Maternal Mortality and Postpartum Hemorrhage in Adna Aden Hospital

Hibo Mohamed Abdi

99% of all maternal deaths occur in developing countries.

2015

Nutrition is Important
Maternal Mortality and Postpartum Hemorrhage at Edna Adan Hospital, Somaliland

A Thesis

By

Hibo Mohamed Abdi

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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ABSTRACT

This thesis deals maternal mortality and postpartum hemorrhage is the most serious disease in the world and is a serious medical condition maternal mortality is the leading cause of death among women of reproductive age in most of the developing world. Postpartum hemorrhage is the leading cause of maternal mortality.

Objectives

- To assess knowledge of the risk factors of PPH recurrence among women in Hargeisa.
- To examine the rate of the maternal mortality and postpartum hemorrhage

Problem statement

WHO estimated the 25% of maternal mortality caused by PPH. Annual 500,000 women are death for PPH related problems. And reduce the problems of maternal mortality, not easy to control and, and become a problem for the health professionals and the nation.

Research design method

The type of research methodology that used for this is descriptive method, along with using questionnaires

Recommendations

We need of increased community recognition of and engagement in maternal health and postpartum hemorrhage issues. The achievement of improved health outcomes for women depends on the participation of individuals, families, and communities.

Key words

- Maternal mortality
- Postpartum hemorrhage
- Labor
APPROVAL

This work entitled “maternal mortality and postpartum hemorrhage in Edna Aden University this researcher paper was carried out by candidate under my supervision.

Dean: faculty of science and technology

Professor: Ahmed Mohamed Adad

Associate Dean: faculty of science and technology

Mr. Abdifatah Mahamoud Abdi

Signature: ………………………

Date: ………………………
DECLARATION

This researcher is my original work and effort, that it has not been submitted anywhere for any award. Where other sources of information have been used, they have been knowledge.

Prepared: Hibo Moh’ed Abdi

Academic year: 2014/2015

Signature: ..............................

Date: ..............................
DEDICATION

This thesis paper is dedication to my dear mother Halimo Omer Mire and my father Mohammed Abdi Allamagan and my family who gave me constant encouragement and moral support during my studies. I also dedicated to my brothers and my sister those gave me constant encouragement and moral support during my studies. I also dedication to my best friends: Hinda Abdi Ahmed. I never forget their support and moral encouraging during my research paper.
ACKNOWLEDGMENT

In the name of Allah the most merciful, first all thanks due to Allah who will out his permission anything can’t go head, Allah who created us clot of blood. The lord of the Day of Judgment the provider to who we shall return.

Secondly our beloved prophet and massager peace and blessing of Allah be upon him, who was sent to guide us the right path.

Thirdly its pleasure to acknowledgment the help and cooperation I have received in the preparation of my research paper. Thanks and gratefulness to ward all those for assisting and supporting me in this research paper.

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Honor and special thanks my dear mother: Halimo Omer Mire and my dear father: Moh’ed Abdi Allamagan who give me golden effort and support of every and encourage me to complete my thesis book, also thanks to my family members and my all friends those gave me endless supportive.

I can’t imagine how I appreciate them my those gave me an uncountable support in every side of my life, I am asking to Allah to give both of my family and friends his mercies in this life and paradise(Jannah) the life after here .

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CHAPTER ONE: INTRODUCTION

1.1 Background

Maternal Mortality

Maternal mortality is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the site and duration of pregnancy from any acutely related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Maternal mortality is the leading cause of death among women of reproductive age in most of the developing world. Globally, an estimated 500,000 women die as a result of pregnancy each year.

The most common direct causes of maternal death are severe bleeding (25%), infection (15%), unsafe abortion (13%), preeclampsia (pregnancy induced hypertension, often accompanied by seizures, 12%), and obstructed labor (8%). Fundamental to the reduction of maternal mortality is the identification of the wider social, economic, health, and political factors that are associated with it. The way to reduce maternal mortality is through the provision of emergency obstetrical care. In contrast, others argue that the key factor in maternal mortality is the disadvantaged status of women, a position that reframes maternal death as a social justice issue. Maternal mortality is viewed as the accumulation of a number of risks that girls and women face (e.g., malnutrition, female genital mutilation, premature marriage and pregnancy, lack of family planning mechanisms for child spacing) that reflect the relative lack of status and worth accorded to them in certain countries.

