

FACTORS INFLUENCING MATERNAL MORTALITY IN AFGHANISTAN

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FACTORS INFLUENCING MATERNAL MORTALITY IN AFGHANISTAN

A thesis submitted in partial fulfillment of the requirement for the degree of Master of Public Health

by

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Factors Influencing Maternal Mortality in Afghanistan

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Special thanks to my mother who never tired of her day and night praying. By saying an Afghan popular proverb, “behind every bright man, there is the hand of a bright woman”, I would like to gratefully thank my wife who took care of our three children for one long year and provided me mutual support in this period. Indeed, this thesis is dedicated to my mother, and my wife, who both are mothers, and experimented the pains of delivery in the situation of Afghanistan several times. I also thank all my family members.

Lastly, I thank the God who provided me everything I needed to complete my Master’s degree in Public Health (MPH).

ABSTRACT

Background: Afghanistan is among the six countries in the world with the highest maternal mortality. Home delivery is commonly performed by the majority of the women because of access difficulties to health care services, or gender-based restrictions. Women are not often brought to health facility to give birth in early stage of delivery and childbirth. Women are primarily brought in in the case of complications developed due to maternal health determinants. Therefore, a deep understanding of healthcare seeking determinants is necessary in order to help identify strategies which could reduce the existing barriers and improve the health status of mothers in Afghanistan. In this thesis, data from Afgani as well as some neighbouring countries' literature review are analysed using a refined version of the framework for analysing the determinants of maternal mortality and morbidity conceptual framework, developed by Deborah Maine (1992).

Objective: To explore the factors influencing Maternal Mortality in Afghanistan and neighbouring countries in order to formulate possible recommended interventions to the Ministry of Public Health of Afghanistan and stakeholders.

Method: This is a descriptive study based on literature review.

Result: The intermediate determinants influencing maternal mortality in Afghanistan are poor health status, reproductive status, access to health services, and health care behaviour/use of health services.. In addition, some main basic factors such as low income of household (36% of the population), insecurity and sociocultural norms; gender violence, gender discrimination and traditional beliefs are also contributing to maternal mortality.

Conclusion: Factors that prevent women from receiving or seeking care before, during and after pregnancy and childbirth are: low awareness, cultural or behavioural mal-practices, distance, poverty, and inadequate and/or low quality services. Short and long term actions at individual, household, community and national levels are required to change the health status of mothers and improve the health outcomes. These actions include health education, provision of quality health care services, and special attention to gender issues and vulnerable groups.

Key words: Maternal mortality, developing countries, determinants.

Number of words: 12619

LIST OF ABBREVIATIONS/ACRONYMS

AHS	Afghanistan Health Survey
AMS	Afghanistan Mortality Survey
ANC	Antenatal Care
BCC	Behaviour Change Communication
BCH	Basic Health Centre
BPHS	Basic Package of Health Services
BEmOC	Basic Emergency Obstetric Care
CEmOC	Comprehensive Emergency Obstetric Care
CHC	Comprehensive Health Centre
CHW	Community Health Worker
CPR	Contraceptive Prevalence Rate
CS	Caesarean Section
CSO	Central Statistics Organization
DH	District Hospital
EC	European Commission
EmOC	Emergency Obstetric Care
EPHS	Essential Package of Hospital Services
FP	Family Planning
GER	Girl Enrolment Rate
GDP	Gross Domestic Product
HCI	Health Care Improvement
HMIS	Health Management Information System
HF	Health Facility
HP	Health Post
HSC	Health Sub Centre
LAM	Lactation Amenorrhea Method
LHW	Lady Health Worker
MDG	Millennium Development Goal
MHT	Mobile Health Team
MMR	Maternal Mortality Ratio
MoPH	Ministry of Public Health
MSH	Management Sciences for Health
NGO	Non-governmental Organization
OOP	Out of Pocket Expenditure
PH	Provincial Hospital
PNC	Postnatal Care
RH	Regional Hospital
SBA	Skilled Birth Attendants
SCA	Swedish Committee for Afghanistan
TFR	Total Fertility Rate
THE	Total Health Expenditure
UNICEF	United Nation International Children Emergency Fund

UN	United Nation
URC	University Research Company
USAID	United State Agency for International Development
WB	World Bank
WHO	World Health Organization

GLOSSARIES/DEFINITIONS

EmOC: is used to describe the elements of obstetric care needed for the management of normal and complicated pregnancy, labour, and childbirth care. EOC, whether basic or comprehensive, must be available 24 hours a day, seven days a week. All elements of comprehensive EOC should be available at district hospitals, while all elements of basic EOC should be available at basic and comprehensive health centres¹.

Evidence-based: Healthcare is a science, not an art. Enormous efforts are invested worldwide to find the most accurate diagnostic processes and the most effective treatments. Healthcare providers must master what is already accepted as “best practices” and remain alert to improve practices as they are published. An approach sometimes referred to as “quality assurance”, focuses on compliance with the evidence-based best practices that have been accepted by medical authorities.

Maternal Mortality (MM): The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes².

Pregnancy: By definition, pregnancy is a necessary precondition for maternal death. It is the biological state through which all other factors must influence maternal death. Although there can be no maternal death until there is a pregnancy, it is important to include pregnancy as the starting point of the sequence of outcomes leading to maternal mortality, because the risk of pregnancy varies considerably from woman to woman, and because pregnancy rates vary so greatly among different groups of women².

Quality in Health Care (QI): A quality health care system is client centred, equitable, available, appropriate, safe, consistent, effective, timely, and efficient; it continuously improves³.

Quality of Care: All interventions for reproductive health should be made available with the highest standard of quality and safety, and services should be delivered according to evidence-based best practices. Addressing providers' needs and community views, particularly those of women, on the quality of service provision is key in ensuring improved quality and increased access and utilization⁴.

Reproductive health: Reproductive health is a state of complete physical, mental and social well-being, and not merely the absence of reproductive disease or infirmity. Reproductive health deals with the reproductive processes, functions and system at all stages of life. Reproductive health, therefore, implies that people are able to have a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so⁴.

Skilled Birth Attendant (SBA): “A skilled birth attendant is an accredited health professional – such as a midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and new-borns⁴.

INTRODUCTION

Attending Medical University was only a dream of mine when I was still in high school. This being my dream for years, despite all hardships and challenges, I succeeded in completing the medical university in Kabul, Afghanistan in early March 1999.

Immediately after graduation, I started my career at Baghlan provincial hospital as a general physician in internal medicine, treating people with acute and chronic diseases. After working for 19 months, I realized that relatively little could be done for people suffering from acute and chronic illnesses particularly preventable diseases in Afghanistan through the available hospital/medical services. I felt that major reforms were needed in the hospital sector in order to make them functional and accessible for the people. Aspects that needed addressing were outdated medical curricula; poorly trained doctors; ill equipped tertiary care facilities; unavailability of treatment protocols and most importantly, erroneous use of pharmaceuticals, particularly antibiotics. In order to do this I made a strategic shift from curative medicine (dealing with individual patients) to the field of public health, involving the population at large. With a long term vision of being a public health expert, I started my career working with different national and international organizations in different management and leadership positions, being; Swedish Committee for Afghanistan (SCA), The World Health Organization (WHO), Bakhtar Development Network, University Research Company/Health Care Improvement Project (HCI), and Management Sciences for Health (MSH).

During my 15 years of experience, I was occupied with the question of why Afghanistan is among the six countries with the highest maternal mortality rate in the world despite presence of huge opportunities such as international commitment and donors' funds. I raised the questions: why is there little focus on this important component of BPHS?, what are the main causes and contributing factors of maternal mortality?, why didn't we train healthcare providers in maternal health?, why couldn't we improve the health awareness of people specially mothers and change the perception of medical staff?, and why are there only a few limited studies about maternal mortality in Afghanistan?

To search evidenced-based answers to some of these questions, I decided to use the golden opportunity of this thesis. I hope my findings and recommendations help the MoPH and other involved stakeholders to appropriately design the practical interventions to improve the health status of Afghan mothers and all pregnant women.

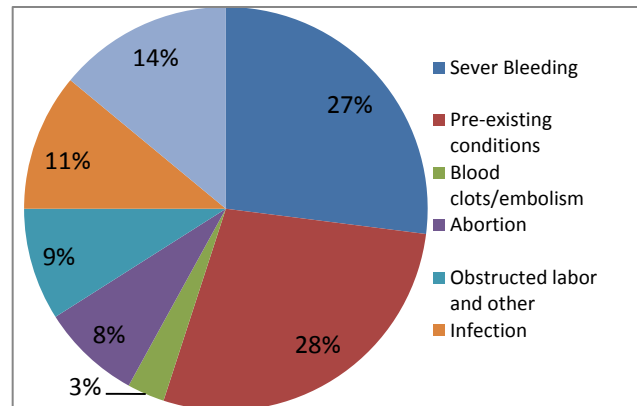
CHAPTER 1: BACKGROUND

1.1 MATERNAL MORTALITY

It is every woman's right to have access to maternal care services and skilled attendants during labour and delivery. Despite a 45% decline from 380 cases in 1990 to 210 in 2013 globally, maternal mortality is still unacceptably high in the world. Every day, around the globe about 800 women die due to pregnancy- or childbirth-related complications. In 2013, 289 000 women died during and following pregnancy and childbirth in the world due to accidental or incidental causes. Almost all of these deaths occurred in low-resource settings, and most could have been prevented⁵.

