Make Every Mother Count
Maternal mortality in Malawi, India and United Kingdom

Degree thesis in public health science 15 credits
Level: C
Public Health Science Program
Course code: OFH012
Date: 2009-06-01

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ABSTRACT

Objective: The aim of this thesis is to examine and compare the maternal mortality in three different countries; Malawi, India and United Kingdom, as well as highlighting the attributing factors and preventive steps that would reduce the maternal mortality in these countries.

Methods and material: The studied design that was chosen is an ecological study which means to study the relationship between aggregated health data and exposing factors, for example a geographical area and time period. The reason of choosing this study can be seen in the relationship and the factors that contribute to maternal mortality in Malawi, India and the United Kingdom. In order to attain the objective of the thesis a variety of sources were utilized to find data, statistics and scientific articles concerning maternal mortality in all three countries.

Results and conclusion: Maternal mortality is the highest in Malawi and India, while it is very low in the United Kingdom when compared with these two countries. The result shows among other things that the maternal mortality is mainly caused by direct causes both in Malawi and India and in the United Kingdom the maternal mortality is mainly from indirect causes. It is also shown that the maternal mortality in these countries have been changed over the years. It is also shown that preventive steps such as family planning, skilled attendance, obstetric emergency care and antenatal care can significantly reduce the maternal mortality rate.

Keywords: Maternal Mortality, ecological study, Malawi, India, United Kingdom and preventive steps
LIST OF ABBREVIATION

AIDS: Acquired immunodeficiency syndrome

EmOC: Emergency obstetric care

FIGO: International Federation of Gynaecology and Obstetrics

HIV: Human immunodeficiency virus

IPPF: International Planned Parenthood Federation

LHV/ANM: Lady Health visitor/auxiliary nurse midwife

SATI: Sexually transmitted infection

TBA: Traditional birth attendant

UN: United Nations

UNFPA: United Nations Population Fund

UNICEF: United Nations Children's Fund

UNDP: United Nations Development Programme

WHO: World Health Organization
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APPENDIX II
1. INTRODUCTION

In the thesis it will be discussed why nearly 585 000 women die every year in worldwide especially in the developing countries, while this is almost unheard in most of the industrialised countries. About one million children are left motherless and vulnerable because of maternal death. Eliminating or greatly decreasing the maternal mortality rate worldwide and especially in the developing countries has been a major world issue. For this the issue of maternal mortality is included in the United Nations Millennium Goals and the target is to reduce maternal mortality by three quarters, between 1990 and 2015 (UN 2008).

The World Health Organization (WHO) refers maternal health to the health of women during pregnancy, childbirth and the postpartum period. Motherhood associates a positive and satisfying experience; it is also connected to suffering, ill health and even death for a lot of women in the world.\(^1\)

Professor Mohamed Fathallah is a well-known gynaecologist and also a former President of the International Federation of Gynaecology and Obstetrics (FIGO) and made the following statement: “Women are not dying because of diseases we cannot treat, they are dying because societies have yet to make the decision that their lives are worth saving”, and certainly it can not be better articulated more than that in order to highlight this need for societies, especially in the developing world and to value women’s healthcare more. FIGO suggested that the problem could be solved if women receive healthcare before, during and after they give birth.\(^2\)

Owing to the fact that the maternal mortality is a challenging issue as indicated above, as well as finding it also as a taboo in many countries, which hinders the necessary measures for helping women in under-developed countries and not only believing it interesting subject, but it must be believed that this problem of maternal mortality can be eradicated completely or immensely reduced with simple means if seriously addressed in a more global way. By achieving this goal it will certainly empower women especially in underdeveloped countries to realise their full potentialities.

\(^1\) www.who.org 2009-03-31  
\(^2\) www.figo.org 2009-04-01
2. BACKGROUND

In this chapter, the maternal mortality will be defined and its measurements and a general overview on maternal deaths and attributing causes will be highlighted as well as addressing the international agreements and the Safe Motherhood Initiative on this issue.

2.1 Definitions

Maternal death is defined in the WHO as:

> “the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes” (WHO 2005a).

The definition of maternal death is often impossible to determine as the precise cause of death related to pregnant of a woman occurs outside health facilities. Therefore WHO and others working with maternal mortality issue often use a broader definition which is pregnancy-related death and as such the definition of maternal mortality is; “the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death” (WHO 2005a).

The International Classification of Diseases (ICD-10) established a new category that defines maternal mortality, as; “the death of a women by direct and indirect obstetric causes more than 42 days but less than one year after termination of pregnancy” (WHO 2005a).

Also, ICD-10 considers that maternal deaths should be divided into two categories:

- Direct Obstetric, which are deaths normally resulted from obstetric complications during pregnancy, labour, and puerperium from interventions, omissions, incorrect treatment, or from a chain of events from the above complications.

- Indirect Obstetric, which are deaths resulted from a previously existing disease, or one that developed during pregnancy that was not caused by direct obstetrics, but rather exacerbated by the physiological effects of the pregnancy (WHO 2005a).

On the other hand, the definition of healthy life expectancy is according to WHO the average number of years that a person can expect to live in "full health" by taking into account the years in which that person did not live in “full health” due to disease and/or injury.

According to WHO life expectancy at birth is that, which reflects the overall mortality level of a population. It summarizes the mortality pattern that prevails across all age groups such as children, adolescents, adult and the elderly.
2.2 Measurements of maternal mortality

There are three renowned measures of maternal mortality, which are the maternal mortality ratio, maternal mortality rate and lifetime risk of maternal death (Ronsmans & Graham 2006). The first measurement is the most widely used and is the number of maternal deaths during given time period per 100 000 live births (WHO 2005a).

Maternal mortality rate is the number of maternal deaths per 100 000 women of reproductive age group (15-49) in a given period (WHO 2005a).

The lifetime risk of maternal mortality is the probability of maternal death during a woman’s reproductive life, frequently expressed in terms of odds (WHO 2005a).

There is also another measurement and that is the proportionate mortality ratio, which is the proportion of all female deaths of those of reproductive age, usually defined as 15-49 years, in a given time period (Longmans et al 2006).

2.2.1 Characteristic of the information systems

There are five achievable foundations of information system on maternal deaths:

- Vital registration systems, or death notification systems
- Hospital-based surveys, including health management information statistics (HMIS)
- Population-based surveys, including the sisterhood method
- Community-based continuous surveillance systems
- Reproductive Age Mortality Studies (RAMOS).

Vital registration systems or also called death notification systems are infrequently available on a wide scale in developing countries. Wherever this system is existing, there is a propensity to under-report death or provide no information on the cause of death or pregnancy status, which makes the death impossible to classify as a maternal death (Geubbels 2006).

Hospital-based survey or management information statistics (HMIS) involves data about patients who deliver in health facilities. Additionally, in hospital deliveries a selection of high-risk women or emergency admissions are frequently concerned. Because of this it leads to a considerable unknown bias in the estimate. This survey is extremely useful but to investigate the factors contributing to hospital maternal deaths will be difficult (Geubbels 2006).

Population-based survey involves large samples (often > 50 000 births), which makes this survey extremely expensive or when a large sample-size is not feasible, they produce imprecise estimates. In order to find a way to overcome this problem sisterhood-method is used (Hill, AbouZahra & Wardlaw 2001). Because one respondent provides information about several other women, the sample size can be reduced to less than 4,000 households. This method was developed by WHO during the late 1980s. This method is to ask four simple questions to a adult female and they are; how many sisters reached adulthood, how many have died, and whether they were pregnant around the time of death and this is the indirect sisterhood method (AbouZahra 2003). The direct sisterhood method asks more complicated questions about age at death and time of death and therefore allows estimating maternal mortality for a narrower time period (Geubbels 2006).
Community-based surveillance systems are costly, but have the capacity to provide current estimates. The systems can provide an insight into the determinants of maternal death (Geubbels 2006).

Reproductive Age Mortality Studies (RAMOS) system measures the extent and causes of maternal mortality by identifying and investigating the causes of death of all women of reproductive age, using a variety of sources of information on maternal deaths (Hill, AbouZahra, Wardlaw 2001). The system measures for example in the civil registers, health facilities, community leaders, schoolchildren, religious authorities, undertaker, cemetery officials etc. This measurement is very cost-effective way of measuring maternal deaths, for the reason that it is likely to trace deaths in women of reproductive age (Geubbels 2006).

2.3 Difficulties to measure maternal mortality
According to WHO (2005a) maternal mortality is extremely difficult to measure for both theoretical and practical reasons. The explanation to this is that maternal mortality is hard to classify precisely for the reason that it requires information about deaths among women of reproductive age, pregnancy status or near the time of death, and the medical cause of death (Hill, AbouZahra & Wardlaw et al 2001).

An accurate measurement of these elements is very difficult, especially in cases where deaths are not properly reported through the appropriate registration system, and no certificates for cause of death are issued (WHO 2005a).

In general maternal deaths are relatively rare, even where maternal mortality rates are high, and are prone to measurement errors. This makes all existing data on maternal mortality rates more or less uncertain to a degree. At the same time, this is all, what can be said for an assessment, healthcare planning, and regional comparisons (WHO 2005a).

2.4 Death rates of maternal mortality worldwide
It is estimated that around 1 500 women die every day due to maternal deaths and 99 percent of maternal deaths are in low-income countries. It has been frequently stated that every minute of every day somewhere in the world a woman dies of complications associated with pregnancy or childbirth. The areas with the highest maternal mortality ratios and the largest number of maternal deaths are Africa, Asia, and Latin America. According to the latest estimates of maternal mortality ratios there are 979 deaths for Africa, 380 deaths for Asia, and 191 deaths for Latin America and comparatively the Caribbean maternal death ratio is 13. Especially in East and West Africa the ratios of over 1000 per 100 000 live births are high (Sciarra, 2009).