Pregnancy and childbirth are natural processes in a woman’s life. Motherhood should be a time of expectation and joy for a woman, her family and her community but they are by no means risk-free. For some women in certain parts of the globe particularly in developing countries the reality of motherhood is often grim. For those women, motherhood is often marred by unforeseen complications or even a loss. Some women loss the fetus even before being born or shortly after birth; whiles some loss both their live and that of the baby.
Both medical and social factors play important roles in maternal mortality. There is clear evidence that medical interventions are important in reducing maternal mortality, as long as those interventions are performed by trained personnel. Especially important is competent emergency obstetrical care, Research done in Edna Aden maternity Hospital. Emergency care in reducing the rate of death related to childbirth. This fact may be because many of the life-threatening complications that accompany pregnancy and delivery cannot be predicted for individual women. Also important is the provision of family planning services, which operate to lower the number of births and thus reduce the risk of maternal death. Evidence on the importance of social factors in maternal mortality is less well documented. Overall maternal mortality is much lower in societies in which women have higher educational levels and higher social status. However, there is no direct one-to-one relationship between improvements in women's social conditions and reductions in maternal mortality. Nevertheless, access to legal abortion is important in reducing deaths because legal abortions are more likely to be performed in a clean environment by trained medical personnel. It is estimated that about one-half of abortions lead to maternal death

1.2 Postpartum hemorrhage

Postpartum hemorrhage (PPH) is the leading cause of maternal mortality worldwide with a prevalence rate of approximately 6%; Africa has the highest prevalence rate of about 10.5%. In Africa, where most maternal deaths occur, PPH accounts for more than 30% of all maternal deaths. The proportions of maternal deaths attributable to PPH vary considerably between developed and developing countries, suggesting that deaths from PPH are preventable. Interventions to prevent PPH in developing countries are therefore pivotal in the global effort to achieve by 2015 the Millennium Development Goal of reducing maternal mortality ratio by three-quarters (from 1990 levels).

In developing countries, health systems face enormous constraints that hinder the delivery of emergency obstetric care, which is vital for saving the lives of women who develop PPH. Moreover, there is high prevalence of anemia in women in developing countries, which complicates PPH. Hence, prevention of PPH through greater use of active management of the third stage of labor can be expected to reduce maternal mortality. Since approximately 65% of
deliveries in developing countries are now supervised by a skilled health-care provider. It should be possible to expand the use of active management of the third stage of labour to prevent PPH. Pragmatic evidence-based interventions are also needed to reduce PPH rates in deliveries not attended by skilled providers. Such guidance to aid clinical practice is not commonly available in developing countries.

Postpartum hemorrhage (PPH) is responsible for around 25% of maternal mortality worldwide (WHO, 2007), reaching as high as 60% in some countries. PPH can also be a cause of long-term severe morbidity, and approximately 12% of women

Morbidity and mortality due to PPH are largely preventable through skilled care during childbirth. However, delays in identifying hemorrhage, delays in transport to the appropriate point of care, and delays in receiving the recommended treatment all contribute to high rates of maternal mortality and morbidity due to PPH. Women may give birth without any assistance. Alternatively, a relative, a member of the community, or a traditional birth attendant (TBA), often without formal health training, may attend births occurring in the community. These women may not have access to interventions to either prevent or treat PPH. In some cases, women may give birth in facilities where skilled birth attendants lack the necessary skills, equipment, or supplies to prevent and manage PPH and shock.

1.3 Statement of the problem

WHO estimated the 25% of maternal mortality caused by PPH. Annual 500,000 women are death for PPH related problems. And reduce the problems of maternal mortality, not easy to control and, and become a problem for the health professionals and the nation. The most common reason for a primary postpartum hemorrhage is the uterus not contracting efficiently enough or relaxing intermittently in the hours following the birth, allowing the bleeding to become heavy. The medical term for this is 'uterine tony', (a tony meaning 'no tone' in the muscles of the uterus)

The services which are available are fragmented, poorly financed and have inadequate infrastructure and staffing, making it difficult to provide more than the most basic health services to the majority of the population. Somali women are particularly vulnerable; Somaliland’s
maternal mortality rate is estimated at 1,013 per 100,000 live births\(^1\) – one of the highest in the world. Post-partum hemorrhage (PPH) is the leading cause of maternal mortality worldwide, accounting for 34 percent of maternal deaths in Africa. In Somaliland, modern CPR is low at 4.6 percent of women aged 15-49 with a high total fertility rate of 5.9 births per woman. The high fertility rate means that women are repeatedly exposed to the risks associated with childbirth over their lifetime. In addition, in Somaliland cultural and religious beliefs strongly influence social norms and values. Large family size is praised and encouraged in Somali society, while discussion of sexual and reproductive health is generally taboo, leading to significant gaps in knowledge on healthy behaviors. Low levels of education and literacy, especially among women and the largely rural population, combined with harmful traditional practices – an estimated 94 percent of women have undergone female genital cutting – only exacerbate the problem. Implementing a program to address sexual and reproductive health issues in this context is beset with potential landmines and must be navigated with caution and sensitivity.