Women can die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy. Other complications may exist before pregnancy but are worsened during pregnancy⁶.

Figure 1: Causes of maternal death in the world⁷



1.1.1 Maternal mortality in Afghanistan

According to Reproductive Age Mortality Study (RAMOS 1) study conducted in 2002, Afghanistan's Maternal Mortality Ratio (MMR) was estimated to be around 1,600/100,000 live births with double figures in some parts of the country⁸. Based on this, the majority of the health sector strategies have been focusing on improving maternal health since 2002⁹. A report published by the World Bank, the World Health Organization (WHO), United Nation Children Fund (UNICEF), United Nation Population Fund (UNFPA), and United Nation Population Division showing the trends of maternal mortality from 1990 to 2013, indicated a significant improvement in maternal health indicators: the Maternal Mortality Ratio (MMR) of Afghanistan was stated to be 400 in 2013⁶. On the other hand, the Afghanistan Mortality Survey (AMS – 2010), estimated the MMR at 327/100,000 live births in 2010. Maternal mortality has declined steadily since 2001, but not quickly enough to meet the Millennium Development Goals (MDG) target, which made Afghanistan one of the ten countries in the world that did not achieve some or all of the health related goals¹⁰.

1.1.2 Other reproductive health indicators

The AMS further reported that the total fertility rate is 5.1 children per woman with a rate of 5.2 children per women in rural areas and 4.7 children per women in urban areas. Around 92% of married women know at least one contraceptive method, while only 22% of married women use any form of family planning. Injection (Depo-Provera) is the most common method used followed by the birth control pill and the lactation amenorrhea method (LAM). Antenatal Care (ANC) from a skilled birth attendant is 68% and medically assisted delivery is 42%. In spite of a good improvement in maternal health in the past decade, major gaps in maternal care continue to exist¹¹. According to Multiple Indicator Cluster Survey (MICS) 2010, only 16% of women in reproductive age have at least four visits before delivery. Of 68% of women receiving ANC, less than 40% receive other elements of good ANC screening such as iron tablets and Tetanus Toxoid (TT) vaccine. Two third of births take place at home due to low awareness on pregnancy related complications, high cost, and distance to health facilities¹².

Haemorrhage (42%) following by hypertension (20%) can cause pregnancy related deaths most commonly. Majority of these women die prior or during labour (9%) and (62%) respectively and all infection-related deaths (9%) occur in this stage. Non-communicable diseases (NCDs) result in 37% of all women's deaths, of which 18% are due to cardiovascular diseases. Deaths due to perinatal conditions result in 12% of female deaths, and maternal conditions are responsible for 5% of all deaths but account for one in five deaths in women age 15-59¹³.

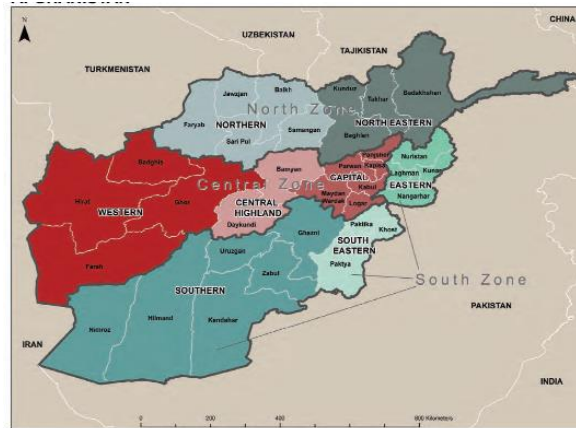
1.2 CONTEXT

1.2.1 GEOGRAPHY AND CLIMATE

Afghanistan is a land-locked country located in south-western Asia with a total area of 652,864 square kilometres (Figure 2). Two-thirds of the country is mountainous and covered by little or no vegetation. This mountain range has also divided the country into very different geographic regions known as: the Central highlands, the Northern Plains, the South-western Plateau and the Eastern Highland Slopes.

The climate of Afghanistan varies. It has an arid to semiarid climate with hot and dry summer and very cold winter. The southern plateau has the highest temperatures (49°C) and lowest rainfall. The mountains in the northeast have dry and cold winters and temperatures in January may drop to -15°C¹⁴.

Figure 2: Map of Afghanistan¹⁰

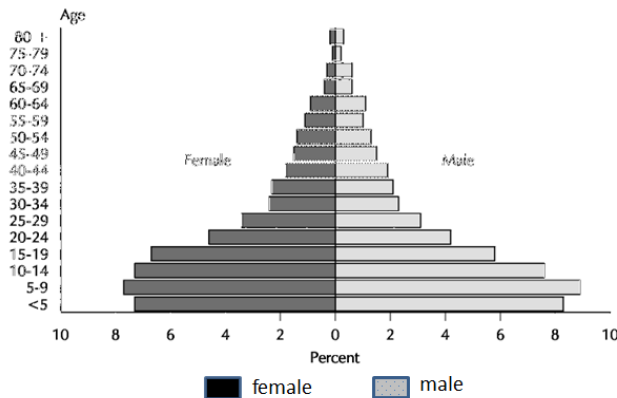


1.2.2 DEMOGRAPHY

The settled population of the country is estimated at 27.1 million, of which, 13.9 million (51%) males and 13.2 million (49%) females. Similarly, out of the total population, 20.4 million people (75.3%) live in rural area and 6.7 million people (24.7%) in urban areas. The Nomad (Kochi) Population is estimated to be 1.5 million people. The population density is about 41 inhabitants per square kilometre. The administrative division of the country is 34 provinces and 364 districts¹⁵.

In 2005, due to an unwelcomed war, Afghanistan had the highest proportion of orphans (1.6 million) and widows (1 million) in the world¹⁴. The average annual population growth rate between 2010 and 2015 is about 3.2. Afghanistan has one of the youngest populations in the world (Figure 3). The estimated population of aged 0-15 years is about 46%. The average household size is about 7.8 persons. Life expectancy at birth was 60.5 in 2012¹⁶. Afghanistan’s annual population growth rate is around 3%¹⁷. The growth rate is 2.3% in rural areas and 4.7% in urban areas, reflecting migration to urban centres¹⁰. Based on the World Refugees Day report 2014, Afghanistan with 2.55 million refugees ranked the top country in the world following by Syrian Arab Republic 2.47 million¹⁸.

Figure 3: Afghanistan population pyramid¹⁰



1.2.3 POLITICAL AND SOCIO-ECONOMIC SITUATION IN AFGHANISTAN

Security, Language and Religion

Security: Security remains Afghanistan's key challenge. Afghanistan is experiencing more than 35 years of war. Despite some progress, the situation remains challenging in large parts of the country. Many parts of the South and East remain inaccessible to international aid workers due to continuing anti-government activity. Other areas of the country have also experienced deterioration in the unstable security situation, largely due to increases in criminal activity. Overall, insecurity at national level was (30%) and at local level was 10% in 2012 and increased to 14% in 2013. There are people whom always fear for their own security (59%) and people afraid of travelling from one to another part of the country (75%).

More than 30 years of war, tension, and insurgent violence have left a heavy toll on Afghanistan's institutions and its way of life. According to UNDP's 2014 Human Development Report, the country ranked among the lowest countries, in the human development index, ranking 169th out of 187. Factoring into this low score are endemic challenges of poverty (36%), low participation of women in the national workforce, and a high dropout rate for children (54.6%).

Language: Afghanistan is a multi-ethnic country (21 ethnic groups); there are four dominant ethnic groups, Pashtun, Tajik, Hazara and Uzbek. Dari and Pashtu are the official languages of Afghanistan. Dari is the commonest language and is being spoken by around 79% of the population. It is the main language among other ethnic groups. Though the majority speaks Dari (50%), Pashtu (35%) and Turkic and Uzbekic (11%) still there are small segments of the population, particularly women in rural areas, who cannot speak any of these common languages.

Religion: Afghanistan is an Islamic country and Islam is the formal religion. 99% of the population is Muslim and 1% is Hindu. Religious leaders are the respected and trusted people in the country.

1.2.3 HEALTH SYSTEM

The health system remained unstable in Afghanistan in an extremely fragile state with failing infrastructure and public health system following the fall of the Taliban in 2001. To reduce cost and relieve some of the pressure from the new and incipient government, international communities started providing support to reform the health system and strengthen the role of the central ministry of public health in leadership, stewardship and services provision¹⁹.

In 2002, The Ministry of Public Health together with donors decided to contract out all health care services to local and international non-government organizations in order to deliver basic services to the population in a post-conflict setting with weak service delivery capacity, thereby enhancing the government stewardship of the health sector²⁰. The same year, the Ministry of Public Health (MoPH) developed the Basic Package of Health Services (BPHS), which served to enhance the public-sector health system by distribution of qualified health human resources, standardization of health care policies at national level, expanding of coverage in underserved

regions, and vowed to address major health crises with a focus on maternal and new-born health care services²¹.

Afghanistan has achieved significant progress in the development of its health system since 2001, but the big challenge is to sustain these achievements and find innovative ways for maintaining them while the donors' resources decreased after 2014²².