The estimated lifetime risk of dying from pregnancy-related causes is 1 in 21 for Africa, 1 in 54 for Asia, 1 in 73 for Latin America and 1 in 140 for the Caribbean, compared with 1 in 6400 for the USA and less than 1 in 10 000 for northern Europe. These rates give the widest disparities in terms of health and socio-economic statistics between high and low-income countries (Lawson, Harrison & Bergström 2001).

2.5 Global causes of maternal mortality
There are numerous complications in pregnancy, childbirth or the postpartum period for women (WHO 2006). These complications develop because of the situation of pregnant
women and because of the pregnancy aggravated and existing disease. There are five major direct causes why women die from it and they are (Lawson, Harrison & Bergström 2001).

- Maternal haemorrhage
- Puerperal sepsis infections (also mainly soon after delivery)
- Hypertensive disorders in pregnancy (pre-eclampsia and eclampsia)
- Obstructed labour
- Unsafe abortion

There are also indirect causes that contribute to the maternal mortality and these are malaria, anaemia, HIV/AIDS and cardiovascular disease, and all these complicate pregnancy or aggravate pregnancy (Lawson, Harrison & Bergström 2001). However, women in addition to the above, die over poor health and lack of adequate care needed during the pregnancy. Also poverty, lack of primary health care, lack of accessibility to the hospitals as many women live in remote villages immensely contribute to maternal mortality in underdeveloped countries (Lawson, Harrison & Bergström 2001).

Figure 1 indicates the geographical variation in distribution of causes of maternal deaths in Africa, Asia, Latin America, the Caribbean and developed countries. It also indicates causes that contribute to the maternal mortality in these regions.

Figure 1: Geographical variation in distribution of causes of maternal deaths

2.5.1 Maternal haemorrhage

Maternal haemorrhage is a bleeding from the genital tract during pregnancy (ante-partum), during or after the delivery (Potts & Hemmerling 2006). Although ante-partum haemorrhage is not a major cause of maternal mortality in developed countries yet it is still an important cause of maternal and prenatal morbidity. In contrast post-partum haemorrhage (loss of 500 ml or more of blood within twenty four hours after delivery and/or within 42 weeks following delivery) is still a major cause of maternal death in developed countries as well as in developing countries (AbouZahra 2003).

2.5.2 Puerperal sepsis in pregnancy

By definition puerperal sepsis is a common pregnancy-related condition, which could eventually lead to obstetric shock or even death and this problem is still traceable in developing countries and continues to present a significant risk of obstetric mortality (Dolea & Stein 2000). Another problems are nosocomial infections, which is particularly associated to operative deliveries, and antibiotic resistance, all these are increasingly common in both developed and developing regions. Puerperal infection can generally be defined as any infection of the genital tract after delivery. Also, most pyrexia in the puerperium is caused by pelvic infections, which is an incidence of fever after childbirth and this may be a reliable index of this incidence though fever may also be associated with other infections related to childbirth such as mastitis (AbouZahra 2003).

2.5.3 Pre-eclampsia and eclampsia

Hypertensive disorders of pregnancy (HDP) can be defined as a group of conditions associated with high blood pressure during pregnancy, proteinuria and in some cases convulsions (Sibai, Dekker & Kupfermic 2005). Two phenomena, which are called pre-eclampsia and eclampsia, give mother and child serious consequences (Garratt 2009). These are linked with vasospasm, pathologic vascular lesions in multiple organ systems, increased platelet activation and subsequent of the coagulation system in the micro-vasculature. However, eclampsia is normally a consequence of pre-eclampsia consisting of central nervous system seizures, which often makes the patient unconscious and if not treated death may be the result (AbouZahra 2003).

2.5.4 Obstructed labour

Labour is called, obstructed when the presenting part of the foetus cannot progress into the birth canal, despite strong uterine contractions (Neilson et al 2003). The most frequent cause of this kind of labour is cephalo-pelvic disproportion, which is a mismatch between the foetal head and the mother’s pelvic brim, in another words the foetus may be big in relation to the maternal pelvic brim, and this can be resulted from the foetus of a diabetic woman, or the pelvis may be contracted, which is more common when malnutrition is prevalent. Other causes of obstructed labour may be mal-presentation or mal-position of the foetus (shoulder, brow or occipito-posterior positions). If this obstructed labour is neglected a maternal mortality will follow (AbouZahra 2003).
2.5.5 Abortion
The term abortion covers several conditions that take place during pregnancy and these are from ectopic pregnancy and hydatiform mole; through to spontaneous and induced abortion (Fawcus 2007). These also show important differences in the dimensions and nature of deaths and disabilities resulting from various conditions of abortion. The great majority of deaths and difficulties that are resulted from abortions are normally due to the abortions taking place without a health facility or skilled medical personnel. This kind of unsafe abortion may lead to haemorrhage, infection and all these could lead to death (AbouZahra 2003).

2.5.6 Anaemia in pregnancy
According to WHO (2008), anaemia is the most pregnancy complications and affects two-fifths of the non-pregnant and over 50% of all pregnant women in developing countries. The criterion, given by WHO when a pregnant woman is diagnosed of anaemia is when woman’s haemoglobin concentration is under 110 g/l or the haematocrit equivalent of less than 0.33 in the peripheral blood (Sullivan et al 2008). The main causes of anaemia in pregnancy are nutritional deficiencies of iron and folic acid as well as malaria (Lawson, Harrison & Bergström 2001).

2.5.7 Cardiac disease in pregnancy
As internationally defined cardiac disease is now the leading factor of maternal death and its recent sharp rise in cardiac deaths is due to acquired disease such as myocardial infarction and cardiomyopathy (Lawson, Harrison & Bergström 2001).

2.6 International agreements and policy
The Millennium Development Goals were developed in September 2000 at the United Nations Millennium Summit. Eight specific goals were made:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality,
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development.

The goals are measured yearly for individual countries and were developed to be achieved by 2015. According to the report certain parts of the goals had been reached and others have not had the initial success that the United Nations had hoped to reach with complete success (UN 2008).

Goal number five in the Millennium Development Goals Report (2008) is aimed to reduce maternal mortality by three quarters, between 1990 and 2015 (Horton 2006). The aim of the goal is to improve the conditions of mothers giving birth. The report notifies that the improvement of maternal health has made little progress, especially were deaths take place, in Sub-Saharan Africa and Southern Asia.
Less than 1 percent per year between 1990 and 2005 had maternal mortality decreased at the global level, which is far below the 5.5 percent annual improvement target, that the United Nation required for. However the variable data and the wide margins of uncertainty make it difficult to an accurate result (UN 2008).

2.6.1 The Launch of the Safe Motherhood Initiative
The Safe Motherhood Conference was held in Nairobi, Kenya in 1987. In that time, the scope and dimension of maternal health were not recognized or understood. The Safe Motherhood was launched by international agencies and governments to increase the knowledge and awareness of the impact of maternal mortality and morbidity, and also find preventive methods. UNFPA, UNDP, UNICEF, WHO, IPPF, the Population Council and the World Bank were the seven co-sponsored agencies (WHO 2007).

The conference underlined the complete lacking of priorities of maternal mortality in the governments and funding agencies development and it was urged to have concerted actions in order to prevent women dying unnecessarily from pregnancy related diseases and childbirth (WHO 2007).

The conference included maternal health within women’s status with regard to economic, social and political and outlined the following strategies in order to have safer motherhood:

- Improving of community –based health care by increasing the skills of health staff and traditional birth attendants as well as screening high-risk pregnant women for referral and medical care.
- Improving referral-level services to handle complicated cases and keep as a back-up to community –level care.
- Creating an alarm and transport facilities in order to have a link between referral care and community.

The international development community focused on woman’s plight caused by pregnancy and childbirth and safe motherhood became a “catch phrase” during the conference for maternal health care (WHO 2007).

2.7 Reproductive health and women’s right
According to the WHO’s definition - health is a state of total physical, mental and social well being of an individual. This does not mean the absence of disease and reproductive process (WHO 2005b). By reproductive health is meant that an individual would have a responsible and satisfying safe sex life and capable of reproduction with freedom to decide when and how to do so. Included and underlined in this is the right of women to be aware of and have the access to safe and affordable methods for fertility as well as the right to have suitable health care services for having safe pregnancy and healthy child5.

The inequality of poverty, low social status to women, immense health risks result in unnecessary and almost preventable deaths. Most of women and young girls that die every year during their pregnancy and childbirth could have been prevented if a save and relatively low-cost services in reproductive health care were provided6.

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5 www.un.org 2009-04-05
6 www.un.org 2009-04-05
The United Nations Population Fund (UNFPA) declared reducing maternal mortality as a significant human rights issue, gender equality and equity principles. UNFPA has a priority action area, which is to save women’s life by improving their maternal health. The role of gender influence on the access and quality of healthcare must be seriously considered in the developing world. Therefore, human rights based on approach that empower women, and provide them with conditions for safe delivery should be implemented. A human rights based on approach not only empower women, but also promote dignity, self respect, and social justice to both clients and healthcare providers if implemented in a culturally sensitive manner. This also ensures equality and equity, in what is done to reduce maternal mortality, and how it’s done. UNFPA also uses rights based on approach to guide the design and implementation of its maternal mortality policies, and programming.

According to FIGO, the woman’s health status is affected by complex of biological, social and cultural factors, which are interrelated and can only be addressed in a comprehensive method. It is also well known that reproductive health is determined not only by the quality and availability of health care, but in addition by socio-economic status, lifestyles. World Report in 1994 on Women's Health, FIGO states that women's health is solely by lack of medical knowledge, however, by infringements on women's human rights.

2.8 Geography, health and the economy of Malawi

Malawi is a landlocked country, south of the equator in sub-Saharan Africa (Appendix II). It is bordered to the north and northeast by Tanzania; to the east, south, and southwest by Mozambique; and to the west and northwest by Zambia. The population of Malawi is nearly 13 million and the capital is called Lilongwe. The gross national income per capita (PPP international) is $690. The healthy life expectancy at birth for both male and female is 35 years.