1.4 Research objectives

1.4.1 General Objective:
To assess maternal mortality and postpartum hemorrhage at Edna Adan Maternity Hospital

1.4.2 Specific objectives
1. To assess knowledge of the risk factors of PPH recurrence among women in Hargeisa.

2. To examine the rate of the maternal mortality and postpartum hemorrhage

1.5 Research questions

1. How to examine the rate of maternal mortality and postpartum hemorrhage?

2. How to assess knowledge of the risk factors of maternal mortality of postpartum hemorrhage among women in Hargeisa?

1.6 Scope of the study
1.6.1 Geographical scope

This study will engage and is going to take place in Somaliland, which, is a self-declared independent state that is international recognized as on autofocus region of Somaliland the government of Somaliland regards itself as successor state to the British Somaliland protectorate which became independent on 26 June 26 1960 as the state of Somaliland for uniting with the trust territory of Somalia (the former Italian Somaliland) on 1 July 1960 to form the Somalia republic. Somaliland is bordered by Ethiopia in the south and west, Djibouti in the northwest, the Gulf of Aden in the north, and the autonomous punt-land region of Somaliland to the east.

The study will be based on the Edna Adan Hospital Hargeisa, Somaliland.

1.6.2 Time scope

The period of this study was covered from April 2015 to August 2015. And will focus on the relevant data of effect of maternal mortality and postpartum hemorrhage.

1.7 Operational definition central terms

**Maternal mortality**: Maternal death is the death of a woman while she is pregnant or within 42 days of termination of pregnancy, irrespective of the duration and sites of the pregnancy, for any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

**Postpartum hemorrhage**: Severe bleeding is the single most significant cause of maternal death world-wide. More than half of all maternal deaths occur within 24 hours of delivery, most commonly from excessive bleeding.

**Preeclampsia**: A condition characterized by pregnancy

1. Proteinuria >300mg/24 hour or >1+dipstick

2. Bp >140/90mmHg after 20 weeks’ gestation
CHAPTER TWO: LITERATURE REVIEW

2.1 Concept, ideas, opinions from authors

Most all women assume that maternal mortality and postpartum hemorrhage has always been with them.

The physiologic changes over the course of pregnancy, including a plasma volume increase of approximately 40% and a red cell mass increase of approximately 25%, occur in anticipation of the blood loss that will occur at delivery. There is no single, satisfactory definition of postpartum hemorrhage. An estimated blood loss in excess of 500 mL following a vaginal birth or a loss of greater than 1,000 mL following cesarean birth often has been used for the diagnosis, but the average volume of blood lost at delivery can approach these amounts (4, 5). Estimates of blood loss at delivery are notoriously inaccurate, with significant underreporting being the rule. Limited instruction on estimating blood loss has been shown to improve the accuracy of such estimates. Also, a decline in hematocrit levels of 10% has been used to define postpartum hemorrhage, but determinations of hemoglobin or hematocrit concentrations may not reflect the current hematologic status. Hypotension, dizziness and oliguria do not occur until blood loss is substantial—10% or more of total blood volume. Postpartum hemorrhage generally is classified as primary or secondary, with primary hemorrhage occurring within the first 24 hours of delivery and secondary hemorrhage occurring between 24 hours and 6–12 weeks postpartum. Primary postpartum hemorrhage, which occurs in 4–6% of pregnancies, is caused by uterine a
tony in 80% or more of cases.

Ethology of Postpartum Haemorrhage

2.2.1 Primary

Primary postpartum hemorrhage (PPH) is the most common form of major obstetric hemorrhage. The traditional definition of primary PPH is the loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby. PPH can be minor (500–1000 ml) or major (more than 1000 ml). Major could be divided to moderate (1000–2000 ml) or severe (more than 2000 ml). The recommendations in this guideline apply to women experiencing primary PPH of 500 ml or more.
• Uterine a tony
• Retained placenta especially placenta accrete
• Defects in coagulation
• Uterine inversion

2.2.2 Secondary

Secondary PPH is defined as abnormal or excessive bleeding from the birth canal between 24 hours and 12 weeks postnatal. This guideline also includes recommendations specific to the management of major secondary PPH.

Women with pre-existing bleeding disorders such as haemophilia and women taking therapeutic anticoagulants are at increased risk of PPH; this guideline does not include specific recommendations for the management of such situations, nor for managing haemorrhage in women who refuse blood transfusion.

• Sub involution of placenta site
• Inherited coagulation
• Retained production of conception
• Infection

2.3 Causes and risk factors

Experts have traditionally defined early (primary) PPH as vaginal bleeding in excess of 500 mL within 24 hours after delivery. Severe PPH is blood loss exceeding 1,000 mL. Clinicians around the world recognize that some women who are severely anaemic when they give birth will die from hypovolemic shock before they have lost 500 mL of blood. Unfortunately, there is no better or more definitive definition for PPH.

There are several possible reasons for severe bleeding during and after the third stage of labour: uterine a tony (failure of the uterus to contract properly after delivery), trauma (cervical, vaginal,
or perinatal lacerations), retained or adherent placental tissue, clotting disorders, and inverted or ruptured uterus. More than one of these can cause postpartum haemorrhage in any given woman. Uterine atony is the leading cause of immediate PPH (75–90 per cent)

Predicting who will have PPH based on risk factors is difficult because **two-thirds of women who have PPH have no risk factors**. Therefore, all women are considered at risk, and haemorrhage prevention must be incorporated into care provided at every birth.