Health System Structure

During the last three decades of war and political instability, the health system structure of Afghanistan was demolished. In 2001 after the fall of the Taliban, the health sector encountered challenges such as fragile infrastructure, low number of health facilities, lack of qualified health workers, lack of capacity at management and leadership level, poor coordination between government and healthcare providers, inappropriate hospital conditions and many more.

In 2002, the health indicators of Afghanistan were among the worst in the world. The rebuilding of Afghanistan's health system with international support started in 2002. MoPH determined the priorities to address the main health problems of the population by developing three levels, primary, secondary and tertiary including and focussing mainly on the Basic Package of Health Services (BPHS) and the Essential Package of Hospital Services (EPHS)²³ (figure 4). The three main donors; The World Bank (WB), European Commission (EC) and United States Agency for International Development (USAID), plus other donors financed the BPHS, EPHS and all other vertical and integrated health programmes²⁴. National hospitals offer services to the population of the entire country through a number of specialized hospitals²⁵.

Figure 4: Health system structure pyramid



Basic Package of Health Services (BPHS):

Currently, BPHS services in Afghanistan are provided through a total of 472 health sub-centres, 812 basic health centres, 379 comprehensive health centres, 69 district hospitals, 28 provincial hospitals, 6 regional hospitals, 24 national hospitals and 12,447 active health posts that are being managed by volunteer male and female Community Health Workers (CHWs). Among

these the female CHWs focus on providing care for normal deliveries, identifying danger signs for pregnancy complications, and referrals to secondary and then tertiary level²⁶.

The BPHS is working at the primary level and it consists of Health Post (HP), Sub Health Centre (SHC), Basic Health Centre (BHC), Comprehensive Health Centre (CHC), Mobile Health Team (MHT) and District Hospital (DH). HP is staffed by two volunteer CHWs who, beside other services, are responsible for family planning counselling and methods distribution at community level. Health Sub Centre (HSC) is working as a bridge to fill the gaps between HP and other health delivery points and provides care for antenatal care (ANC), postnatal care (PNC) and delivery. BHC provides outpatient services and Basic Emergency Obstetric care (BEmOC). CHC has a limited capacity for inpatient services and provides additional minor and essential surgery as well as BEmOC services. MHTs are located in remote areas where service provision through fixed centres is difficult. They provide basic Reproductive Health (RH) services (which is described in the references). The DH is functioning as a referral site, providing obstetricians, Basic Emergency Obstetric Care (BEmOC), and Comprehensive Emergency Obstetric Care (CEmOC) services. BPHS covers seven service elements which consist of maternal care including emergency obstetric care and new-born care, child health and immunization, public nutrition, communicable disease treatment and control, mental health care, disability and physical rehabilitation services, and regular supply of essential drugs. MoPH implements BPHS through contracting-in in 3 provinces to provincial MoPH and contracting-out in 31 provinces to Non-governmental Organizations (NGOs) with 82% population coverage of services. Around 2,150 BPHS facilities are providing health care services to the people in the country²⁷.

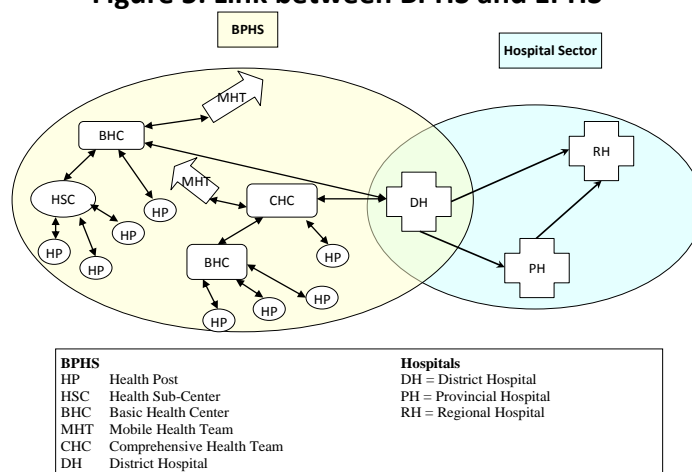
Table 1 : The Seven Elements of the BPHS and their Components²³

1. Maternal and Newborn Care	<ul style="list-style-type: none"> a. Antenatal care b. Delivery care c. Postpartum care d. Family planning e. Care of the newborn
2. Child Health and Immunization	<ul style="list-style-type: none"> a. Expanded Program on Immunization (EPI) b. Integrated Management of Childhood Illness (IMCI)
3. Public Nutrition	<ul style="list-style-type: none"> a. Prevention of malnutrition b. Assessment of malnutrition
4. Communicable Disease Treatment and Control	<ul style="list-style-type: none"> a. Control of tuberculosis b. Control of malaria c. Prevention of HIV and AIDS
5. Mental Health	<ul style="list-style-type: none"> a. Mental health education and awareness b. Case identification, diagnosis and treatment
6. Disability and Physical Rehabilitation Services	<ul style="list-style-type: none"> a. Disability awareness, prevention, and education b. Provision of physical rehabilitation services c. Case identification, referral and follow-up
7. Regular Supply of Essential Drugs	Listing of all essential drugs needed

Essential Package of Hospital Services (EPHS):

The MoPH developed the EPHS in 2005. The EPHS describes the services provided by provincial hospitals (PHs) and regional hospitals (RHs). There are 29 PHs and 5 RHs in the country. Four essential clinical functions are included in those hospitals: medicine, surgery, paediatrics and obstetrics and gynaecology²⁸. The link between BPHS and EPHS is described in Figure 5.

Figure 5: Link between BPHS and EPHS²³



National or Specialized Hospitals:

The national or specialized hospitals are located in the capital of the country and serve as referral sides from district, provincial, and regional hospitals. Further, some of the national and specialized hospitals are providing teaching services to medical students. Given that less attention has been paid to tertiary care in the country, the quality of services is a major concern in these hospitals. Poor infrastructure, inadequate workforce, insufficient medical supply, and poor hospital management are the common challenges that the majority of the hospitals are facing²⁹.

2 CHAPTER 2: PROBLEM ANALYSIS, JUSTIFICATION, OBJECTIVES AND METHODOLOGY

2.1 PROBLEM ANALYSIS

Although the situation has improved considerably since 2003, Afghanistan still has one of the highest MMRs on record. Moreover, Save the Children (SC) in its yearly report in 2015 stated that 'Afghanistan is the worst place for mothers to be pregnant'.

Health services

In order to improve maternal health in Afghanistan, it is important to ensure that all women receive maternal care services. Home birth delivery by non-skilled and un-educated people is still a challenge in Afghanistan. More than two-third (65%) of all deliveries take place at home. There is a huge difference between home birth delivery in urban and rural areas. 66% of deliveries take place at Health Facilities (HFs) in urban areas comparing to 25% in rural areas.

Only 32% of mothers who received ANC were informed about pregnancy complications. Postnatal care is another important factor in the prevention and treatment of complications after delivery. More than one in four mothers reported having PNC from a skilled provider after their last delivery, but only 22% said they had a PNC visit within the first 24 hours of delivery. PNC was twice as common in urban areas as in rural areas¹⁰.

Disparity is always seen by different studies in different parts of Afghanistan particularly in relation to wealth and economy. For instance, number of pregnancies in a mothers' lifetime is varied among ethnic groups which is the highest in Nuristani women (OR=13.13) and lowest in Tajik (Afghan) women (OR=0.83)³⁰.

Medical factors of maternal deaths

Three major complications account for nearly 90% of all maternal deaths. Haemorrhage is by far the leading cause of maternal deaths in Afghanistan (56%), followed by eclampsia (20%) and prolonged or obstructed labour (11%). See Table 2 for more details.

The high rates of maternal and perinatal mortality in Afghanistan have been attributed to low rates of caesarean sections (CSs), and many cases of CSs were either emergencies or referrals from other health care facilities³¹. The rate of caesarean section is 10.2% (based on data from only one Kabul tertiary/maternity hospital), while the ideal rate for caesarean section has been considered by the international healthcare community to be between 10 to 15%. A survey done in four national maternity hospitals in Kabul also shows a CS rate of 10%, while the national caesarean section rate is not known. The caesarean section is performed after 3 common indicators or labour complications; mal-presentation (22% of CS), obstructed labour (14.8%), and premature rupture of membranous (12.2%)³².

The leading cause of death among females of all ages is infections (33%). A study shows, 41% of women identified lack of food, 18% lack of shelter, and 14% lack of clean water as their primary problem. Lack of appropriate shelter and absence of clean water and sanitation may contribute to infection and diseases, which can complicate or be complicated by pregnancy and delivery³³.

Table 2: Causes of maternal death in Afghanistan¹⁰

Causes of maternal deaths in Afghanistan	
Cause	Percentage
Hemorrhage	55.9
Prolonged or obstructed labor	10.7
Other direct causes	3.6
Pre-eclampsia / Eclampsia	19.8
Sepsis / infection	5.0
Indirect causes	5.1
Total	100.0
Number of deaths	64
Note: Data are derived from the verbal autopsy questionnaires.	