The probability of dying under five is 120 per 1000 live births and probability of dying between 15 and 60 years is 554 per 1000 and 514 per 1000 among the population for male and female respectively. Currently Malawi is one of the poorest countries in the world. The country is facing a lot of threats such as HIV/AIDS, food insecurity and poor infrastructure. The life expectancy in the country is quite low; to be exact 49 for men and 51 for female and this low life expectancy is attributed to HIV/AIDS pandemic in the country. The total expenditure on health per capita is $70 and the total expenditure on health is 12, 3% of GDP.

According to the Human Development Report 2007/2008, about two–third of the population survives with less than one dollar per day. Malawi is mainly an agricultural country and the population survives on the agriculture. Illiteracy is very high, about 60 percent.
2.9 Geography, health and the economy of India

India is a country in south Asia between Pakistan, China and Nepal (Appendix II). The country has more than one billion inhabitants and the capital is called New Delhi. The country has been through high economic growth during the last years and belongs to one of the fast growing economy in the world. The gross national income per capita (PPP) is $2460.\textsuperscript{12}

The life expectancy has grown with 15 years in comparing with 1970, which means the life expectancy, is 62 for male and 64 for female. The healthy life expectancy at birth for male is 53 and 54 for female.\textsuperscript{13}

The probability of dying under five is at 76 per 1000 live births. The probability of dying between 15 and 60 years for male is 276 per 1000 population and 203 per 1000 population for female. The total expenditure on health per capita is $109 and also the total expenditure on health is 4.9\% of GDP. Approximately 390 million people live with less than one dollar per day and nearly 800 million live with less than two dollar every day.\textsuperscript{14}

2.10 Geography, health and the economy of the United Kingdom

The United Kingdom is a country in north-western Europe (Appendix II). The United Kingdom comprises of England, Northern Ireland, Scotland and Wales and the capital is London. More than 60 million people live in the United Kingdom. The life expectancy at birth for male is 77 years and 81 years for female. However, the healthy life expectancy at birth for male is 69 for male and 81 for female.\textsuperscript{15}

Probability of dying under five is 6 per 1000 live births and probability of dying between 15 and 60 years for men 98 and 61 for female. The gross national income per capita (PPP) is $33 650. The expenditure on health per capita is $2 784 and also the total expenditure on health is 8.4\% of GDP.\textsuperscript{16}
3. AIM AND THE RESEARCH QUESTIONS

Aim:
The aim of this thesis is to examine and compare the maternal mortality in three different countries; Malawi, India and United Kingdom, as well as highlighting the attributing factors and preventive steps that would reduce the maternal mortality.

Research questions:

(i) What are the main causes and factors for maternal mortality in these countries?
(ii) How has the maternal mortality changed over the time in these countries?
(iii) What are the preventive steps, adopted to decrease maternal mortality in general?
4. METHODS AND MATERIAL
In this chapter, the type of method will be described, the procedure of the material that was used and also the ethical considerations. Choosing of study design, data sources, delimitation and consideration of ethics are discussed in this chapter.

4.1 Study design
An ecological study has been chosen as a study design. Ecological study means to study the relationship between aggregated health data and exposing factors, for example a geographical area and time period (Andersson 2006). The reason of choosing this study can be seen in the relationship and the factors that contribute the maternal mortality in Malawi, India and United Kingdom. This study is to investigate the characteristics of a disease or condition in a whole population, which is why it is considered as an ecological study. If a study involves the investigation of the characteristics of a disease or condition in a whole population it is considered an ecological study (Andersson 2006).

4.2 Delimitation
In this thesis three different countries will be examined and compared. These countries are different in terms of development as United Kingdom is more developed, while India is an emerging economy and Malawi is under developed. The reason to compare these countries is to show the level of maternal mortality and factors that influence the maternal mortality in each country. As United Kingdom comprises of different states, which are by and large on the same level of socioeconomics and development, the thesis, will focus mainly on England and Wales especially in the second research question.

4.3 Data sources
A variety of sources were utilized to find data, statistics and scientific articles concerning maternal mortality in all three countries. A majority of the documents and statistics were obtained from The World Health Organization and United Nations.

The World Health Organization data was used to observe maternal mortality in all three countries to study the pattern and trends that had been made. Reports from the World Health Organization were of use to obtain current statistics about the problem in each country. Other documents from United Nations provided important information concerning the issue and also the prevention methods for maternal mortality. In order to make the thesis credible, scientific articles on maternal mortality of the countries have been used. Moreover, websites have been chosen to use, for the reason that these websites are the most accurate and well-funded sources of information available. Prior to selecting these websites as source of information, the websites were evaluated to ensure that the data presented was reliable. In table 1: Data sources from different organisations and scientific articles with respect to three countries are shown.

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### Table 1: Data sources

<table>
<thead>
<tr>
<th>Countries</th>
<th>World Health Organizations documents</th>
<th>United Nations documents</th>
<th>The United Nations Population documents</th>
<th>Scientific articles</th>
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#### 4.4 Ethical considerations

This thesis is an ecological study, which the information has been collected from Mälardalens University’s library and also two different databases have been used. Therefore there will not be any reasons to any ethical problems towards the authors that have been mentioned in this thesis. There are several authors that have carried out a research on maternal mortality and therefore, every one of them can be referred, for everyone has an equal worthiness. However it is impossible to refer them all or access to their scientific articles. The rights of the authors whose works have been used in this thesis are named so the principle of their rights is fulfilled. Similarly, the authors that have been referred in this thesis have not been discredited and their words have not been deformed, because an objective balance has been used between reference and the analysis. For this reason, the principle of a health care will be fulfilled in this thesis. All authors that have written about maternal mortality are equally worthy but obviously one can not use all their works as a source or reference.
5. RESULTS
The chapter under the title results, research questions will be contained a chronological order, and it will first explain the main reasons for maternal mortality in the selected countries, secondly it will show how maternal mortality has been changed over time and it will also describe the preventive steps for the maternal mortality.

5.1 Malawi

5.1.1 Maternal health
Malawi has one of the highest maternal mortality rates worldwide. The following estimates pinpoint this fact. The lifetime risk for maternal deaths is 1 in 7. Every day, 16 women in Malawi die because of complications during pregnancy or childbirth. The World Health Organization’s latest maternal mortality ratio in Malawi has been estimated at 1800 per 100 000 live births. The maternal mortality ratio in 1994 to 2000 according to the Malawi Demographic and Health Survey (MDHS) was 1120 maternal deaths per 100 000 live births, which increased with 620 per 100 000 live births (Rosato et al 2006).

Many women in Malawi do not have an access to family planning, hospitals and can not reach where medical services are available for the transport is unaffordable for them. Lack of blood is another factor, which contributes to 18-32% of maternal death. In Malawi, 2, 8% of women who expect child deliver their babies through caesarean method and that is well below the recommended minimum of 5% and it also shows that women do not have the needed medical care. Many pregnant women can not also afford to have delivery services due to poverty and not able to pay for the delivery costs as well as having poor medical staff attitude and inadequate equipment (Geubbels 2006).

Quality of emergency obstetric care (EMOC) services is very poor in Malawi as indicated by the high mortality within the health facilities and having a high fatality rate of 3, 4%. That is much higher than what UN recommends which is 1%. Although some women in Malawi deliver in health centres yet maternal mortality deaths are caused by delays in getting care, obstetric complications, poor referral systems, unavailability of suitable drugs, and inadequacy of equipment and trained medical personnel (Geubbels 2006).

The distribution of causes of maternal mortality in Malawi is somewhat similar to the global causes, as the majority of maternal deaths has direct causes and occurs post-partum. The most common direct causes of maternal mortality in Malawi are haemorrhage, sepsis, pre-eclampsia/eclampsia and obstructed labour. The most common indirect causes of maternal mortality in Malawi are anaemia, malaria, heart disease and HIV/AIDS and it is noteworthy to mention that poverty also immensely contributes to the maternal mortality (Geubbels 2006).

The effect of the poverty in Malawi can be seen in the poor health and nutritional status of women, the lack of quality obstetric care during pregnancy and delivery, and insufficient access to contraception which leaves women open to the risk of frequent, early and innumerable pregnancies (Geubbels 2006). Figure 2 indicates the direct causes of maternal mortality in Malawi.
5.1.2 Maternal death in three districts in the central region of Malawi

There had been a study carried out in Malawi and its objective was to determine the causes as well as the characteristics of maternal deaths that take place in the health facilities of three districts in the central regions of Malawi. The study indicates the causes of the maternal deaths, avoidable factors, problems that are encountered during the reviewing process of maternal deaths, and also recommendations were given in the study report (Kongnyuy, Grace & Van Den Broek 2009).

The methodology that is used in the study was that forty-three cases of maternal deaths were reviewed in nine hospitals that locate in three districts of the central regions of the country. During one-year’s review of the death causes, avoidable factors were identified and recommendations that were made after the review were implemented. All these maternal deaths were audited between January and December 2007 (Kongnyuy, Mlava & Van Den Broek 2009).

The results of the study indicated that there were 28 (65.1%) and 15 (34.9%) deaths resulted from direct obstetric and indirect obstetrics respectively. Other causes of the deaths were postpartum haemorrhage (25.6%), postpartum sepsis (16.3%), HIV/AIDS (16.3%), ruptured uterus (7.0%), complications of abortion (7.0%), anaemia (7.0%), ante partum haemorrhage (4.7%), and eclampsia (4.7%). The results also indicated that two thirds of the women were referred either from another health facility (51.2%) or by a traditional birth attendant (TBA; 11.6%), and up to 79.1% were in a serious condition upon their admission to the hospital (Kongnyuy, Mlava & Van Den Broek 2009).

In the final analysis of the study it was observed that the following four factors have contributed to the maternal deaths:

- Health worker factors
- Administrative factors
- Patient/family factors
- TBA factors

In further scrutiny of these factors it was concluded that the major health worker factors were inadequate resuscitation (69.8%), lack of obstetric life-saving skills (60.5%), inadequate monitoring (55.8%), initial incomplete assessment (46.5%), and delay in starting treatment...
Moreover, the most common administrative factor was lack of blood for transfusion (20.9%). Other problems faced included shortage of staff and other necessary resources, difficulty in maintaining anonymity, poor quality of data, and obstacles in implementing recommendations (Kongnyuy, Mlava & Van Den Broek 2009).