In addition, women should be encouraged to give birth with a skilled birth attendant who can manage PPH should it occur, in spite of preventive measures.

2.3.1 What are the symptoms of postpartum haemorrhage?
The following are the most common symptoms of postpartum haemorrhage:

- Uncontrolled bleeding
- Decreased blood pressure
- Increased heart rate
- Decrease in the red blood cell count (hematocrit)
- Swelling and pain in tissues in the vaginal and perianal area, if bleeding is due to a hematoma

2.3.2 How is postpartum haemorrhage diagnosed?
In addition to a complete medical history and physical exam, diagnosis is usually based on symptoms, with lab tests often helping with the diagnosis. Tests used to diagnose postpartum haemorrhage may include:

Estimation of blood loss (this may be done by counting the number of saturated pads, or by weighing of packs and sponges used to absorb blood; 1 millilitre of blood weighs approximately one gram)

- Pulse rate and blood pressure measurement
- Hematocrit (red blood cell count)
• Clotting factors in the blood

2.4 Clinical Approach

Significant blood loss from any cause requires standard maternal resuscitation measures. Blood loss of more than 1,000 mL Hysterectomy is the definitive treatment in women with severe, intractable haemorrhage. In patients who desire future fertility, uterus-conserving treatments include uterine packing or tamponed procedures, B-lynch uterine compression sutures, artery ligation, and uterine artery embolization.

2.5 Treatment

Severe the incidence is thought to be much higher in developing countries where many women do not have access to a skilled attendant at delivery and where active management of the third stage of labour may not be routine. Of the women who suffer severe blood loss postpartum, approximately 1% of these die as a result. If PPH does occur, positive outcomes depend on how healthy the woman is when she has PPH (particularly her haemoglobin level), how soon a diagnosis is made, and how quickly effective treatment is provided after PPH begins.

Important clinical interventions and technologies are available to prevent and treat PPH but are either underutilized or not accessible to women giving birth in communities or peripheral health care facilities. To manage PPH non-surgically, evidence exists to support the following interventions:

- **Initial general management**: administration of oxytocin, emptying the urinary bladder, fluid replacement, examination of birth canal and placenta,

- **Specific management for uterine a tony**: uterotonic drugs, uterine massage, bimanual compression of the uterus (external or internal), aortic compression, balloon condom catheter, haemostatics

- **Specific management for genital lacerations**: repair of genital lacerations, haemostatics, compression

- **Specific management for retained placenta**: manual removal
• Continued management until the woman reaches the appropriate facility or the appropriate provider: anti-shock garment, IV perfusion, “walking” blood bank

2.6 Prevention

PPH is one of the few obstetric complications with an effective preventive intervention. Active management of the third stage of labor (AMSTL), defined as intramuscular administration of 10 IU of oxytocin, controlled cord traction (CCT) and fundal massage after delivery of the placenta, substantially reduces the risk of PPH. A meta-analysis from four facility-based clinical trials showed a 62% reduction in the risk of PPH associated with AMTSL. The World Health Organization (WHO) and the International Confederation of Midwives (ICM) recommend that skilled birth attendants provide AMTSL for all vaginal In the absence of a skilled birth attendant who can provide all of the components of AMTSL, the WHO, FIGO, and ICM recommend that oxytocin (10 IU) or misoprostol (400-600 mcg orally) should be given by a health worker trained in its use to prevent PPH. Oxytocin is preferred to other uterotonic drugs where its use is feasible (Mathai et al, 2007; WHO, 2006).

Risk factors for postpartum haemorrhage include a prolonged third stage of labour, multiple delivery, episiotomy, fatal microsomal, and history of postpartum haemorrhage. However, postpartum haemorrhage also occurs in women with no risk factors, so physicians must be prepared to manage this condition at every delivery. Strategies for minimizing the effects of postpartum haemorrhage include identifying and correcting anaemia before delivery, being aware of the mother's beliefs about blood transfusions, and eliminating routine episiotomy. Re-examination of the patient's vital signs and vaginal flow before leaving the delivery area may help detect slow, steady bleeding.

The best preventive strategy is active management of the third stage of labour (number needed to treat [NNT] to prevent one case of postpartum haemorrhage = 12) Hospital guidelines encouraging this practice have resulted in significant reductions in the incidence of massive haemorrhage. Active management, which involves administering a uterotonic drug with or soon after the delivery of the anterior shoulder, controlled cord traction, and, usually, early cord clamping and cutting, decreases the risk of postpartum haemorrhage and shortens the third stage
of labour with no significant increase in the risk of retained placenta. Compared with expectant management, in which the placenta is allowed to separate spontaneously aided only by gravity or nipple stimulation, active management decreases the incidence of postpartum haemorrhage by 68 per cent.