2.2 JUSTIFICATION

Afghanistan is ranked 159th among 187 countries in the world in terms of having the highest maternal mortality ratio³⁴. In addition, Afghanistan has the highest maternal mortality ratio in all of Asia. Still mothers die because of pregnancy related complications due to any causes and factors. Maternal mortality can happen at both hospital settings and community level. There's a limitation on studies to obtain knowledge of the situation of maternal mortality at community level in Afghanistan's context. Meanwhile, the maternal health situation is much better in neighbouring countries than Afghanistan (Table 3). Almost all maternal health indicators from the neighbouring countries are highly acceptable compared to Afghanistan, even though the neighbouring countries have contextual similarities in culture, religion, tradition, and belief.

Table 3: maternal mortality ratio in neighbouring countries¹¹

Indicators	Pakistan		Tajikistan		Iran		Uzbekistan		Turkmenistan	
	1990	2013	1990	2013	1990	2013	1990	2013	1990	2013
MMR	400	170	68	44	83	23	66	36	66	61

The consequences of maternal mortality are broad and shocking, entailing humanitarian catastrophe to family, society and country. High infant mortality, under-five mortality and morbidity, malnutrition and other child diseases are the consequences of MM. These may be caused by the father or close relative of the children taking care of them after the mother died, does not provide sufficient and enough support and care to the children. Morbidity and mortality of children will increase the burden on the health system. It is common in Afghanistan that women work with their husbands and their high death rate could contribute to a financial catastrophe to families and country.

The aforementioned arguments motivated me to explore the factors involved in maternal mortality in Afghanistan in order to identify the gaps and opportunities in health care systems and discover how to improve the situation of maternal health through evidence-based practices and help policy and decision makers.

2.3 OBJECTIVES

The aim of this study is to investigate the determinants of maternal mortality in Afghanistan.

2.3.1 Overall Objective

To explore the factors influencing Maternal Mortality in Afghanistan in order to formulate possible recommended interventions to the Ministry of Public Health of Afghanistan and stakeholders.

2.3.2 Specific Objectives

1. To identify the determinants of maternal mortality in Afghanistan.
2. To analyse the evidenced-based best practices from neighbouring countries (within similar context) and their applicability to Afghanistan.

3. To make recommendations, based on findings, to the health sector in order to reduce the maternal mortality in Afghanistan.

2.4 METHODOLOGY

The methodology will be a descriptive study based on literature review of publications on maternal health from 2001 to 2015. The main reason for selecting the date where the study will focus on is the extensive international community support to Afghanistan as well as its health sector after 2001. The articles are reviewed based on predefined inclusion and exclusion criteria.

In this study, the results of my search were over 200 articles but according to inclusion and exclusion criteria, only the relevant articles were included. Totally, 66 articles (including grey literatures) from Afghanistan and 13 articles from neighbouring countries were analysed. The articles include both quantitative and qualitative data. Most of them are peer reviewed articles and some are published reports. Furthermore, they all contained relevant maternal health related information and best practices.

2.4.1 Search Strategy

Literature search for both the first and the second specific objectives has been done using different search engines and journals. Moreover, some documents were submitted by personal contacts in Afghanistan and I received helpful and enriched document from my advisor and back-stopper. The following table separately shows the types of documents with relevant key words for both two objectives. The key words are used either alone or combined.

Table 4: Search summary

Type of article	Source	Objective one	Objective two
Peer reviewed articles	Google scholar, google, data bases and libraries (VU university library)	Health, system, maternal, mortality, morbidity, cause, complications, consequences, influencing factors, burden, pattern, determinants, institutional, home, access, utilization, socio-economy, culture, EmOC, quality, family planning, Afghanistan, and world.	Health, system, maternal, mortality, morbidity, cause, complications, consequences, influencing factors, burden, pattern, determinants, institutional, home, access, utilization, socio-economy, culture, EmOC, quality, family planning, best practices, lessons learnt, interventions, neighbouring countries, Tajikistan, Uzbekistan, Turkmenistan, Iran and Pakistan.
Reports (grey literatures)	MoPH	EmOC, services, health, maternal, mortality,	Services, health, maternal, mortality, morbidity, health,

		morbidity, health, policy, strategy, reproductive, and system.	system Tajikistan, Uzbekistan, Turkmenistan, Iran and Pakistan.
	Other relevant ministries	Socio-economy, religion, culture, economy, security, women, gender, behaviour, education, literacy and violence.	
	UN agencies (WHO, UNICEF, and UNFPA), national and international websites	Maternal, health, mortality, causes, consequences, system, Afghanistan and world.	Maternal, mortality, health, system, lessons learnt, best-practices, interventions, Tajikistan, Uzbekistan, Turkmenistan, Iran and Pakistan.

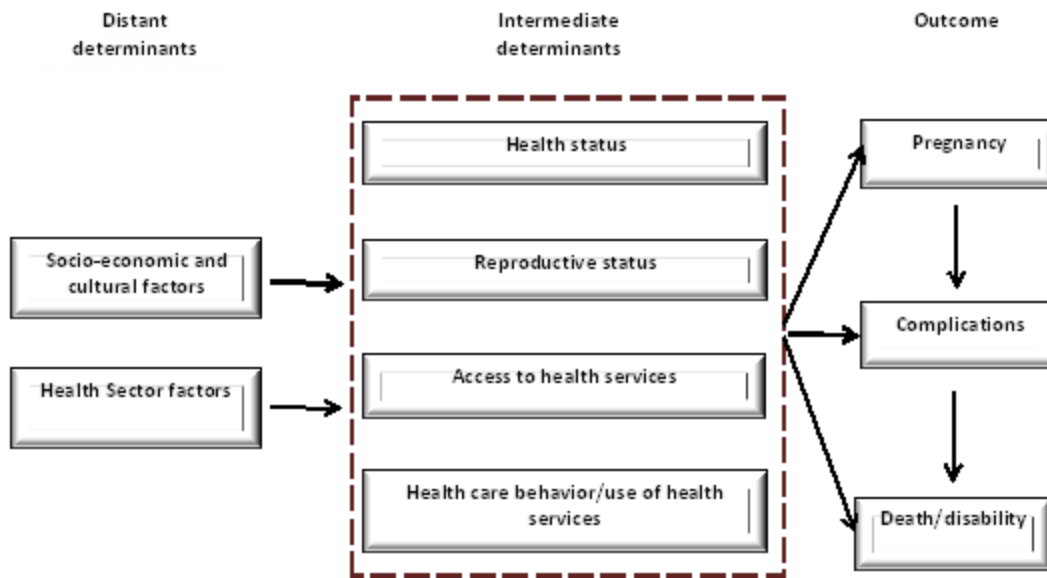
2.4.2 Exclusion criteria for this study

The most important exclusion criteria in this study were the language and date. Literatures written in languages other than English or Dari, such as Russian, Uzbeki, Turkmeni and Urdu were not searched and considered. Articles before 2001 were not considered. In addition, articles discussing clinical practices were avoided to be analysed. As a result, some documents with helpful information may have been missed or not opened.

2.4.3 Conceptual Framework

In order to analyse the factors influencing maternal mortality in Afghanistan, a simple framework for analysing determinants of maternal mortality and morbidity is used in this study. The framework covers all of the possible factors that influence maternal mortality and the boxes can be thought of as general concepts that can encompass a much larger set of variables. The framework is organized around three general stages or components of the process of maternal mortality; distant determinants, intermediate determinants and outcome. These outcomes are pregnancy and pregnancy-related complications, possibly culminating in disability or death. Pregnant women experiencing some complications of pregnancy or childbirth, or having a pre-existing health problem that is aggravated by pregnancy, are all circumstances that if resulting in death can be defined as maternal death. This sequence of outcomes is directly influenced by two sets of distant determinants; socio-economic factors and health sector factors, and four sets of intermediate determinants; the health status of women; reproductive status; access to health services; health care behaviour (including their use of health services). The framework is adapted based on the Deborah Maine original framework by including the health sector factor under the distant determinants, and excluding the unknown or unpredicted factors which are under the intermediate determinants considered as simply unknown. As the original framework was old (from 1992), therefore, this adaption of the framework to was necessary in order to incorporate new elements that were not “in fashion” at the time the framework was developed.

Figure 6: A framework for analysing the determinants of maternal mortality and morbidity.



3. CHAPTER 3: DETERMINANTS OF MATERNAL MORTALITY

3.1 Distant determinants

3.1.1 Socio-economic factors

Poverty:

Afghanistan remains extremely poor, ranking at 169th out of 187 countries in the world's poverty index. Since the fall of the Taliban regime in 2001, some economic recovery took place due to international assistance. Still Afghanistan has the lowest living standard in the world with a Gross Domestic Product (GDP) of \$18b and a GDP per capita of \$ 635 equivalent to about \$1.74 per person per day, being barely above the poverty line of \$1.25³⁵. According to Central Statistics Organization (CSO) and the World Bank, the proportion of population below the national absolute poverty line in Afghanistan is 36%³⁶. Approximately 36% of Afghanistan people at 15-24 years don't have an official job. The country is heavily donor dependent. Agriculture plays the most important role in the economy and about 80% of Afghans are employed in the agricultural sector with a huge contribution of female workers³⁷.

Other economic factors also play an important role; there is no social security system or pension for retired or old aged people. Therefore, people try to have more children to have a better economic support when they become older, which in turn results in more pregnancies which leading to high maternal mortality.