Conclusion, attained from the study was that adequate training on obstetric life-saving skills, addressing HIV/AIDS, and raising community awareness would be crucial factors for reducing maternal mortality in Malawi and countries with similar socioeconomic profiles (Kongnyuy, Mlava & Van Den Broek 2009).

5.1.3 History of maternal mortality

In Malawi the number of maternal deaths has been estimated by using a hospital–based survey. During the periods between 1977 and 1990, the level of the maternal deaths was from 32 to 945 maternal deaths per 100 000 live births. According to community survey carried out in the country during the eighties and early nineties the maternal mortality ratio was 398 to 620. In the late nineties only estimates for the maternal mortality ratio and carried out by MDHS were available and these were 1120 per 100 000 live births. The three most significant factors of death as per hospital studies were sepsis, complications of abortion and obstructed labour, sometimes resulting in ruptured uterus (Geubbels 2006).

According to the estimates carried out by the World Health Organization, UNICEF and UNFPA in 2000, Malawi is among the countries, having the highest maternal mortality rates in the world. In chart 17, it is indicated that the maternal mortality ratio in Malawi has increased from 620 deaths per 100 000 live births to 1120 deaths per 100 000 live births in 1992 and 2000 respectively. However, in 2004 MDHS indicated that there had been decline in maternal mortality ratio and that stood as 984 deaths per 100 000 live births. It is noteworthy to mention that there has been circumstantial evidence from demographic and health surveys carried out during 1992 and 2000 that the HIV epidemic has contributed substantially to the rise in maternal mortality in the 1990s (Geubbels 2006).

5.2 India

5.2.1 Maternal health

India has one of the highest maternal mortality rates in Asia. Currently India reports for more than 20 percent of the global maternal deaths. The World Health Organisation’s latest maternal mortality ratio in India has been estimated at 540 per 100 000 live births. In India approximately 30 million women experience pregnancy yearly and 28 million have live births. Although 136 000 maternal deaths occur every year in India, but in rural areas of India the maternal mortality is rising to 619 per 100 000 live births (WHO 2004).

The common direct causes of maternal mortality in India are haemorrhage, sepsis, unsafe abortions, eclampsia, obstructed labour and other direct causes. The most common indirect causes are malaria, anaemia and heart diseases (WHO 2004).

According to National Family Health Survey (NFHS) conducted in 1998 only one-third (34%) of deliveries occurs in health care services and two-fifth (42%) of deliveries are unattended by trained medical staff. Moreover, only one in every three (34%) of pregnant women did not get
an antenatal care and only 7% received antenatal check-up visit in the third trimester. All these factors point to the high degree of maternal mortality in India (WHO 2004).

In India, postnatal care is greatly insufficient and despite the Child Marriage Restraint ACT, adopted in 1987, 34% of Indian women get married below the age of 18 and the phenomenon is still higher in rural areas, which is 40% and more than the urban areas, which has 18%. Young girls who get married at early stage face considerable risks during their pregnancy and childbirth. Girls with age group of 15-19 are as twice likely to face death from childbirth as with women in their twenties and those under age 15 have five times more chances to die when compared with women in their twenties. All these factors point to the high number of mortality death in India (WHO 2004).

Other factors that greatly contribute to high level of maternal mortality in India can also include poverty, lack of services, and lack of women’s awareness of the importance of pregnancy care and health delivery services. Other factors that equally contribute to high maternal mortality are poor health personnel’s attitude, poor quality of services and women’s lack of decision making as the family affairs in India are by and large decided by men (WHO 2004). Figure 3 shows the causes of maternal mortality in India.

**Figure 3: The causes of maternal mortality in India**

5.2.2 National Family Health Survey (NFHS-3)
The third largest survey was carried out by the National Family Health Survey-3 (NFHS-3) and the survey was applied in 29 states in a sample of households. The main objective of the survey was (1) to get crucial data on health and family welfare needed by the Ministry of Health and Family Welfare and other agencies for policy and program-related purposes; (2) to get information on essential emerging health and family welfare issues. NFHS-3 has determined that as many as 48% of pregnant women still do not have three antenatal visits in pregnancy. It has been observed that only 40.7% women had institutional delivery, 48.2% women had their birth assisted by doctor, nurse, LHV/ANM (lady health visitor/auxiliary nurse midwife) or other health personnel. Hence it is believed that more than half of pregnant women in India deliver their babies without the help of any personnel from the health services (Salvi 2009).

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It is estimated that India has 28 million pregnancies annually and perhaps this high number is due to prevalent poverty, illiteracy and early marriage. Half of these pregnancies lack medical services which reflect the high maternal mortality rate in the country. Policy makers in India are aware of this dire situation and changing it, there must be a will power to make all Indians receive education and other social services. Once these are attained problems such as early marriages will be eradicated and good family planning will be attained and in turn the maternal dearth rate will be reduced (Salvi 2009).

5.2.3 History of maternal mortality

An estimated maternal mortality ratio in India during 1982-86 was 638 deaths per 100 000 live births. A long-term trend in maternal mortality of the country is shown in the graph. In order to derive from six differentials, National Sample Surveys and the Sample Registration System were used as a data. The maternal mortality ratio in India has been declining progressively from a level of approximately 1 300 in the late 1950s, while it was between 800 and 900 per 100 000 live births in 1970s, and in 1980 the maternal mortality ratio was 500-600 per 100 000 live births, while in the 1990s it was between 400 -500 per 100 000 live births. In the 1950s the maternal death rate fell from a level of over 200, while it fell around 120 in 1970s, 75 in 1980s and 50 in 1990s. It is obvious that the decline of the death rate accelerated in 1970s and that could be attributed to the decline in fertility (Bhat et al 2006). In figure 4, the estimated trends in measures of maternal mortality in India from1955 – 95 is indicated and upper line shows that maternal mortality ratio was 1.321 per 100 000 live births and lower line shows that 215 women die yearly of pregnancy related deaths.

**Figure 4:** Estimated trends in measures of maternal mortality for India, 1955-95

![Figure 4: Estimated trends in measures of maternal mortality for India, 1955-95](image)
5.3 United Kingdom

5.3.1 Maternal health

The United Kingdom has relatively low maternal mortality rate. The latest maternal mortality ratio has been estimated at 11 per 100,000 live births. About 295 women died in the United Kingdom from their pregnancy from indirect or direct causes, according to the latest report and also in 2003 to 2005 more than two million women gave birth in the United Kingdom. About 132 died of conditions that could only occur in relation to pregnancy, which is a direct cause, and about 163 died of underlying medical or psychiatric causes, for instance, from heart disease or severe depression that were worsened by their pregnancy, which is a indirect cause. In 2000 – 2002 the indirect causes of maternal mortality rate for indirect causes was 7.76 per 100,000 live births and the indirect causes increased now 7.71 per 100,000 live births. The direct causes is 6.24 per 100,000 live births compared to 5.31 in 2000 – 2002 (Lewis & Drife 2004).

In the United Kingdom, the direct causes of maternal mortality are thrombosis/thromboembolism, haemorrhage, early pregnancy/ectopic pregnancy, sepsis, other causes, and anaesthesia and amniotic fluid embolism, while indirect causes are cardiac disease, deaths from psychiatric causes and other indirect causes (Lewis & Drife 2004). However, there are other risk factors for maternal death in the United Kingdom and these are as follows:

Social disadvantage:
Women who live in a family where both partners are unemployed and being socially excluded are up to 20 times more likely to die than women from the more advantaged groups. Also, women who are single mothers are 3 times more likely to die than those in stable family situation (Lewis & Drife 2004).

Poor communities:
Women dwelling in poor areas have a 45% higher death rate than their counterparts who live areas with higher standard of living (Lewis & Drife 2004).

Minority ethnic groups:
Table 2 shows the maternal mortality rates of ethnic groups from 2000 – 2002, in which black African women are the most. Women with ethnic backgrounds die three times more than their Caucasian counterparts. More so, black African women, women with refugee’s status have a mortality rate which is seven times higher than Caucasian women and this is due to the difficulty in getting obstetric care and this phenomenon of disparity has also been observed in other affluent societies (Lewis & Drife 2004).
Table 2: Maternal mortality rates by ethnic groups in the United Kingdom (2000-2002)

<table>
<thead>
<tr>
<th>Ethnic group</th>
<th>No.</th>
<th>Rate/100,000</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black African</td>
<td>30</td>
<td>72.1</td>
<td>6.7</td>
</tr>
<tr>
<td>Black Caribbean</td>
<td>13</td>
<td>25.8</td>
<td>2.4</td>
</tr>
<tr>
<td>Pakistani</td>
<td>10</td>
<td>12.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Indian</td>
<td>7</td>
<td>15.5</td>
<td>1.4</td>
</tr>
<tr>
<td>Bangladeshi</td>
<td>8</td>
<td>22.5</td>
<td>2.1</td>
</tr>
<tr>
<td>Asian and others</td>
<td>4</td>
<td>5.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Total non-white</td>
<td>72</td>
<td>31.0</td>
<td>2.9</td>
</tr>
<tr>
<td>White</td>
<td>151</td>
<td>10.7</td>
<td>1.0</td>
</tr>
</tbody>
</table>


Late booking or poor attendance:
Another cause which contributes to a higher mortality rate is late booking or poor attendance to maternal health services. It is noted that 20% of the women who died from direct or indirect causes booked for maternity care after 22 weeks of gestation, or had missed over four routine antenatal visits (Lewis 2004).

Delayed pregnancy:
In the United Kingdom like most advanced countries there is a trend that women get married late and it is recorded that in 2003-05 the increase in the numbers and proportion of maternities which for women aged 35 and over continued (Lewis 2004).

