death were 7(33.3%).

Table 5: *Mortality and common causes*

Variable	**Category**	**Percentage(s)**
Mortalities		
Due to Postpartum Hemorrhage (Specified)	Uterine atony	3(14.3%)
	Retained placenta	1(4.8%)
	Laceration	1(4.8%)
	Thrombin	2(9.5%)
Unspecified causes	Unspecified	7(33.3%)
Due to other causes	Others	7(33.3%)
	Total	21(100%)

SOURCE: The Information on the mortality and common cause were gotten from the patients' folders

CHAPTER 5

DISCUSSION OF THE RESULTS

During the period under review, out of 3,491 deliveries (100/3,491 =0.029%) 100 (74.6%) cases of PPH were reported. The total mortality of the year was 21(100%) with high percentage of deaths due to PPH at 66.7%. Among these deaths due to PPH, the unspecified cause was the highest at 33.3% followed by the most common specified causes (uterine atony at (14.3%) and thrombin(9.5%)) respectively, which was similar to

the study conducted in the Gambia in 2014 that revealed that hemorrhage (26.5%) was the commonest cause of maternal mortality in the period under review(3).

My study also revealed that the most common causes of PPH were specified (with laceration) and unspecified causes been (27.6%) each followed by other specified causes (retained placenta (9.7%) and uterine atony (7.5%) respectively, this differs from this study done in the US which shows uterine atony is the most common cause of PPH followed by laceration and retained placenta(35).

Majority of the participants were between the ages of 26-35 with (41.8%) followed by ages 15-25 (36.6%) and 36-45 with (21.6%). The most common ethnic groups affected where the combination of other tribes with (41.8%), followed by Fulas (23.9%) and Mandinkas (17.2%) respectively.

My study also revealed that majority of the PPH cases were referred (78.4%) from secondary and tertiary health centers and hospitals, which was compatible with a previous study conducted in India(32). Participants in the urban areas were mostly affected (64.9%) than their counterparts in the rural areas (35.1%). Among the 100 patients, SVD was the most common cause of delivery (87.3), followed by elective C/S (8.2) which was opposite to this study done in Pakistan in April 2013, where C/S (50%) was the commonest mode of delivery followed by SVD at (23%)(33).

Of the 134 participants 85.8% were conscious on arrival which was consistent with another study conducted in India of 2011(34). Most patients were managed medically (95.5%) rather than surgically most likely due to the common causes that were seen during the period under review, which is the most common way of managing PPH initially according to these studies done in the US and India (38,32).

My study further revealed that women with risk factors of PPH like, increased maternal age, lacerations. retained products, assisted vaginal deliveries, primi-para all increased the chances of PPH of the participants, similarly to this study done in Australia(36).

It was also discovered that visual estimation of blood loss wasn't accurate as values were underestimated in cases of lacerations and C/S deliveries leading to untimely diagnosis

thus resulting to delayed interventions and mortality which was also consistent with this study done in the US(37).

CHAPTER 6

CONCLUSION

This study revealed that Postpartum still remains a major health concern in the Gambia among postpartum mothers and this has not change over the years. Due to the inaccuracy of the visual estimation method of diagnosing PPH couple with statistical significant findings of increasing age, primiparous and more laceration from spontaneous vaginal delivery were all risk factors that increased the incidence of PPH.

From the data received and analyzed from the EFSTH, the high incidence and mortalities were also due mainly to late referrals from primary and secondary health facilities which either did not have adequate management protocols in place or delayed the referral for affected women. It is believed that once health care providers start taking early detection and prompt management seriously it will greatly reduce the burden of PPH in The Gambia.

CHAPTER 7

RECOMMENDATIONS

From the assessment of the data of this study and the findings obtained, It is my desire to recommend that enhanced awareness be carried out so that pregnant woman will take advantage of health services on time and make sure to take their antenatal visits seriously. Through this sensitization process, they should be encouraged to avoid home

deliveries and to report to the hospital whenever they notice any abnormal changes or form of bleeding after delivery (within 42 days).

It is my sincere recommendation that primary and secondary health centers in The Gambia be advised or encouraged to refer patients timely when management is above their control or capacity or when it's anticipated that PPH will occur. This in my view will significantly help to reduce the incidence of PPH in the country.

I recommend that health providers (nurses, midwives, traditional birth attendants, as well as doctors) should always provide adequate antepartum and intrapartum care and to look out for signs of (early detection of obstructed labour/CPD, delayed second stage of labour, poor uterine contractions or signs of antepartum hemorrhage) in order to prevent PPH.

I also recommend that quantitative estimation of blood loss method should be used more, instead of visual estimation methods. This is because it has been proven to be more efficient and accurate in measuring blood loss which helps in early detection and diagnosis of PPH. This will in turn help in the prompt management to prevent complications and mortality. PPH training should also be done and should include instructions on initial steps in order to improve treatment comprehension and outcomes.

Furthermore, the record keeping departments at the EFSTH should be strengthen as well as ensuring that all the staff that are responsible for patient care should at all times, record all necessary findings and investigations in order to have a comprehensive data base for all patients for future reference purposes.

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ANNEXES

Appendix 1: Data collection's guide

QUESTIONAIRE FOR DATA COLLECTION

A. SOCIAL-DEMOGRAPHY **YEAR ----------**

-

1. AGE: 15-25 [ ] ,26-35 [ ], 36-45 [ ]
2. ETHNICITY: MANDINKA [ ], WOLLOF [ ], JOLA [ ], FULA [ ], OTHERS[ ]
3. ADDRESS : URBAN[ ], RURAL[ ]

B. OBSTETRICS DATA

4. PARITY: PRIMI-PAROUS[ ], MULTI-PAROUS[ ], GRAND-MULTIPAROUS[ ]

5. REFERRED: YES[ ], NO[ ]

6. MOOD OF PRESENTATION: CONSCIOUS[ ], UNCONCIOUS[ ]

7. DIAGNOSIS: PPH [ ], OTHERS[ ]
8. COMMON CAUSES OF DIAGNOSIS: SPECIFIED: UTERINE ATONY [ ], RETAINED PLACENTA [], LACERATION[ ], THROMBIN[ ], UNSPECIFIED[ ]
9. MANAGEMENT RECEIVED: MEDICAL [ ], SURGICAL [ ]
10. LENGTH OF HOSPITAL STAY IN DAYS: 1-3[ ], 4-7[ ], >7[ ]
11. MORTALITY AND COMMON CAUSES: PPH [ ], OTHERS [ ]

Appendix 2: Table of work plan

This table below shows the work plan for the study:

ACTIVITY		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN

SELECTION OF TOPIC									
PROPOSAL WRITING									
SUBMISSION OF PROPOSAL									
PROPOSAL ASSESSEMENT									
APPROVAL FOR DATA COLLECTION									
DATA COLLECTION AND ANALYSIS									
FINAL REPORT WRITING									
THESIS SUBMISSION AND EVALUATION									
THESIS ASSESSEMENT									

Appendix 3: Ethical Clearance