Education and literacy:

The literacy rates among adult women (17%) and men (45%) nationally, and among urban and rural areas differ considerably. In urban areas (Kabul) 68% of male and 34.7% of female aged 15

and over are literate. In rural areas (like the province of Helmand) 41% of male and only 1.6% of female in southern districts are literate³⁸. One out of five Afghan women aged 15-24 is literate, but this number is three times lower in rural areas than in urban areas and 10 times lower in the poorest quintiles compared to the wealthiest households¹¹.

Pregnancy related death is higher in illiterate than in literate women¹⁰. Illiterate women have less opportunity to choose and negotiate the appropriate type of health services and providers. In addition, the husband's education also influences the benefits from healthcare services to women³⁹. Education is strongly associated with utilization of ANC, SBA seeking behaviour, fertility rate, and family planning services in Afghanistan⁴⁰.

Women's role in society

In many societies, culture and beliefs are known as impediment factors in seeking maternal health care. Based on the societal norms, women are not allowed to go out for seeking medical care without prior consent of home decision-makers particularly husbands. Especially in the rural areas of the country women are not the decision makers. Afghanistan is a male dominant country with males as the decision makers. In relation to seeking care at family level, the husband and mother-in-laws mainly have the decision role. Service utilization for female patients is still dependent on the availability of female providers. Male doctors are mostly prohibited from treating women in remote areas of the country⁴¹. Going outside the home after giving birth (within 40 days) is highly prohibited in some communities within the Afghan society.

Child marriage:

Child marriage has long been practiced in Afghanistan and is justified by certain interpretations of Islamic texts and traditions. However, this tradition appears to be changing in the urban areas. Data collected from 4 Kabul hospitals in 8 months period shows that the vast majority of the respondents (90.3%) believe that women should only marry after the age of 16, whereas 32.6% think women should only marry after the age of 20⁴².

Globally, it is estimated that 10% (14 million) of married girls between the age of 15 and 19 become pregnant within the first year of marriage, and 90% are from less developed regions of the world. By tradition, soon after Afghan women are married, they are expected to get pregnant and have a child.

The law imposed tough new penalties for abuse of women, including making child marriage and forced marriage crimes under Afghan law, for the first time in 2004 in Afghanistan. Child marriage nevertheless remains common in Afghanistan, increasing the likelihood of early pregnancy, which heightens the risk of death and complications in childbirth, because of "too soon, too close, too many and too late". Child marriage is closely related to reproductive status, and is further discussed in Section 3.2.2.

3.1.2 Health systems factors

In 2014, there was a 2.7% increase in the number of government hospitals compared to 2013, but there was no increase in the number of private hospitals. In the years 2014-15, there was

3.3% increase in the number of CHCs, 1.6% increase in SHCs while the number of BHCs decreased by 1.2%⁴³.

There is a theoretical referral system in BPHS but most of BHCs and CHCs still lack an effective referral system. Most of the deliveries take place at night when there is no duty midwives in both BHC and CHC level. BHCs do not have ambulances and most of the CHCs also lack this facility. The DHs are almost inaccessible to people due to long travel time, road blocks and lack of transportation⁴⁴.

Health systems financing:

The Total Health Expenditure (THE) per capita per year in Afghanistan is estimated to be US\$42. The out-of-pocket (OOP) expenditure accounts for 73.6% of the THE, the remaining is governmental (6%) and donor funding (18%). Of the 62% of Out-Of-Pocket (OOP) spending on private facilities (out of 73.6% in general), 36% is spent in Afghanistan and 26% is spent outside of the country⁴⁵.

Reproductive health services

EmOC: The safety of pregnancy depends on effective strategies such as improving access to emergency obstetric care and a referral system for maternal health. Based on the MoPH, there is an agreement for equitable distribution of EmOC, where there should be a minimum coverage of one CEmOC and four BEmOCs for a population of 500,000.

Although, the total number of health facilities increased to 1701 throughout the country in 2009, the number of health facilities province wise is still very unequal, for example - 31 facilities in Samangan province and only 12 in Uruzgan province, despite their comparable population sizes. As of 2006, 95 districts – only one third of the total number of districts in Afghanistan – exceeded the MoPH's minimum goal of 1 facility for every 30,000 people. Nineteen out of 364 districts in Afghanistan had no health facilities, and in 22 out of 34 provinces there had no health facilities with the capacity to perform EmOC services⁴⁶.

Human resources for reproductive health care:

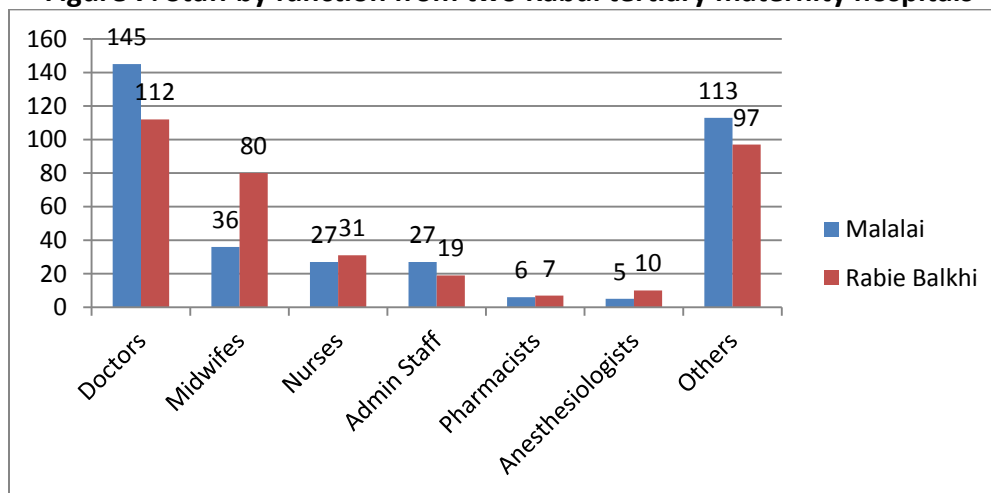
Attendance and availability are the human resource challenges to CEmOC provision in Afghanistan. Staff turnover is 46.2% for provision of CEmOC services and 25.6% facilities have a turnover rate of $\geq 25\%$. In addition, only one-third of comprehensive health centres reported having staff who provide all nine CEmOC functions, compared with 44% of district hospitals, 64% of provincial hospitals, 80% of regional hospitals, and 80% of specialized hospitals. In addition, hospital staff attendance on weekdays is 80.8% for day shifts and 62.2% for night shifts. During weekends the attendance is 60.6% in day shift and 59.0% in night shift⁴¹. These statistics are based on the situation in Kabul hospitals only, being in the capital of the country. Despite the fact that a mere 7% of Afghanistan's population resides in Kabul, a quarter of the nation's doctors are located in the capital, leaving rural regions badly understaffed. The distribution of doctors in Afghanistan's provinces is dramatically uneven, with 3.1 doctors for every 1,000 people in northern Balkh province and a mere 0.01 doctors for every 1,000 people in central Uruzgan province⁴⁶.

95% of all assessed health facilities had a medical doctor, 90% had an anaesthetist and only 49% had an obstetrician/gynaecologist. A much smaller percentage met the minimum BPHS/EPHS staffing requirements for each position; only 55% had the required number of midwives, 14% had the required number of obstetrician/gynaecologists, and only 9% had the required number of nurses.

High staff turnover is a challenge for many HFs. The average turnover rate ranged from 0% for medical doctors and pharmacists at regional hospitals and specialty hospitals, to 125% for obstetrician/gynaecologists at comprehensive health centres (turnover rates at the two comprehensive health centres reporting obstetrician/gynaecologists in 2009 were 50% and 200%). Although the acceleration of the midwifery training programme has tried to meet the increasing demand for female health care providers, the human resource database indicated that female providers currently constitute only 24% of the workforce. The overall proportion of health provider shortage being estimated at 39% (based on BPHS standards) is still a severe deficit⁴⁷.

The WHO further reports that a minimum of 63,000 health workers are needed in order to provide basic essential care, which makes Afghanistan’s health system critically understaffed. On the other hand, however, the numbers of midwives have increased from 467 in 2002 to 4600 in 2014. Due to shortage of funding the number of midwifery education schools dropped from 32 in 2010 to 22 in 2013 and if the situation continues only 8% of estimated needs will be met in 2030⁴⁸.

Figure 7: Staff by function from two Kabul tertiary maternity hospitals



3.2 Intermediate determinants

3.2.1 Health Status

Afghanistan is ranked the worst place in the world for pregnant women and is described as the most dangerous country to be born. Life expectancy in Afghanistan, without adjustment for migration, is 64.2 years for females and 63.6 years for males¹⁰. The reason for lower life

expectancy in males, despite high maternal mortality is the 30 years of war. The Afghan Total Fertility Rate (TFR) is 7.03 while the population growth rate is 3.9% a year, compared with 1.4% in neighbouring country, Iran.

Nutritious Status

Additional food supplement intake is highly needed for all pregnant women. Micronutrient deficiencies are widespread. The rate of non-pregnant women who were iron deficient is 24%, with iron deficiency anaemia is 13.8%, and suffered from anaemia from all causes is 40.4%. Iodine Deficiency with 40.8% prevalence also emerged as a major public health issue, particularly in the mountainous provinces (north and central highlands) of Afghanistan. Access to iodized salt is low and only 37.9% of households were reported using iodized salt for cooking and 71.5% of households had salt with adequate iodine content⁴⁵.