Obesity:
This is another cause and the number of obese women or with higher BMI is alarmingly increasing and this in turn increases the pregnancy related deaths (Lewis 2004).

5.3.2 History of maternal mortality in England and Wales
From the end of the first half of the 19th century maternal mortality ratios, in England and Wales were recorded routinely. The maternal mortality ratio decreased from 600 per 100 000 to 450-500 per 100 000 live births during the period between 1850 and 1900. The level of maternal mortality in England and Wales during 1880 and 1980 remained high until through the mid 1930s, after that there was a great decline. The number of women dying in childbirth during 1920s and 1930s was still high as in a similar way after Queen Victoria came to power in 1850s. Today’s risk figure is showing women dying in England and Wales for childbirth is between 40 and 50 times lower than the figure of 60 years ago (Hamberlain 2006).

Figure 5 indicates maternal death rates or ratios during the period between 1880 and 1980. There had been a period of irregularity but with general maternal mortality death rates until around 1900 and then this went down slightly till the First World War and been so until 1930s. However, a sudden and steep reduction in maternal death took place, which could not have been the result of any natural factors, involved in death but in reality this reduction was due to the overcoming of maternal infections by means of antibiotics and chemotherapy. The Four
Horsemen of Death in maternal mortality were puerperal pyrexia, haemorrhage, convulsions and illegal abortion, which are still in different proportions and main killers in many parts of the world, although these are now significantly less in the United Kingdom (Loudon 2000).

The availability of better practices by professionals in both obstetric and midwifery has certainly had a dramatic effect on reducing the maternal death rates that used to take place during 19th and 20th centuries. This can be related to the influence of the Royal College of Midwives and the Royal College of Obstetricians and Gynaecologists that provide training and certification to the professionals in this field. Also the introduction and continuation of a methodology of a self-audit of confidential enquiries into maternal deaths, that began in 1952 had greatly enhanced to the understanding of maternal deaths (Loudon 2000).

Figure 5: Annual maternal mortality rates in England and Wales 1880-1980.
5.4 Comparisons between the three countries

**Table 3:** Comparisons of MMR, number of maternal deaths, lifetime risk, and range of uncertainty in the three countries.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Maternal mortality ratio (maternal deaths per 100 000 live births)</th>
<th>Life time risk of maternal mortality 1 in:</th>
<th>Number of maternal deaths per year</th>
<th>Range of uncertainty MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malawi</td>
<td>580</td>
<td>21</td>
<td>2 800</td>
<td>410-750</td>
</tr>
<tr>
<td>India</td>
<td>440</td>
<td>55</td>
<td>110 000</td>
<td>330-540</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>10</td>
<td>600</td>
<td>75</td>
<td>7-14</td>
</tr>
</tbody>
</table>


The above table shows the maternal mortality deaths per 100 000 live births of three countries in 1995. It shows also the uncertainties of the estimates and risk of maternal deaths in each country.

**Table 4:** Comparisons of MMR, number of maternal deaths, lifetime risk, and range of uncertainty in the three countries.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Maternal mortality ratio (maternal deaths per 100 000 live births)</th>
<th>Life time risk of maternal mortality 1 in:</th>
<th>Number of maternal deaths per year</th>
<th>Range of uncertainty MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malawi</td>
<td>1800</td>
<td>7</td>
<td>9 300</td>
<td>1100-3600</td>
</tr>
<tr>
<td>India</td>
<td>540</td>
<td>48</td>
<td>136 000</td>
<td>430-650</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>13</td>
<td>3800</td>
<td>85</td>
<td>8-17</td>
</tr>
</tbody>
</table>

Source: WHO (2000)

The above table shows the maternal mortality deaths per 100 000 live births of three countries in 2000. It shows also the uncertainties of the estimates and risk of maternal deaths in each country.
Table 5: Comparisons of MMR, number of maternal deaths, lifetime risk, and range of uncertainty in the three countries.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Maternal mortality ratio (maternal deaths per 100 000 live births)</th>
<th>Life time risk of maternal mortality 1 in:</th>
<th>Number of maternal deaths per year</th>
<th>Range of uncertainty MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malawi</td>
<td>1100</td>
<td>18</td>
<td>6000</td>
<td>750 1500</td>
</tr>
<tr>
<td>India</td>
<td>450</td>
<td>70</td>
<td>117 000</td>
<td>300 600</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>8</td>
<td>8 200</td>
<td>51</td>
<td>8 15</td>
</tr>
</tbody>
</table>

Source: WHO (2005a)

The above table shows the maternal mortality deaths per 100 000 live births of three countries in 2005. It shows also the uncertainties of the estimates and risk of maternal deaths in each country.

Table 6: Comparisons of causes and factors of maternal mortality in the three countries.

<table>
<thead>
<tr>
<th>Causes of maternal mortality</th>
<th>Malawi</th>
<th>India</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct causes of maternal mortality</td>
<td>Haemorrhage, sepsis, eclampsia, obstructed labour, unsafe abortion and other direct causes</td>
<td>Haemorrhage, unsafe abortion, toxaemia, puerperal sepsis, malposition, others direct causes</td>
<td>Thrombosis/thromboembolism, haemorrhage, early pregnancy/ectopic pregnancy, sepsis, anaesthesia and amniotic fluid embolism</td>
</tr>
<tr>
<td>Indirect causes of maternal mortality</td>
<td>Anaemia, malaria, heart disease and HIV/AIDS</td>
<td>Anaemia, malaria, viral hepatitis</td>
<td>Cardiac disease, deaths from psychiatric and other indirect causes</td>
</tr>
<tr>
<td>Factors contributing the maternal mortality</td>
<td>Poverty, lack of family planning, lack of blood, women cannot reach to hospitals, poor referral systems</td>
<td>Poverty, lack of services, lack of women's awareness, poor health, young girls getting pregnant</td>
<td>Social disadvantage, poor communities, minority ethnic groups, late booking or poor attendance, delayed pregnancy and obesity</td>
</tr>
</tbody>
</table>

The above table shows the main causes of maternal mortality in each country. This table is created by the author by using scientific articles of the main causes and factors.

5.5 Preventive steps

In this chapter important preventive steps for the reducing maternal mortality will be explained.
5.5.1 Family planning

Maternal deaths can be reduced through the effective use of family planning (UNFPA 2005). Nearly 100,000 maternal deaths could be saved every year if all women had an access of family planning. It has been proved that family planning is the best investments that can be made to help and ensure the health and well-being of women (UNFPA 2006a).

According to WHO, family planning is a method in which couples can have the number of children in line with their desire and time space. This can be attained in a number of ways such as by using contraceptive methods or treatment of involuntary infertility (UNFPA 2006a).

In an estimate carried out world-wide not long ago more than 510 million married couples in a reproductive period are having family planning. Nearly 135 million of this group are living in the developed countries, 185 million in the Peoples Republic of China and 190 million in the developing countries. Family planning and its methods of practising is basically the same in both the developed and developing countries but there are special considerations to be taken care of by obstetrics and gynaecologists practising in developing countries. These considerations are related among other things to family planning prevalence, service delivery, contraceptive, counselling and safety (UNFPA 2006a).

Family planning is a cornerstone in the process of health production of any decent society. Couples can have the possibility of regulating and controlling woman’s fertility and delivery in terms of number and time. However, the women need to be helped when they are delivering a child. Reproduction should be successful both for the mother and infant so that the mother and child will have a healthy growth and development. Safe sex, fertility regulations are also key to the success of motherhood. Family planning shall be successful and acceptable when all reproductive health needs are given an equal attention (UNFPA 2006a).

5.5.2 Benefits of family planning

It is believed that having family planning services would reduce pregnancies in developing countries by 20 per cent and maternal deaths and injuries. Family planning can also prevent similar proportion of infections and long-term disabilities that result from pregnancy, childbirth, and abortion as these annually affect about 15 million women worldwide (UNFPA 2006a).

If all women had an access to family planning and could have avoided unwanted pregnancies, one quarter to one third of all maternal deaths would have been eliminated. In family planning where birth-spacing is attainable, women could have a better and improved health (UNFPA 2006a).

Family planning is very essential in order to prevent unwanted and high-risk pregnancies and reduce the risk of mortality and morbidity related to complications of pregnancy and childbirth. It is known that abortion rates decline when demand for contraception grows. In recent estimates it has been calculated that in 2003, $7.1 billion were spent on providing modern contraceptive services in the developing world and this prevented 187 million unwanted pregnancies, 60 million unplanned births, 105 million induced abortions, 22 million spontaneous abortions (UNFPA 2006a).
5.5.3 Antenatal care

The main objective of antenatal care is to have contact with the women and identify and manage current and potential difficulties and risks (Carroli, Rooney & Villar 2006). In this way an opportunity for the woman and her health care provider can establish a delivery plan based on her needs, resources and circumstances. This plan would identify her intentions of where and with whom she would intend to give birth and subsequent contingency plans in the even of complications associated with transport and place of referral (Lawson, Harrison & Bergström 2001).

Antenatal care has three main parts:
- Screening for risk factors and case referral
- Disease prevention, detection and treatment
- Health education

Screening and case referral:
By screening, two groups of risk factors can be identified. The first one consists of pregnancy complications and related diseases. The second one is of socioeconomic and demographic nature that causes pregnancy complications to take place more commonly and lead to increases in maternal and prenatal mortality and morbidity. With the help of this care of screening, maternal mortality rate can be reduced (Lawson, Harrison & Bergström 2001).

Disease prevention and treatment:
By using this care advanced diseases and treatment of costs can be immensely reduced. For example specific measures against anaemia, malaria, tetanus and some sexually transmitted diseases can be handled effectively as these are mostly outpatient-based and the costs are comparatively modest (Lawson, Harrison & Bergström 2001).

Health education:
This care is as important as the other two cares and it covers both general and specific topics at group instruction sessions. Basic hygiene, diet and nutrition in pregnancy, routine drugs for anaemia and malaria prevention, traditional cultural practise in relation to reproductive health and the conduct of institutional delivery are all relevant general topics (Lawson, Harrison & Bergström 2001).