Early cord clamping is no longer included in the International Federation of Gynaecology and Obstetrics (FIGO) definition of active management of the third stage of labour, and uterine massage after delivery of the placenta has been added. Delaying cord clamping for about 60 seconds has the benefit of increasing iron stores and decreasing anaemia, which is especially important in preterm infants and in low-resource settings. The delay has not been shown to increase neonatal morbidity or maternal blood loss. Prophylactic administration of oxytocin (Pitocin) reduces rates of postpartum haemorrhage by 40 per cent; this reduction also occurs if oxytocin is given after placental delivery. Oxytocin is the drug of choice for preventing postpartum haemorrhage because it is at least as effective as ergot alkaloids or prostaglandins and has fewer side effects.

Other preventive measures may either increase the woman’s chance of survival or prevent conditions associated with causes of PPH. These measures include:

- **During labor:** Use a partograph to monitor and guide management of labor and quickly detect unsatisfactory progress, encourage the woman to keep her bladder empty, limit induction or augmentation use for medical and obstetric reasons, do not encourage pushing before the cervix is fully dilated, do not use fundal pressure to assist the birth of the baby, perform selective episiotomy for medical and obstetric reasons only, assist the woman in the controlled delivery of the baby’s head and shoulders to help prevent tears.

- **During third stage of labor:** Provide AMTSL (the single most effective way to prevent PPH), do not massage the uterus prior to delivery of the placenta, do not use fundal pressure to assist the delivery of the placenta, do not perform CCT without administering a uterotonic drug, do not perform CCT without providing counter traction to support the uterus.

- **After delivery of the placenta:** Routinely inspect the vulva, vagina, perineum, and anus to identify genital lacerations, routinely inspect the placenta and membranes for completeness,
evaluate if the uterus is well contracted and massage the uterus at regular intervals after placental delivery to keep the uterus well-contracted and firm (at least every 15 minutes for the first two hours after birth), teach the woman to massage her own uterus to keep it firm, monitor the woman for vaginal bleeding and uterine hardness every 15 minutes for at least the first two hours, encourage the woman to keep her bladder empty during the immediate postpartum period.

### 2.7 What can be done to prevent PPH?

In the community:

- Families and caregivers, together with pregnant women, can develop birth preparedness and complication readiness plans, including actions to take when there is excessive bleeding during labor and childbirth.

- Pregnant women and their families and caretakers can be educated about the importance of having birth attendants skilled in prevention and control of bleeding during childbirth.

- Resources can be mobilized for rapid transfer of women with excessive bleeding to essential obstetric care facilities for appropriate care.

- Administering uterotonic drug within one minute of birth.

- Applying controlled cord traction with counter-traction to the uterus. Massaging the fundus of the uterus through the abdomen.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology represent the strategies involve in collecting and analyzing data collected, in order to have meaning full interpretation of the research finding. This section of the research methodology used in this research study was described. This chapter covers the following sub-topic: Research design, Research population, sample size, sampling procedure, research instrument, data gathering procedure, validity and reliability of instrument, analysis of data, and finally the limitation of study.

3.2 Research design

The type of research methodology that used for this is descriptive method, along with using questionnaires that were given for respondents with patients and hospital nurses and also view experts of this field.

3.2.1 Study population

These were selected depending on the type of hospital that is doctor, nurse, mother’s skilled populations and university studies the identification numbers.

The study focused on a total population of 20 people in selected area such hospital, health workers, nurses, skilled population university students.

3.2.2 Sample size

A sample will be taken from each targeted area. The researcher selected target population reaching 20 for health people, the size of the sample is determined using formula Slovenes sample: Study comprised a sample size of 19 respondents who including 4 Hospital and health workers, 4 mothers 9 university students 2 skilled population

The research used solvent’s formula to determine the sample size solvent’s formula allows a researcher to sample to population with a desired degree of accuracy. It gives the researcher an idea of how large this sample size needs to be ensure a reasonable accuracy of result.
Solvent’s formula

Where: n=sample size

N=total population

e = the level of significance, fixed at 0.05. so \( e^2 = 0.05 \times 0.05 = 0.0025 \)

**Sampling techniques**

Sampling techniques of sample selection the use of probability random sample the choose sample from the population on a random basis using techniques as simple random simple.

**Sources of data**: By searching a data that will bring a tangible research in order to treat the stated problem, it needs to use the most appropriate methods of collecting data. The data sources that will be used for this study are secondary and primary

**Primary Source of Data**

The primary data will be used gathered through the way of doing. Consequently, there were different techniques of collecting primary data, as through the following instruments such as questionnaires during field survey.

**Secondary Sources of Data**

The study will be used gathered from the documentations, Adana hospital the reports, maternal mortality and postpartum hemorrhage, the Adana hospital of office.