Anaemia is an indirect cause of maternal mortality (maternal anaemia 16%). 38% of maternal deaths in Afghanistan are due to haemorrhage, among which 30% of the deaths are related specifically to PPH which can be caused by anaemia.

Prevalence of nutritional anaemia in pregnancy is reported to be 90% in Afghanistan. It is believed that the risk of maternal death increases with severe anaemia (Hb<7g/dl), which is related to low uptake of iron. The prevalence of acute malnutrition (moderate to severe wasting) is 9.5% (from the highest 21.6% and the lowest 3.7% by province variation), but the prevalence of chronic malnutrition was found to be 40% in Afghanistan (from the highest 70.8% and lowest 24.3% by province variation), which is considered very high.

Lack of food (malnutrition with subsequent anaemia) contributed to increased risk of complications in pregnant women. Chronic malnutrition in childhood frequently results in stunted growth and the development of a smaller than normal pelvic outlet⁵⁰. Obstructed labour and nutritional anaemia causing maternal mortality both have malnutrition as the underlying factor. The prevalence of underweight children is 25% (from the highest 49% to the lowest 14.1% depending on province) and prevalence of underweight women in reproductive age is only 9.2%⁵¹. Poor nutrition of children leads to stunted mothers, and these mothers give birth to small babies. Obstructed labour is another important complication of pregnancy, which is very common in women who are short in stature. This complication (obstructed labour) is attributed to chronic malnutrition in developing countries. CephaloPelvic Disproportion (CPD), which can lead to obstructed labour in developing countries, is not a life threatening condition for either the mother or the baby in developed countries, because of the availability of comprehensive EmOC services⁵².

3.2.2 Reproductive Status

Age

The leading cause of death in young women aged 15 to 19 in developing countries are complications of pregnancy and childbirth (early childbearing age 26%)⁵³. An estimated 70,000 adolescent mothers die each year because they have children before they are physically ready for parenthood⁵⁴. Research from Bangladesh showed that the risk of maternal mortality may be five times higher for mothers aged 10 to 14 than for mothers aged 20 to 24⁵⁵. According to AMS

2010, 53% of women in the reproductive age group were married by the age of 18; 12% of Afghan girls aged 15-19 became pregnant or gave birth; and 47% of deaths of women aged 20 to 24 were related to pregnancy. Children born as a result of child marriages also suffer increased health risks. The 2010 Afghanistan Mortality Survey found a higher death rate among children born to Afghan mothers under the age of 20, compared to those born to older mothers, which reflects global findings¹⁰.

Child marriage originated during the foundation of Islam. The linkage of child marriage between tradition and religion is very strong. Besides being a traditional practice, early marriage adheres to Islamic norms. Although the minimum age of marriage is not mentioned in the Holy Quran, the Islamic scholars allow child marriage when the child reaches puberty. It was declared that any expression that contradicts superiority of men over women should be strictly avoided and it was emphasized that the rights of men on polygamy are based on the Muslims Holy book (Quran).

There is a direct relation between child marriage (early pregnancy) and fistula, a preventable childbirth injury in which prolonged labour creates a hole in the birth canal. A survey found that 25% of the women and girls diagnosed with fistula were younger than 16 when they married and 17% were under 16 when they first gave birth⁵⁶. Early motherhood (54%) is a high risk in Afghanistan. At the individual level, early marriage disrupts schooling and limits economic opportunity; this significantly impedes the overall development at a national level⁵⁷.

3.2.3 Access to Health Services and Health Information

Afghanistan has increased access to health care to 85% of the population in 2010⁵⁸ by building or upgrading the network of health facilities. In 2001, access to health services, defined as living within one hour walking of a health facility, was limited to less than 10% of the population. Location of services, affordability of services, and acceptability of services are all causes affecting access to health services⁵⁹. In addition, language problems, and in very conservative families shyness towards male health workers, decreases the assertiveness of individuals and households in seeking health care from health facilities.

From my personal observations in different provinces, the printed materials (posters, flyers, pamphlets, and other materials) were either stocked at provincial or health facility level. On the other hand, the mentioned department does not share all the maternal health related information. Only the organizations or projects print or publish the information that they have an interest in or a fund available for. The rest is still unprinted and/or unpublished.

Generally, some health related messages are broadcasted by certain TV channels (with very high cost around \$200US per minute), but due to lack of electricity in the remote areas of the country and limited broadcasting of TV channels, people are not able to receive these messages.

Location of Services (Geographic accessibility)

According to the Afghanistan Health Survey (AHS) in 2012, 29% of households perceived that the health facility is too far away to seek the services. While there has been considerable progress in reducing the number of people without access to health services, even the most optimistic estimates put the goal of nationwide geographic accessibility to health facilities many

years in the future⁶⁰. Table 4 gives estimates of current access to rural public health facilities. Access is particularly difficult in winter, when floods and avalanches prevent people from travelling to clinics, even by donkey or horse⁶¹.

Table 5: Rural access to public health facilities

	Within 2 hours	2-6 hours	More than 6 hours
Rural access to public health facilities	83%	14%	3%

Financial accessibility

Affordability is also a challenge for people living in lower wealth quantile. Though the public health facilities' services are for free, other costs like transportation, living expenditures and others will be a barrier. The high direct costs of private health facilities are too high for most people, especially to the poor who are living mostly in rural areas of the country and therefore need to pay the indirect costs as well. Poor families are also at a higher risk of morbidity and mortality because equipment, supplies, drugs or blood may have to be purchased⁶².

Acceptability

Acceptability is mainly influenced by inadequate (quality of) care in health facilities, lack of female staff and poor behaviour that may result from shortage of skilled staff, essential equipment, supplies, drugs and blood or even unavailability of operating theatres because of case overload. Inappropriate management of cases due to failure to appreciate the severity of a condition and misdiagnosis also causes unacceptability to seek maternal health services.

In terms of acceptability, the services must provide high quality care and it should be ensured that the system is accountable for women who seek health care.

Quality of Care

"Quality is a journey not a destination", said Dr. Reshad Masoud, Global Health Care Improvement Project Director/University Research Company (URC) during the first round table meeting in Kabul, Afghanistan. Quality of maternal healthcare services, including basic and comprehensive EmOC at the health facilities, appears to be insufficient, which contributes to maternal complications originating at the facility level. The reasons behind that are probably inadequate knowledge and skills and inappropriate behaviour of health workers, insufficient management of the health facilities, lack of supervision and monitoring, and the impaired health system.

In order to improve maternal health care at the health facility level, improving the performance of health care providers and management aspects of the health facility are necessary. A collaborative approach for improving quality of care at the health facility is proven to be an effective way to improve maternal health outcomes. This approach creates opportunities to improve quality of care, such as mobilizing the health teams to identify future changes toward a better outcome, providing learning opportunities, implementing best practices in compliance

with standards, establishing a good working environment, and measuring input, process and output indicators. The effectiveness of this approach is proven in the 12 low and middle income countries by improving the performance of health facilities from 50% to 80% within six months. Studies show that audit and feedback strategies have a great impact in quality of care, particularly in perceived quality of care by women in comparison with other improvement strategies. The two relevant strategies particular to maternal health are death audit and criterion-based audit or standards. The current audit and feedback strategy MoPH operates in its maternity hospitals is aiming to prevent maternal deaths through collecting, reviewing, and acting upon information while upholding a continuous quality improvement strategy in maternal health care.

One example is that CHWs receive a regular supply of FP commodities but as many of them are illiterate, they are not able to inject Depo-Provera, leading to a low coverage and expiration of the injections. Coordination with the EPI outreach programme could potentially address this problem. It is also important to note that CHWs are not acknowledged as they work as volunteers.

There are hopes that Quality Improvement (QI) contributes to strengthening the health systems of Afghanistan and can improve the quality of service delivery, while building systemic capacity at all level through national leadership and policy making. Still the sustainability, as well as fragmentation and poor coordination, is under question⁶³.

Provision of quality is much higher when both the provider and client are female. In addition, the poor receive better care provided by the non-government facilities while the quality of care does not differ between the both. Supervision visits, training of health workers, and partnership represent a promising start in the reconstruction of Afghanistan's health system, striving to increase access to quality care for the poor⁶⁴.

Perceived quality of care, which is mostly interpersonal quality, sometimes conflicts with technical medical quality particularly in communities with a low level of awareness and knowledge about health issues. Hence, it hinders access to health services. For instance, women insist receiving more medicines and pain killers during delivery while health worker cannot honour these requests. Women can be educated about the related disadvantages.

Poor provider motivation can lead to suboptimal quality due to non-adherence to clinical guidelines, harmful practices, and poor provider-patient interactions⁶⁵. Balances Score Card (BSC) indicated poor provider-patient interaction by patient satisfaction index which dropped from 83.1 in 2004 to 76 in 2009 (data for 2012-2013 is in not mentioned in BSC 2013). While in 2013, health worker satisfaction index has dropped back to the first data point (63.5) in 2004 after an increase of 69.1 in 2009⁶⁶.

3.2.4 Health Care Behaviour/Use of Health Service

Home deliveries are considered to be high (55.5%) followed by health facility delivery (41.9%). The type of health facility included government clinic/hospital 33.5%, private clinic/hospital 3.5%, NGO clinic/hospital 2.9% and health posts 0.3%. Traditional birth attendants (Dias) conducted most of the deliveries (28.2%) followed by nurses/midwives (26.2%), older family members (22.5%) and government doctors (12.1%). Most (55.0%) married women did not

receive any postnatal check-up but among those who received, only 35% were checked in the immediate postpartum period (within 6 hours of birth).