Antenatal care is very important safety net for healthy motherhood and childbirth for the well-being as well as the monitoring of both the mother and her child. In the developing world the proportion of pregnant women with at least one antenatal care visit has slightly increased more than half at the beginning of 1990s to a level of three-fourths a decade later. Over just 70% of women worldwide have at least one antenatal care visit with skilled provider during pregnancy and this is given in the data for the late 1990s and during 2000-2001. However, in the industrialised countries the corresponding case is very high, with 98% of women having at least one of such visit. Many studies show that when woman has an antenatal visit care, the maternal mortality decreases. But unfortunately many women do not have such care; therefore health organisations suggest that pregnant women shall have such care, which is very important. Although this is an improvement, WHO and UNICEF highly recommend the availability of minimum four antenatal care visits (WHO 2003).

Antenatal care is widely available in the developed countries and provides an opportunity to educate and inform pregnant women. The information covers pregnancy, childbirth and care of the newborn and this assists the woman in having choices that would contribute to a safe
pregnancy and delivery. During such important care, detection and treatment of anaemia and management of sexually transmitted infections (STIs) give improvements in health without necessarily reducing the risk of maternal death. Therefore, it is obvious that the antenatal care interventions cannot be anticipated to have a significant influence on maternal mortality (WHO 2003).

5.5.4 Skilled attendance at birth

Skilled attendance is: “a professionally trained health worker such as doctor, midwife or nurse to able to supervise normal deliveries, quickly recognise and manage complications and refer them appropriately” (UNFPA 2006b).

Historical evidence indicates that skilled attendance of births at the primary health-care level has been crucial to reducing maternal mortality and morbidity. According to WHO skilled health professionals for midwives, working in an enabling environment, can provide care before, during and after pregnancy and childbirth. For example the midwives can recognize potentially fatal complications in childbirth and respond appropriately. The lacking numbers of skilled attendants to meet the demand are immense in the developing countries. The skilled attendance in developed countries is nearly 100 per cent whereas in developing countries, it is not more than 33 per cent. Also, 700 000 midwives are needed to curb maternal mortality and morbidity in developing countries, according to WHO. Information from 57 countries with critical shortages of skilled attendance indicates a global deficit of some 2.4 million doctors, nurses and midwives. If 15 per cent of pregnancies are attended by doctors and 85 per cent by midwives, then maternal mortality would be reduced adequately (UNFPA 2006b).

Although it is estimated that the use of health workers like doctors, midwives and nurses, working in deliveries is very important factor in reducing maternal mortality, only about 58 per cent of all deliveries occur in the attendance of a skilled attendant. The reason to this phenomenon is the lack of professionally trained and skilled attendants. Another reason is a poor geographic distribution of attendants, as many of the skilled attendance like to work and remain in the urban areas (Campell & Graham 2006). The organization UNFPA is geared to improve this problem by promoting more training of professionals and by seeking innovative methods to keep them in the regions and provinces of greatest need (UNFPA 2006b).

Complications associated with deliveries take place mostly at labour and delivery durations. In order to realise the life-threatening complications a professional skilled attendance most quickly intervene for saving the pregnant women. It is believed that skilled attendance at birth has been one of the most important planning techniques in countries that have successfully reducing maternal mortality such as Malaysia and the Netherlands (UNFPA 2006b). Figure 6 shows the skilled attendance at birth worldwide with the maternal mortality ratio and rate.
5.5.5 Emergency obstetric care (EmOC)

The definition of emergency obstetric care is to ensure timely access to care for women experiencing complications. Emergency obstetric care means steps of signal functions carried out in health care facilities that can prevent the death of a woman having complications of pregnancy. The steps of signal functions are as follows:

- Administer parenteral antibiotics
- Administer parenteral oxytocic drugs
- Administer parenteral anticonvulsants for pre-eclampsia and eclampsia
- Perform manual removal of placenta
- Perform removal of retained products
- Perform assisted vaginal delivery
- Perform surgery
- Perform blood transfusions (UNFPA 2006b).

About 15 per cent of pregnant women will experience complications, for the most part these cannot be predicted, but almost all can be managed. For example a woman with post-partum haemorrhage can get killed in less than two hours if care is not provided. But if such woman gets emergency obstetric care the woman can survive (UNFPA 2002). Therefore, services with high-quality basic and comprehensive emergency obstetric care must be available and accessible. Not less than four facilities offering basic emergency obstetric care and one facility offering comprehensive emergency obstetric care for every 500 000 people are what the United Nation organizations recommend. International assessments have given that emergency obstetric care is far from being universally accessible. Misconceptions, poor quality care, weak referral systems, unaffordable costs and geographic distances frequently delay women’s access to emergency care in developing countries (UNFPA 2006b).
The interventions needed for improving the availability, access, quality and use of maternal health services are presently understood and available. In many instances, improving access to services that can prevent maternal mortality can be included into efforts for improving maternal health. The developing countries that have successfully reduced maternal deaths have done so through sustained emergency obstetric care and that makes an impact on general health-care infrastructure that will benefit pregnant women (UNFPA 2006b).
6. DISCUSSION
In this chapter, method and material that are used in the thesis will be discussed and also the obtained results will be highlighted.

6.1 Method and material discussion
It may be assumed that it would be easy to find a great deal of literature about maternal mortality but in reality it has been difficult to find many literatures about this subject. Nevertheless, a very interesting literature about maternal mortality and written by three professors have been used in this thesis. This literature covers wide range aspects of the maternal mortality such as diseases associated with pregnancy, attributing factors and preventive measures that would reduce the maternal mortality rates.

Study design that was chosen was ecological study and the main goal of choosing this type of design was to study the relationship between the countries in terms of maternal mortality and also the contributing causes, factors and also time-period in Malawi, India and United Kingdom.

6.1.1 Confidential enquiry into maternal deaths
One such source of information in the United Kingdom, which is good, is a system, called confidential enquiry into maternal deaths (CEMD) which has been publishing triennial reports, since 1985. The Enquiry has been covering the whole of the United Kingdom. Although it was not easy to find out from these scientific articles the main reasons, causing maternal mortality in United Kingdom but it was from other literatures from where it was given why mother dies in United Kingdom. The information given in this literature is from 2002 and probably some changes regarding the new methods or approaches for maternal mortality have taken place since then.

6.1.2 Scientific articles and international documents
It is not only the above-mentioned literature that is used in the thesis but several scientific articles about maternal mortality were also used. In this thesis, scientific articles covering maternal death in all countries have not been easily available. For example only few such articles were available in the United Kingdom and perhaps this is due to the fact that at present the United Kingdom is having a very low maternal mortality rate when compared with Malawi and India. But nonetheless, these articles were useful both in terms of data and information. On the other hand it has been difficult to find articles related to the subject in Malawi as well as in India and it has been only through struggle to find some useful information related to maternal mortality of these countries so that credible information about the maternal deaths is used in the thesis. Documents from different organizations were much easier to find especially from the WHO and also UNDPA and these well-known organizations and their information was used a lot in this thesis. The reason of using such information is due to the reliability of the documents prepared by these organizations. General facts, official statistics, preventive measures and other information related to maternal deaths of the countries were prepared and controlled with the help of these organizations.
6.1.3 The selection of the countries
The reason of selecting such countries for the thesis is that Malawi has one of the highest maternal mortality rates and also it is a developing country. India is a middle income country with both rich and poor. The United Kingdom is a developed country and hence a good comparison of these countries, with different and socio-economic and development level can be obtained.

6.1.4 Procedure of the research
The procedure and study, used in this thesis can be considered acceptable and good and this could have different if other material were used as a source of information. Nonetheless, the result, objective and enquiries would have been similar had other sources and methods used. Results from several studies have shown the same statistics of maternal mortality and this confirms each other’s results and because of that, the study has a good validity. Throughout the study carried out for this thesis, data and information were rechecked and compared with those from other sources. For example, data and information from WHO were compared with those, given in scientific articles, written by trustworthy professors. As mentioned in the chapter of methods and material of the thesis there are non-ethical problems in the thesis. It is clear that many author’s material were as a sources for this thesis and all of these authors are valued equally. Both the rights and respect for all these authors are fulfilled in this thesis. It is difficult to know if other valuable sources are missed, but the objective is attained since enquiries related with this research of the subject of the thesis and sources used in this thesis are reliable.

6.2 Result discussion
Maternal mortality is a public health issue in many countries especially in the developing countries, where an estimated 585 000 women die every day for pregnancy related deaths. The degree of prevalence of the issue is not the same in all countries of the world but the causes that attribute to maternal deaths are more or less similar in many countries. Similarly there is a huge gap in the numbers of maternal deaths in different countries. For example, maternal mortality rate is very low in industrialised countries when compared with those of the developing countries. In addition to this, during 18th and 19th centuries the industrialised countries had a very high rate of maternal mortality; one similar to the level, which currently exists in the developing countries.

On the other hand there are no similarities between the maternal deaths that take place in developed countries and those maternal deaths in developing or poor countries as the causes attributing to the maternal mortality are different in developing and developed countries and this is due to the developmental and socio-economic make-up of their societies.

Since the maternal mortality is available in many countries but in a variable dimensions and in order to value the existence and the rights of all women, WHO and other international organisations recommend and underline the importance of reducing the maternal mortality worldwide and, this can be attained by massively assisting the developing countries (WHO 2005a).This is very important issue and must be accepted as it is literally epidemic more or less in worldwide and people must be made aware of this.
6.2.1 The comparison between Malawi and India

The maternal mortality in India and Malawi has both similarities and differences. Both countries have one of the highest maternal mortality rates in the world. Malawi is a developing country and according to various estimates 6000 women die every year (Geubbels 2006). On the other hand India is an emerging economy with very rich, middle-income and very poor population. Nearly 117 000 women die every year and according to various studies carried out both by Indian institutions and international organisations, India has one of the highest maternal mortality rates in Asia\textsuperscript{18}.