**3.3 Sample procedure**
The sampling method that used in this study was purposive sampling to select the respondent for the questionnaire. We had done this to easily pinpoint the targets of this study which are the patient of hospital that are suffering from maternal mortality and postpartum hemorrhage, before actual I will ask a few pre-questionnaire verifying if the respondent meets the following conditions a patient with postpartum hemorrhage.

3.4 Validity and reliability
This research will improve the validity of data collection instrument (mainly the questionnaire) the number of relevant questions will be divided by the total number of the question and the outcome will have to be above optimal.

3.5 Research instrument
The researcher used questionnaire in the study which was necessary in the descriptive method. The questioners are designed in proper from to accommodate sufficient and relevant information required from the respondent.

3.6 Data analysis
This study will be analyzed by using statistical software called statistical package for the social science (SPSS) the study will be used both quantitative and qualitative data analysis at the end of each section.

3.7 Ethical consideration
Ethically the study gives important consideration for the participant during collecting data. The study will be carry out with the permission of the respondents it will be protected my respondents name during the study and keep any information as confidentially. Research makes sure that she/he collected basic suitable data and gathering in acceptable research standard.
CHAPTER FOUR: DATA ANALYSIS & INTERPRETATION

This chapter will display the tables, after the analyzing data that are collected.

**Table 4.1 Gender of the respondents**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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</thead>
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<td>26.3</td>
<td>26.3</td>
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<tr>
<td>Female</td>
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<td>73.7</td>
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</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

It reveals that 5 (26.3) of the respondents were males and 14 (73.7) of the respondents were females.

**Table 4.2 Age of the respondents**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>15</td>
<td>78.9</td>
<td>78.9</td>
<td>78.9</td>
</tr>
<tr>
<td>31-40</td>
<td>2</td>
<td>10.5</td>
<td>10.5</td>
<td>89.5</td>
</tr>
<tr>
<td>41-50</td>
<td>2</td>
<td>10.5</td>
<td>10.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

It shows that 15 (78.9) of the respondents were aged between 20-30 yrs, 2 (10.5) of the respondents were aged between 31-40 yrs and 2 (10.5) of the respondents were aged between 41-50 yrs,
Table 4.3 Marital status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>14</td>
<td>73.7</td>
<td>73.7</td>
<td>73.7</td>
</tr>
<tr>
<td>Married</td>
<td>5</td>
<td>26.3</td>
<td>26.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 14(73.7) of my respondents were single while 5(26.3) of my respondents were married.

Table 4.4 Educational Background

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Level</td>
<td>3</td>
<td>15.8</td>
<td>15.8</td>
<td>15.8</td>
</tr>
<tr>
<td>University Level</td>
<td>13</td>
<td>68.4</td>
<td>68.4</td>
<td>84.2</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>3</td>
<td>15.8</td>
<td>15.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 3(15.8) of my respondents were secondary level, 13(68.4) of my respondents were university level while 3 (15.8) of my respondents were post graduate.

Table 4.5 Knowledge of Postpartum Haemorrhage

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

This table shows 19(100) of my respondents were knew knowledge of postpartum hemorrhage.
Table 4.6 Knowledge of Risk Factors of Postpartum Hemorrhage

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

This table shows 19(100) of my respondents were knew the risk factors of postpartum hemorrhage.

Table 4.7 Cause of Postpartum Hemorrhage

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic</td>
<td>4</td>
<td>21.1</td>
<td>21.1</td>
<td>21.1</td>
</tr>
<tr>
<td>Disease</td>
<td>6</td>
<td>31.6</td>
<td>31.6</td>
<td>52.6</td>
</tr>
<tr>
<td>Others</td>
<td>9</td>
<td>47.4</td>
<td>47.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 4(21.1) of my respondents replied that genetic is a main cause of postpartum hemorrhage, and 6(31.6) of my respondents replied that disease is a main cause of postpartum hemorrhage, while 9(47.4) of the respondents replied that there are other causes.

Table 4.8 PPH can cause Maternal Mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

This table shows 19(100) of my respondents were know that postpartum hemorrhage can cause maternal mortality.
Table 4.9 Postpartum Hemorrhage can prevent

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18</td>
<td>94.7</td>
<td>94.7</td>
<td>94.7</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>5.3</td>
<td>5.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 18(94.7) of my respondents answered that postpartum hemorrhage can be prevented, were 1(5.3) of my respondents answered that postpartum hemorrhage can’t be prevented.

Table 4.10 PPH status level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>5</td>
<td>26.3</td>
<td>26.3</td>
<td>26.3</td>
</tr>
<tr>
<td>20%</td>
<td>14</td>
<td>73.7</td>
<td>73.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 5(26.3) of my respondents know the status level of postpartum hemorrhage in hargeisa/Somaliland, while 14(73.7) of my respondents don’t know the status level of postpartum hemorrhage in hargeisa/Somaliland.