Current health facilities are not efficiently distributed due to non-technical decisions on distribution of health facilities. According to the Health Management Information System (HMIS) report 2013, only 6% of Health Sub Centres (HSCs) are underutilized but in the meantime, around 20% of population is uncovered by BPHS.

The percentage of women age 15-49 who had a live birth in 31/34 provinces of Afghanistan and received one or more of the three types of maternal care services for their most recent birth by a skilled provider shows that ANC (59.6%), Delivery (34.3%), PNC (23.4%) and women who received all is (18.4%). Based on the NRVA 2010-2011, the first ANC coverage is 52.2% and ANC 2+ (all four ANCs) is only 9.9%.

There is also the continuing need to educate women about the importance of seeking care in Afghanistan; four in ten (41%) women who did not receive ANC felt it was not necessary to seek such care. Similarly, 35% of women who did not deliver the most recent birth in a health facility said that a facility delivery was not necessary. Overall, the utilization of women receiving antenatal care at least once from a skilled provider is 71% in urban and only 41% in rural areas. Only 14.6% of women had undergone the recommended four ANCs check-ups⁶⁷.

Utilization of skilled birth attendants

“Skilled” is a crucial word and refers to a trained or a professional health care provider. One of the key proxy indicators in MDG5 is the percentage of assisted deliveries by skilled birth attendants. There has been a gradual increase in the number of births attended by skilled birth attendants (SBAs). In 2003, Multiple Indicator Cluster Survey (MICS) showed that 15% of births were attended by SBAs, while Afghanistan Health Survey in 2006 showed a slight improvement (19%) of women delivered with an SBA⁵⁶. More recently, in 2011-2012, the National Risk and Vulnerability Assessment (NRVA) showed a two-fold improvement (39.9%). Despite the aforementioned improvements, the percentage of skilled attendant at birth is higher in urban (76%) comparing to rural (33%) and Kochi (nomad) (13%) women. Besides the different proportions of institutional deliveries between urban and rural areas, use of private facilities also differs: 16% of urban women have their births in private facilities against 8% of rural women. This illustrates the unequal health care provision between the urban and rural population, which is a concern with respect to Afghanistan’s health system performance.

Use of Family Planning

Family Planning is an internationally proven strategy to reduce maternal mortality. It is believed that an estimated 32% of maternal deaths can be averted by promoting family planning in countries with high total fertility rate and MMR. Using modern FP method prevents unwanted pregnancies and reduces the lifetime risk of maternal deaths.

It is clear from the evidence to date that culture and traditions are important factors which shape women’s decisions to use contraceptives⁶⁸.

A dialogue is needed with the Afghan people in order to understand their needs and build trust and introduce family planning. The introduction can be based on unmet needs for family planning among women of reproductive age, and on exploring the best approach for providing

Afghan men and women with correct information on contraceptives to help them make their own decisions. Therefore, it is needed to understand people's beliefs and other factors that influence their contraceptive choices⁶⁹.

Despite a double increase in the use of family planning methods from 10% in 2003 to 20% in 2012 still much more needs to be done in order meet the MoPH target of 40% by 2016. A study stated that CPR in Kabul remains low particularly for younger and less educated women. This relatively lower reported lifetime contraceptive use may be due to the possibly that women using contraception are less likely to deliver in public hospitals where this study recruitment took place, or that women from rural areas may come to Kabul city to deliver and thus reduce the observed contraceptive utilization⁷⁰.

Despite of the progress made in some provinces and urban areas of the country, data shows that Contraceptive Prevalence Rate (CPR) has remained very low The CPR in Afghanistan varies from the highest (49.4%) and least (2%), which is much lower in comparison to overall CPR coverage in the country⁷¹. A breakdown of CPR data by socio-demographic characteristics can be found in Table 5, below.

Table 6: Current contraceptive use by socio-demographic characteristics among married women 15-49 years old.

	N	Contraceptive prevalence rate	95% CI	P Value
Residence				
Urban	4,934	36.4	33.9-39.0	<0.001
Rural	20,809	18.4	16.8-20.0	
Education				
No education/Madrasa	22,914	20.1	18.6-21.7	<0.001
Primary	1,485	33.0	29.9-36.0	
Secondary/higher	1,344	39.1	35.7-42.6	
Age group				
15-24	7,221	14.0	12.6-15.6	<0.0001
25-34	9,220	23.2	21.3-25.0	
35-49	9,302	26.6	24.7-28.6	

Overall, both male and female CHWs provide some types of contraceptives to the men and women living under the area of their coverage (150 families). On the other hand, as most of the CHWs are illiterate, they do not have knowledge and information to provide counselling on family planning advantages to the people⁷².

Use of Harmful Traditional Practices

Beliefs and practices that have a bearing on the health of the mother are post-delivery maternal practices, care-seeking practices and access to health services in case of previously experienced problems by the mother during or after delivery, and family and community support for the new mothers. Mothers' seclusion (from keeping the mother away from spirits) for 40 days after birth is a traditional belief and practice mostly in remote areas of the country. Relying on traditional healers is a big challenge throughout the country especially in rural areas. Poor people and those are illiterate mostly belief in traditional healers. The other challenge is

the mother-in-laws performing traditional practices during pregnancy and postpartum. Even in the health system setting, health personnel administer high doses of Oxytocin to pregnant women just before delivery, which causes the uterus to rupture. Another harmful practice performed by medical staff is the administering of an abundance of medicines/antibiotics which can have financial and medical negative effects (contraindications) on mothers.

4. CHAPTER 4: BEST PRACTICES/LESSONS LEARNT FROM NEIGHBOURING COUNTRIES

Chapter three described the trends of maternal health care services and analysed the determinants of maternal mortality in Afghanistan. This chapter offers several successful examples and best practices from neighbouring countries with the similar context of Afghanistan. This broad range of approaches and implementation strategies can serve as guidance for improving the maternal health interventions in Afghanistan. Best practices and lessons learnt in neighbouring countries are; promoting family planning practices and improving quality of care, accessibility to emergency obstetric care facilities, and education for women. These successful practices can be implemented in Afghanistan because of the content and contextual similarities of these countries including; socio-economic and socio-cultural factors. There are also differences between the countries that could influence the implementation and/or outcomes of these good practices, however. These are outlined in Table 7. Nonetheless, the already tested best-practices are likely to have a positive effect on health status, reproductive status, access to health services and health care behaviour/use of health services in Afghanistan.

Table 7: Maternal health indicators¹¹

No.	Basic Indicators	Afg	Pak	Tajik	Uzbek	Turk	Iran
1	Life expectancy: females as a % of males 2012	104.3	102.7	110.4	110.3	113.7	105.4
2	Adult literacy rate: females as a % of males 2008-2012*	-	58.7	99.8	99.6	99.8	90.3
3	Enrolment ratios: females as a % of males 2008-2012*, Primary GER	71	82.3	96.1	97.1	-	98.8
4	Enrolment ratios: females as a % of males 2008-2012*, Secondary GER	54.9	73.3	87.3	97.9	-	95.9
5	Survival rate to the last grade of primary: females as a % of males 2008-2012*	-	95.8	99.6	100.5	-	99.5
6	Contraceptive prevalence (%) 2008-2012*	21.2	27	27.9	64.9	48	77.4
7	Antenatal care (%) 2008-2012*, At least one visit	47.9	60.9	78.8	99	99.1	96.9
8	Antenatal care (%) 2008-2012*, At least four visits	14.6	28.4	49.4	-	82.8	94.3
9	Delivery care (%) 2008-2012*, Skilled attendant at birth	38.6	43	87.4	99.9	99.5	96.4
10	Delivery care (%) 2008-2012*, Institutional delivery	32.9	41	76.5	97.3	97.8	95.3
11	Delivery care (%) 2008-2012*, C-section	3.6	7.3	-	-	3.1	45.6
12	Maternal mortality ratio , 2008-2012*, Reported	330	250	37	21.4	11.6	24.6
13	Maternal mortality ratio , 2010, Adjusted	460	260	65	28	67	21
14	Maternal mortality ratio, 2010, Lifetime risk of maternal death (1 in:)	32	110	430	1400	590	2400

4.1 Promoting family planning practices

FP is an internationally proven strategy to reduce maternal mortality in countries with high total fertility rates and maternal mortality ratio and will reduce the MMR by 32%⁷³. Therefore, unwanted pregnancies and reduction of lifetime risk of maternal deaths can be reduced by using modern FP methods.

There would not be a substantial barrier to the decision to seek care in Afghanistan if promoting women's counselling would be accounted as an important and promoted intervention. A study found a strong association between good FP practices and mothers' knowledge. For example; in Pakistan giving counselling to mothers improved the knowledge of mothers on proper usage of contraceptives⁷⁴.

Further, a number of Muslim countries implemented very successful family planning programmes. In Iran, for instance, the total fertility rate declined tremendously by involving religious leaders. The government of Iran committed to slowing the population growth by encouraging FP. As an intervention, government officials and religious leaders promoted family planning and its advantages through special television programmes. Representatives from various government agencies attended a yearly national seminar on population and family planning. In this gathering, representatives from the religious leaders from the community level have also expressed their support for family planning and have clarified the relationship between religion and birth control. As a result, the clerics were convinced to endorse the government's family planning programme and with this religious support, the population also more readily accepted it⁷⁵.