There is great difference in the number of maternal deaths of the two countries and this difference in the number of maternal death matches with the difference of their populations. Malawi has a population of only 13 million while India is the second most populous country of the world with a population of one billion\textsuperscript{19}. Again, comparing the maternal deaths of the two countries, the lifetime risk for Malawi in 2005 is 1 in 18 and 1 in 70 for India. This number of lifetime risk is very high in both countries in relation to their respective populations\textsuperscript{20}.

The maternal mortality in both countries has also more or less many similarities, when the causes of the maternal mortality are considered. Such similar causes are haemorrhage, sepsis, and eclampsia, obstructed labour and unsafe abortion. However, even within the causes of the maternal mortality there are differences. For example in India the factor of mal-position influences the maternal death rate in 14% (Salvi 2009) while this cause does not affect the maternal rate of Malawi.

Other differences are also clear in indirect causes of the maternal mortality. Malawi for example is still facing HIV/AIDS epidemic and this indirectly contributes to the maternal death (Geubbels 2006). India has also HIV/AIDS but this does not affect the maternal mortality as it does in Malawi.

Another similarity in maternal mortality of Malawi and India is the factor of poverty in both countries. For instance in Malawi women cannot reach medical centres or hospitals as they often live in remote areas and bushes where there are no transports to bring them to the places of their need and this is due to the unavailability of transport in Malawi (Geubbels 2006). Even many women who live in the cities cannot afford to pay for delivery costs because of this poverty and in a clear resemblance this phenomenon also exists in many parts of India. In Malawi and some parts of India the health services do not have the money they need; then the hospitals will have poor referral system, poor equipment, drugs will not be available, obstetric care and trained medical personnel will be inadequate. All these factors, which are prevalent in Malawi and many parts of India, certainly attribute to a very high maternal mortality.

Another factor that contributes to the high rate of maternal mortality in India is the early marriage of young girls. This problem is very popular in rural areas and within the uneducated populace of India. Young girls who get married at early stage face considerable risks during their pregnancy and childbirth and even death for many of them (Salvi 2009). However, studies did not indicate that this problem of young girls getting married early affects the maternal mortality in Malawi and this can be a difference.

\begin{itemize}
\item \textsuperscript{18} www.who.org 2009-05-28
\item \textsuperscript{19} www.who.org 2009-05-28
\item \textsuperscript{20} www.who.org 2009-05-28
\end{itemize}
6.2.2 The comparison between United Kingdom, Malawi and India

United Kingdom is a high-income country with a low maternal mortality but studies have showed that the estimated maternal mortality is 11 per 100,000 live births. In the United Kingdom about 132 died of conditions with direct causes and 163 died because of indirect causes of maternal death (Lewis & Drife 2004). That means maternal mortality in the United Kingdom is mainly from indirect causes and not direct causes as Malawi and India.

The causes of maternal mortality are different from those in Malawi or India. The current causes of maternal mortality in Malawi or India can probably be compared to those causes of maternal mortality in the United Kingdom during the 18th and 19th centuries. The causes of maternal mortality in the United Kingdom are no longer related to the lack of trained personnel, or hospitals or equipment or general medical services as these, causes are existing in both Malawi and India and this is a clear difference between these two countries and the United Kingdom (Lewis & Drife 2004).

However, today in the United Kingdom factors that contribute to maternal mortality can also be identified in seven areas. These areas are as follows: social disadvantage, poor communities, minority ethnic groups, late booking or poor attendance, delayed pregnancy and obesity (Lewis & Drife 2004).

For example social disadvantage, it showed that women who are unemployed and being socially excluded are up to 20 times more likely to die, than women from the more advantageous groups (Lewis & Drife 2004). A similarity between the United Kingdom and Malawi or India can be indicated here as women who are extremely poor and live in remote villages are socially disadvantaged when compared with those women, living in big cities.

A study had shown that women in poor areas have a 45 percent higher death rate than their counterparts who live with higher standard of living. This is because women don’t have the same access as their counterparts, especially when they can’t afford as much as their counterparts (Lewis & Drife 2004). Again here is a similarity between the United Kingdom and Malawi or India as poor women who live in poor villages or locations do have more maternal death rate than their counterparts who live in the cities.

In the United Kingdom single mothers die 3 times more likely than those in a stable family situation (Lewis & Drife 2004). There are no studies, carried out which indicate this problem in Malawi or India and this could be a difference.

In the United Kingdom minority ethnic groups die three times more than their Caucasian counterparts; this depends on the lack of knowledge and awareness or may be also it is due to language barrier (Lewis & Drife 2004). A similarity of this case between the United Kingdom and Malawi is not shown in any studies, but this similarity between the United Kingdom and India can exist. In India the outcasts or untouchables are in the lowest level of the Indian social ladder and therefore to a certain degree experience the same problems as the ethnic minorities in the United Kingdom.

Another cause that is surprising is that in United Kingdom late booking or poor attendance to maternal health services contributes to the maternal mortality. A study showed that 20% of the women who died from direct and indirect causes had booked for maternity care after 22 weeks of gestation, or had missed over four routine antenatal visits (Lewis & Drife 2004). Here the case can be different in Malawi and India when compared with the United Kingdom as in the case of the United Kingdom the problem is with the pregnant women and not the
medical services while the case is vice versa in Malawi and India, in another words the medicals services, nurses and health system are inadequate both in India and Malawi.

Obesity is worldwide issue as it is a public health issue in the developed countries. Obesity can contribute to the maternal mortality in the United Kingdom (Lewis & Drife 2004). But both in Malawi and India there are no many women who die due to obesity but many pregnant women in India and Malawi die due to malnutrition and this is a clear difference between the United Kingdom and these two countries.

6.2.3 Survey made on maternal mortality in Malawi
During the periods between 1977 and 1990, the level of the maternal deaths was from 32 to 945 maternal deaths per 100 000 live births and during the eighties and early nineties the maternal mortality ratio was 398 to 620 and these discrepancies can be attributed to the lack of credible estimates. Moreover, in the late nineties only estimates for the maternal mortality ratio and carried out by MDHS were available and these were 1120 per 100 000 live births (Geubbels 2006). It is noteworthy to mention that there has been circumstantial evidence from demographic and health surveys carried out during 1992 and 2000 that the HIV epidemic has contributed substantially to the rise in maternal mortality in the 1990s (Geubbels 2006). It is probable to mention that if there had not been HIV/AIDS epidemic in Malawi in early nineties, there would have been a decline in the number of maternal mortality of the country.

According to a survey carried out by WHO (2005) there were 580 maternal deaths per 100 000 live births during 1995. After five years the number of maternal death was 1800 and in 2005 the number of maternal death was 1100. There had been a reduction of 700 between 1995 and 2005 and this can perhaps be attributed to some anti HIV/AIDS measures that had been taken in Malawi. However, the actual reasons of the reduction in the number of maternal deaths between 1995 and 2005 can be deduced after the publication of new estimates in 2010.

6.2.4 Survey made on maternal mortality in India
The maternal mortality ratio in India has been declining progressively from a level of approximately 1 300 in the late 1950s. During the period of 1982- 1986, the maternal death rate was 638 deaths per 100 000 live births. While it was between 800 and 900 per 100 000 live births in 1970s, and in 1980 the maternal mortality ratio was 500- 600 per 100 000 live births, while in the 1990s it was between 400 -500 per 100 000 live births (Bhat 2006).

From the above, it is clear that there has been a steady decline of maternal mortality from 1950s. The maternal death rate fell from a level of over 200, while it fell around 120 in 1970s, 75 in 1980s and 50 in 1990s. It is obvious that the decline of the death rate accelerated in 1970s and that could be attributed to the decline in fertility

In today’s situation India has 540 maternal deaths per 100 000 live births and this also shows a decrease when compared with many years ago (WHO 2005a). Clearly it can be argued that this decline is due to the improvement of medical services and as well as maternal health service.

On the hand according to a survey carried out buy WHO there had been 400 maternal deaths per 100 000 live births in India in 1995 and 540 deaths in 2000 and 450 deaths in 2005. It is unclear why there have been a decline and increase in the number of maternal deaths between these years. The reasons for this may be clear when the next publication of WHO on maternal mortality in India is released in 2010.
6.2.5 Survey made on maternal mortality in the United Kingdom

United Kingdom was a poor country in early 19th century when compared to its current status. The maternal mortality was higher than what it is now and that was due to the then factors, which are prevalent in developing countries like India. The maternal mortality ratio decreased from 600 per 100 000 to 450-500 per 100 000 live births during the period between 1850 and 1900. The level of maternal mortality in England and Wales during 1880 and 1980 remained high through the mid 1930s, after that there was a great decline (Hamberlain 2006). However in the United Kingdom good preventive steps were adopted quickly to reduce the maternal mortality rate. The availability of better practices by professionals in both obstetric and midwifery has certainly had a dramatic effect on reducing the maternal death rates that used to take place during 19th and 20th centuries (Loudon 2000).

From the above it is obvious that situation of maternal mortality in both India and Malawi is similar to the situation of maternal mortality that existed in the United Kingdom some 70 years ago. It can be safely argued that if India and Malawi had adopted good preventive steps or had good medical services or well trained health personnel the maternal mortality would have dramatically declined.

According to WHO (2005a) there were 7 maternal deaths per 100 000 live births in 1995, 13 deaths in 2000 and 8 maternal deaths in 2005. The reasons for this phenomenon are not clear however these can be attributed to the huge influx of asylum refugees in to the United Kingdom during these years.

The surveys on maternal mortality carried out by WHO during the years of 1995, 2000 and 2005 in the United Kingdom, India and Malawi have similar patterns as there have been a decline and an increase so it is probably due to the fact that there have been measures taken to reduce the maternal deaths and at the same time there have been some other factors that contributed to the increase of the maternal deaths during these years.