Table 4.11 Prognosis of Postpartum hemorrhage

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>15</td>
<td>78.9</td>
<td>78.9</td>
<td>78.9</td>
</tr>
<tr>
<td>Bad</td>
<td>4</td>
<td>21.1</td>
<td>21.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 15(78.9) of my respondents were answered that the prognosis of postpartum hemorrhage is good while 4(21.1) of my respondents were answered that the prognosis of postpartum hemorrhage is bad.
Table 4.12 Best way to treat PPH

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>15</td>
<td>78.9</td>
<td>78.9</td>
<td>78.9</td>
</tr>
<tr>
<td>Palative</td>
<td>2</td>
<td>10.5</td>
<td>10.5</td>
<td>89.5</td>
</tr>
<tr>
<td>Surgical</td>
<td>2</td>
<td>10.5</td>
<td>10.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 15(78.9) of my respondents says that the best way to treat postpartum hemorrhage is medical, were 2(10.5) of my respondents say that the best way to treat postpartum hemorrhage is palative, while 2(10.5) of my respondents say surgical.

Table 4.13 Role of Community, Government supporting women effected by PPH

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8</td>
<td>42.1</td>
<td>42.1</td>
<td>42.1</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>57.9</td>
<td>57.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 8(42.1) of my respondents say there is role of community, government supporting women effected by postpartum hemorrhage while 11(57.9) of my respondents say there is no role of community, government supporting women effected by pph.

Table 4.14 Knowledge of Maternal Mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>84.2</td>
<td>84.2</td>
<td>84.2</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>15.8</td>
<td>15.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 16(84.2) of my respondents are known maternal mortality were 3(15.8) of my respondents they didn’t known maternal mortality
Table 4.15 increase of Maternal Mortality in Hargeisa, Somaliland

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7</td>
<td>36.8</td>
<td>36.8</td>
<td>36.8</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>63.2</td>
<td>63.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 7(36.8) of my respondents were said increase of maternal mortality in Hargeisa were 12(63.2) of my respondents are saying is not increase of maternal mortality in Hargeisa.

Table 4.16 Number of individual who show’s MM increasing recent years

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9</td>
<td>47.4</td>
<td>47.4</td>
<td>47.4</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>52.6</td>
<td>52.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 9(47.4) of my respondents that the individual who show’s maternal mortality increasing recent years, were 10(52.6) the others are say no.
Table 4.17 Government Awareness of Maternal Mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8</td>
<td>42.1</td>
<td>42.1</td>
<td>42.1</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>57.9</td>
<td>57.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 8(42.1) of my respondents were says there is government awareness of maternal mortality were 11(57.9) of my respondents were says there is no government awareness of maternal mortality.

Table 4.18 Maternal Mortality is serious disease

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>84.2</td>
<td>84.2</td>
<td>84.2</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>15.8</td>
<td>15.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This table shows 16(84.2) of my respondents say that maternal mortality is serious disease, while 3(15.8) of my respondents say it’s not serious disease maternal mortality is serious disease.

Table 4.19 Relationship between MM and PPH

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>19</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

This table shows 19(100) of my respondents say there is relationship between maternal mortality and postpartum hemorrhage.
Discussion

The current study presents findings from Hospital based correlation cross sectional study that aimed at determining the maternal mortality and postpartum haemorrhage in Somaliland women. Lack of basic health care is significantly associated in maternal mortality and postpartum haemorrhage, in the fast majority of the developing countries, women who die, or who develop postpartum haemorrhage during childbirth, do so because they did not receive the health care that they needed. This may be due to a lack of basic health-care provision or through, for whatever reason, an inability to access the local health-care services. Lack of access of health facility and shortage of health professionals in developing countries like Somaliland. Poverty is a significant factor which associated in maternal mortality and postpartum haemorrhage, most maternal mortality and postpartum haemorrhage occur among women living in poverty lack basic health facilities.
CHAPTER FIVE: CONCLUTION, DISCUSSION & RECOMMENDATIONS

5.0 Introduction

Chapter five provides the summary of findings. This has been arrived at using the study objectives. In this chapter the conclusion is also provided. The recommendations also followed the study objectives.

5.1 Conclusion

This study reveals a more intimate understanding of maternal mortality and postpartum hemorrhage than the biological data so often reported. Early, aggressive, and coordinated intervention by health care professionals is critical in minimizing blood loss to ensure optimal clinical outcomes in management of women with severe, persistent PPH. Postpartum Hemorrhage (PPH) is commonly defined as a blood loss of 500 ml or more within 24 hours after birth, while severe PPH is defined as a blood loss of 1000 ml or more within the same timeframe. PPH affects approximately 2% of all Women who give birth: it is associated not only with nearly one quarter of all maternal deaths globally but is also the leading cause of maternal mortality in most low-income countries. PPH is a significant contributor to severe maternal morbidity and long-term disability as well as to a number of other severe maternal conditions generally associated with more substantial blood loss, including shock and organ dysfunction. In developing countries, health systems face enormous constraints that hinder the delivery of emergency obstetric care, which is vital for saving the lives of women who develop PPH. Moreover, there is high prevalence of anemia in women in developing countries, which complicates PPH.