6.2.6 Preventive steps

There are a lot of different preventive steps that can be adopted to decrease maternal mortality. One of those steps, which could greatly reduce the maternal mortality, is definitely family planning. This alone can save can nearly 100 000 maternal deaths every year. Family planning has proved that it is the best investments that can be made to help ensure the health and well being of pregnant women. It showed that it is the cornerstone of the process of health production of any decent society (UNFPA 2006a). The reason why maternal mortality rate is low in developed countries when compared with developing countries is perhaps due to the availability of family planning.

If all women in Malawi or India had access to family planning, they could have avoided unwanted pregnancies, and one quarter to a third of all maternal deaths would have been eliminated. This proves that family planning is essential to all women. If women had the awareness and knowledge of family planning and in maternal mortality clearly few women would have died due to pregnancy related deaths. Similarly if women had legal medical assistance in abortion instead of unsafe abortion there would have been few maternal deaths in all countries.

According to many studies carried out, it is estimated that money spent on family planning would reduce maternal mortality. Even in some studies it is proven that money spent on family planning would also make improvement in education and other social services.
As the benefits of the family planning are clear both international organisations like the UN and governments should have given more importance to the family planning and this would have been economically beneficial to all countries.

The main objective of antenatal care is to have contact with the women and identify and manage current and potential difficulties and risks. In this way an opportunity for the woman and her health care provider can establish a delivery plan based on her needs, resources and circumstances. This is very important health care in which the health provider can check the pregnant woman in order to find out diseases, related or unrelated to pregnancy as early as possible so that the pregnant woman would get the required care and avoid maternal death (Lawson, Harrison & Bergström 2001). The implantation of this care also needs to educate the women and make them know this kind of care and this measure will decrease the maternal mortality because they will have more knowledge and understanding in the pregnancy, and this is very much needed in the developing countries.

Skilled attendance is another factor, which is very essential in reducing maternal mortality, and in developed countries it is nearly 100 per cent whereas in developing countries, it is not more than 33 per cent. Also, 700 000 midwives are needed to curb maternal mortality and morbidity in developing countries (UNFPA 2006b). So in order to reduce the maternal mortality rate both in India and Malawi training of health personnel is very much required and to achieve this, the problem of poverty must be tackled. The importance of acquiring skilled health personnel in any country must be realised and must be understood that this is what actually decreased the maternal mortality rate in the developed countries. Therefore, international organisations must help to educate people working in medical health services of the developing countries, so that the maternal mortality rate would also be decreased in these countries.

It is estimated that about 15 per cent of pregnant women will experience complications, for the most part these can not be predicted, but almost all can be managed, even under the best circumstances. Not less than four facilities offering basic emergency obstetric care and one facility offering comprehensive emergency obstetric care for every 500 000 people are what the United Nation organizations recommend (UNFPA 2006b). International assessments have given that emergency obstetric care is far from being universally accessible. This is also very crucial tool in reducing the maternal mortality rate and the United nations organisation is aware of this, therefore in order to save the lives of many women who may die because of the lack of obstetric care, a financial support is needed for having such a care in many countries and this is to make every woman accessible to this care. If the UN adopts this care as a requirement many women would be save from haemorrhage and their live saved.

6.2.7 Prevention that needs to be done in Malawi

The government needs to educate the women about the HIV/AIDS and increase the awareness of this disease, if pregnant women with HIV/AIDS know the consequences of the disease and get required medicine that would have decreased the death of the women in Malawi. But again this is difficult while the country is facing poverty. Malawi also needs trained health personnel and adoption of family planning as these would increase the number of pregnancies in women population and hence a high pregnancy related deaths of the country.
6.2.8 Prevention that needs to be done in India

In order to reduce the maternal mortality rate, the government needs to make sure that young girls should not get married in a young age, especially in rural areas where it is normal to do that. The country must be able to do strict rules for example by adopting tough measures against these practices and educate the women in such way that, young girls do understand the risks involved in getting married at early stage. Another measure, which can reduce the maternal mortality, is a sound family planning and the government must invest in this. Also, both prenatal and postnatal services must be improved; the training of medical personnel and their attitude towards patients must be enhanced. Conclusively and as indicated by studies carried out in India, factors that greatly contribute to high level of maternal mortality in India include poverty, lack of services, and lack of women’s awareness of the importance of pregnancy care and health delivery services needs to prevent as well. Other factors that equally contribute to high maternal mortality are poor health personnel’s attitude, poor quality of services and women’s lack of decision making as the family affairs in India are still decided by men, which needs to be changed.

6.2.9 Prevention that needs to be done in United Kingdom

The government needs to do policy and program to the vulnerable groups such as those who has social disadvantage, those who live in poor communities or minority ethnic groups, single mothers, so that maternal mortality can be decreased in the United Kingdom. Obesity is worldwide issue as it is a public health issue in the developed countries. Obesity can contribute the maternal mortality and so, the government/hospitals need to address this issue and raise its awareness within the population as well as to pregnant women, to loose weight before they get pregnant and by doing this, and maternal deaths can be avoided.

6.2.10 Recommendations for further research

As this thesis explains maternal mortality is more or less an epidemic issue around the world. There are a lot of tasks that need to be done so that maternal mortality can be decreased, especially in the developing countries where the maternal mortality rate is very high. As knowing exactly the number of maternal mortality both theoretically and practically is difficult, a good way of getting the exact and credible number of the maternal mortality must be further studied. Studies, carried out in developing and to a certain degree in the developed countries, showed that women’s awareness during their pregnancy has not been not good and that increased the maternal mortality rate. Hence, how best to enhance the awareness worldwide must be researched. Adequate training for doctors, nurses and midwives is very crucial and as this is a great demand in the developing countries, research must be carried on how to alleviate this problem. Given the above the above-mentioned points areas in which further research can be made are as follows:

- Good measurement for measuring maternal mortality
- Awareness to the women during their pregnancy
- Adequate training for doctors, nurses and midwives
6.2.11 Contribution of the study to public health

My hope is that this thesis will increase the awareness among the readers of maternal mortality in the public health matter especially in developing countries. It is very important for all people, around the world to know that maternal mortality is a huge problem and in order to save many women’s lives the preventive steps given in this thesis are needed to be followed.

The importance of the maternal mortality issue can perhaps be summarised by the following quotation by Professor Fathallah:

“Healthy motherhood, still a dream for millions of women in the world, can be made a reality. The know-how is already available. We know the way. What the world needs is the will and the wallet to make it happen”\textsuperscript{21}

\textsuperscript{21} www.figo.org 2009-05-20
7. CONCLUSIONS

The main causes of maternal mortality in Malawi and India is mainly from direct causes such as haemorrhage, sepsis, eclampsia, obstructed labour, unsafe abortion and also other direct causes. The indirect causes in Malawi and India is almost the same, anaemia, malaria, heart disease but in Malawi the HIV/AIDS has an indirect causes that contributes to the maternal mortality rate. In United Kingdom the direct causes are thrombosis/thromboembolism and to a certain degree early pregnancy/ectopic pregnancy, sepsis but the indirect causes are cardiac disease, deaths from psychiatric problems.

Factors that contribute in maternal mortality in Malawi are poverty, poor health, lack of blood and women don’t have access to family planning and hospitals. Factors that contribute the maternal mortality in India are poverty, lack of awareness, lack of services, young girls getting married. The factors that contribute to maternal mortality in United Kingdom are factors are of social disadvantage, poor communities, minority ethnic groups, late booking or poor attendance, delayed pregnancy and obesity.

This study has indicated that in Malawi the maternal mortality had risen during 2000 up to 2005 and then decreased. In India also maternal mortality had increased and decreased during the same period and the same phenomenon is similarly observed in the United Kingdom.

The preventive steps that can reduce the maternal mortality in general are family planning, antenatal care, skilled attendance and emergency obstetric care. Family planning even shows that nearly 100 000 maternal deaths could be saved every year if all women had an access of family planning which is a benefit, both economically and socially. Antenatal care is also important preventive steps that women needs to have access to it. Skilled attendance at birth it is important as well, because the women needs to have access to doctors, midwives and nurses while the women are pregnant, which is very important and shows that is a very important preventive step for reducing maternal mortality. Emergency obstetric care is also an effective preventive step that can save a woman if she for example have haemorrhage, can save her with Emergency obstetric care.
REFERENCES


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### APPENDIX I: Comparative data statistics of Malawi, India and the United Kingdom

<table>
<thead>
<tr>
<th>Country</th>
<th>Malawi</th>
<th>India</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital</strong></td>
<td>Lilongwe</td>
<td>New Delhi</td>
<td>London</td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td>13,151,000</td>
<td>1,151,751,000</td>
<td>60,512,000</td>
</tr>
<tr>
<td><strong>Gross national income (PPP international)</strong></td>
<td>$690</td>
<td>$2,460</td>
<td>$33,650</td>
</tr>
<tr>
<td><strong>Life expectancy at birth m/f (years)</strong></td>
<td>49/51</td>
<td>62/64</td>
<td>77/81</td>
</tr>
<tr>
<td><strong>Healthy life expectancy at birth m/f (years)</strong></td>
<td>35/35</td>
<td>53/54</td>
<td>69/72</td>
</tr>
<tr>
<td><strong>Probability of dying under five (per 1000 live births)</strong></td>
<td>120</td>
<td>76</td>
<td>6</td>
</tr>
<tr>
<td><strong>Probability of dying between 15 and 60 years m/f (per 1000 population)</strong></td>
<td>554/514</td>
<td>276/203</td>
<td>98/61</td>
</tr>
<tr>
<td><strong>Total expenditure on health per capita</strong></td>
<td>$70</td>
<td>$109</td>
<td>$2,784</td>
</tr>
<tr>
<td><strong>Total expenditure on health as GDP</strong></td>
<td>12.3 %</td>
<td>4.9 %</td>
<td>8.4 %</td>
</tr>
</tbody>
</table>
APPENDIX II Map over the countries

Malawi is a landlocked country, south of the equator in sub-Saharan Africa.

India is a country in south Asia between Pakistan, China and Nepal.

The United Kingdom is a country in north-western Europe\textsuperscript{22}

\textsuperscript{22} www.who.org 2009-04-30