Maternal mortality is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the site and duration of pregnancy from any acutely related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Maternal mortality is the leading cause of death among women of reproductive age in most of the developing world. Globally, an estimated 500,000 women die as a result of pregnancy each year.
5.2 Findings

- Somali women are particularly vulnerable postpartum hemorrhage
- Somaliland’s maternal mortality rate is estimated at 1,013 per 100,000 live births – one of the highest in the world.
- Post-partum hemorrhage (PPH) is the leading cause of maternal mortality worldwide, accounting for 34 percent of maternal deaths in Africa.
- Low levels of education and literacy, especially among women and the largely rural population
- The most common reason for a primary postpartum hemorrhage is the uterus not contracting efficiently enough or relaxing intermittently in the hours following the birth, allowing the bleeding to become heavy

5.4 Recommendations

We need of increased community recognition of and engagement in maternal health and postpartum hemorrhage issues. The achievement of improved health outcomes for women depends on the participation of individuals, families, and communities. The recommendation that successful health programs must strive for participation and ultimately self-reliance, with individuals, families, and communities assuming more responsibility for their own health. Communities must be empowered to recognize their right to quality maternal care, and in fact demand it. Access to family planning information and service, access to community education on safe motherhood Nutritional advance and supplements (Iron, vitamins, micronutrients) Mortality from obstetric hemorrhage, including PPH and thus maternal mortality is reduced

Access to skilled assistant to delivery Improve the capacity of community members to make the decision to seek medical care for PPH

Increase awareness of community members of the danger signs of PPH and knowledge of project technologies.

Mortality from obstetric hemorrhage including PPH and thus maternal mortality is reduced
REFERENCE

1. Clinical Medicine Reviews in Women’s Health M.n. el-gharib, S.F. Rakha, A.M. Awara, A.e. Mahfouz and T.S. elhawary Department of Obstetrics and gynecology, Tanta Faculty of Medicine, Tanta University, Tanta, Egypt.

2. Optimizing Protocols in Obstetric Richard L. Berkowitz, MD, FACOG Peter Bernstein, MD, FACOG Co-Chair, PSQI Committee Co-Chair, PSQI Committee ACOG District II ACOG District II

3. Prevention, Recognition, and Management of Postpartum Hemorrhage Pathfinder International 2010, trainer Guide


6. Phillip nieburg Improving maternal mortality and other aspects of women’s healthy October 2012


APPENDIX

Questionnaire title: maternal mortality and postpartum hemorrhage

My name is Hibo Moh’ed Abdi. I am one of the graduate students of University of Hargeisa specially faculty of Science Department of Nutrition and food science I am requesting you to donate me few minutes of your time, and I want to ask you small questions related on maternal mortality and postpartum hemorrhage. Edna Adan Hospital it is an essential for me to complete a research paper, so you can help me to complete this study by responding to below mentioned question.

Please answer all question in the questionnaire it is important information for my study, make tick one of the best appropriate answer

Thanks for your participation

Hibo moh’ed abdi

Mobile: 063-4147531 or 063-4003242

All thanks due to Allah

Questionnaire

Please tick the only one that you think it’s appropriate

Demographic section

1. Gender
   □ Female
   □ Male

2. Age
   □ 20-25
   □ 25-30
   □ 30-35

3. Marital status
□Single
□Married

4. Educational level
□Secondary
□Diploma
□University
□Other skills

General Knowledge about the PPH

5. Do you know postpartum hemorrhage?
□Yes
□No

6. Do you know risk factors of postpartum hemorrhage?
□Yes
□No

7. What do you think that can cause postpartum hemorrhage?
□Genetic
□Disease
□Others

8. Do you think that postpartum hemorrhage can cause maternal mortality?
□Yes
□No

9. Do you think that postpartum hemorrhage can prevent?
□Yes
□No

10. Do you know status level of postpartum hemorrhage in hargeisa Somaliland?
□Yes
□No

11. Do think the prognosis of postpartum hemorrhage?
12. Which way do you think is better to treat postpartum hemorrhage?
   □ Medical
   □ Palative
   □ Surgical

13. Is there the role of community, Government the supporting women effected by PPH?
   □ Yes
   □ No

General Knowledge about the maternal mortality

14. Do you know maternal mortality?
   □ Yes
   □ No

15. Do you think the maternal mortality is increasing in Hargeisa Somaliland?
   □ Yes
   □ No

16. Are the number of individual who show’s maternal mortality increasing recent years?
   □ Yes
   □ No

17. Is there any role that the government makes awareness of maternal mortality?
   □ Yes
   □ No

18. Do you think maternal mortality is serious disease?
   □ Yes
   □ No

19. Is there relationship between maternal mortality and postpartum hemorrhage?
   □ Yes
   □ No