A survey in Uzbekistan found that family planning use is directly associated with socio-economy and education. In Uzbekistan, compared to housewives, knowledge and contraceptive use increased among women working outside of the home due to the related increase in social interactions and economic resources. The study noted that external work enables women to expand traditional social norms and networks⁷⁶.

4.2 Improving quality of care

Improving the levels of training of skilled birth attendant is a proven strategy to decrease maternal mortality. Qualified CMWs had a great contribution in decreasing maternal mortality in Pakistan. This country improved the quality of training of CMWs by having a higher tutor student ratio than standard. In addition, the competition and qualification of tutors were high enough to train CHWs as most of them were qualified and experienced medical doctors. Most of the tutors and some of the students had access to updated information including seminars and workshops. Moreover, regular supportive supervision from the CMWs greatly contributed in providing quality maternal health care services⁷⁷.

Improving the quality of care has also shown to be a contributing factor to high levels of maternal care use. The Tajikistan Ministry of Health and the WHO supported the Safe Maternity programme by including measures to increase the presence of qualified gynecologists at the province and district hospital level. Moreover, regular supportive supervision from the CMWs by MoPH using the reproductive health monitoring checklist greatly contributed in providing quality maternal health care services⁷⁸.

4.3 Accessible emergency obstetric care facilities

Shortage of health personnel may cause women not to come to health facilities. A research, in Pakistan, shows that maternal mortality decreased by improving access to EmOC services. This access was assured by increasing the number of medical professionals including, gynaecologists and midwives, especially in rural remote areas. The ratio of gynecologists and midwives are at least many fold that of Afghanistan. By comparison, Pakistan has 0.8 physicians and 0.45 nurses and midwifery personnel for every 1,000 people and Turkmenistan has 2.64 and 4.98, respectively while Afghanistan has 0.15 generalists, 0.07 specialists and 0.08 midwives. The gold standard (WHO recommendation) is 2.3 doctors, nurses and midwives for every 1,000 people in Afghanistan⁷⁹. In addition, a successful strategy can be mobile health teams to treat complicated cases amongst those who do not have access to health facilities. Tajikistan experienced 'closing the gap from policy to practice in primary health care reform' by training and implementing the Family Health Nursing model. The main purpose of this project is to increase the number of Family Health Nurses in order to improve community health and coping with illnesses especially of those who do not have access to maternal health services⁸⁰.

4.4 Health education for women

The Millennium Development Goals, Sustainable Development Goals and World Fit for Children goals are to assure adult literacy. This could result in building the capacity of health care provider and seeker. A remarkable impact on the health of women had been made by Lady Health Workers (LHWs) programme in Pakistan. In a cultural conservative society with limited social mobility, the LHW programme successfully provided a valuable opportunity for women to earn money and improve their status in the community. In addition, by involving the men of the households in a society where men are the major decision-makers, health programmes succeeded as both men and women were receiving the same messages and could support each other in decision-making. Therefore, the programme set up a protocol and helped female workers by engaging men in their communities. Every LHW organized a health committee within her catchment population, comprised of local notable men and women who supported local health education efforts⁸¹.

A study in Tajikistan shows that the knowledge in family planning programmes is quite high. This knowledge was increased mainly by different sources of media. The most important one is television following by radio. In the Islamic Republic of Iran, the mass media in general, and television and radio in particular, are the most important sources of information regarding health issues such as family planning. In addition, the health centres, physicians and friends and also be considered as way of transferring the health related particularly family planning knowledge⁸².

Government commitment and following of international policies and guidelines along with educating the public with key health messages can have demonstrated positive impacts. For instance in a Tajikistan school based programme aimed to 'reduce gender-based violence', providing training to students and teachers was proven to be effective. Another study shows that contraceptive prevalence rates can be improved in rural areas by improving the level of knowledge of CHWs⁸³.

5. CHAPTER 5: DISCUSSIONS

This section discusses the existing maternal health policies and their implementation, and identifies challenges and opportunities for each of the different levels of determinants of maternal mortality, in order to improve the health status of mothers in Afghanistan.

5.1 Distant determinants

5.1.1 Sexual reproductive health and rights

In Afghanistan, low status of women in the family and society decreases the access to and utilization of maternal health services, and therefore increases the risk of maternal deaths. Educational, cultural, economic, legal and political positions of women in the society influence the women's status. Constraints on women's autonomy and lack of decision making power both limit access to maternal health services, including emergency obstetric care, which leads to maternal deaths particularly in the rural areas of the country.

Women's Education and Knowledge:

Women's education is vital to enhance the health and reproductive status of mothers, as is demonstrated by numerous research studies. According to the findings, school enrolment is acceptable in Afghanistan, as at least one person in each family is literate; however, they are generally not the family's decision makers. Although high male education can be an opportunity as they live in the same household with their family members, it is especially women's education that could benefit from further progress. An additional gap is a lack of coordination between the MoPH and MoE to incorporate the reproductive health topics/messages into the school curricula.

Presence of CHWs, especially in the rural remote areas of the country has already helped in providing a basic knowledge on reproductive health issues. Further strengthening this programme can have a huge contribution in improving maternal health status in the areas of CHW coverage. But one existing limitation that needs to be addressed within the health system is lack of supervision of CHWs at provincial and district level, and weak coordination and collaboration between CHWs and health facility midwives.

Teenage pregnancy:

With a relatively high proportion of maternal deaths caused by obstructed labour, it is also the high rates of teenage pregnancy that need to be addressed to successfully tackle maternal mortality in Afghanistan. An active advocacy and educational role by civil society associations and relevant international organizations in relation to teenage pregnancy is key to reducing the still high rates of teenage pregnancy, but also to reinforcing positive behaviours at community level. As these organizations are mostly from the community, they can pass key health related messages and follow up on them. Messages should include information about pregnancy complications and maternal death as consequences of child marriage and teenage pregnancy, as teenagers are not developed enough physically to properly deliver children. As demonstrated in Iran, involvement of religious leaders is essential, as they are powerful enough throughout the country and can influence people. They are seen mostly as the decision makers

for any traditional beliefs, societal norms and unacceptable cultural practices. Weak coordination with these institutions as well as with the Ministry of Hajj and Religious Affairs (MoHRA) have contributed to the fact that maternal health related messages are not being passed to all women and girls, especially to those in the rural remote areas.

5.1.2 Health system strengthening

Lack of evidence-based decision making:

There is some evidence that policy decisions in Afghanistan are not taken based on the data available within the Health Management Information System (HMIS) of MoPH. All maternal health and proxy indicators are being produced by HMIS including; ANC, PNC, FP, number of deliveries, maternal complications, and CSs on a regular basis (i.e. monthly or quarterly). For instance, HMIS captures all four ANCs from the Monthly Integrated Activity Report (MIAR) but the challenge is to analyse and use the available data. Based on the data presented here, it appears that the uptake of first ANC visits is quite high but the attendance at the fourth ANC visit is very low. This needs strong attention. Another example is that the Monthly Aggregated Activity Report is compiled from health post reports at the health facility level, yet the head of the health facility and midwife do not look into reports and the challenges of the CHWs.

Weak reproductive health directorate:

Presence of donors and stakeholders is an opportunity to the ministry of public health and maternal health directorate. Having maternal health policy and strategy integrated within the BPHS programme is a strength that the reproductive health directorate can build on. However, due to low capacity at reproductive health directorate, it is mostly the stakeholders who write the policy and strategy papers for this department. The directorate does not have the capacity at both central and provincial level to supervise and monitor reproductive health activities of the health facilities from tertiary hospitals down to health posts. The stakeholders designed a checklist for this department to use on regular basis, yet no data were found when analysing this department.

5.2 Intermediate determinants

5.2.2 Access

Skilled Birth Attendants:

Training community midwives is one the most effective interventions for decreasing maternal mortality and this has been one of the successes in the Afghan context. In Afghanistan, on average, at least one midwife is working in each health facility throughout the country. Yet many of them either leave their jobs after a while or are not living in the area of the health facility they are employed at. There is no availability of a family house for midwives inside the health facility compounds or attached to it. Instead, most midwives are living in the nearby cities, returning to their homes during the night. Many of them also do not stay in the surroundings of the health facility due to a general lack of electricity, proper heating, education

for children, and insecurity, which is a big challenge in posting midwives in remote and rural areas of Afghanistan. In some facilities this causes a high staff turnover and a shortage of midwives for long periods of time, particularly during the winter, in the hard to reach and insecure places of Afghanistan. The current retention and motivation strategy to keep midwives working in rural remote areas is not very effective.

Emergency Obstetric Care:

It is believed that all pregnancy complications need EmOC services. The presence of HPs and EmOCs facilities has significantly improved access to maternal health services in Afghanistan. The BPHS strategy outlines the distribution of health facilities very clearly. Commitment of donors in contributing to health care services with focused attention to maternal health was also a great opportunity for the health sector in Afghanistan. However, decisions are not always taken based on a logical analysis, and distribution of health facilities throughout the country are affected by politics, security, shortage of funds, and donor interest. This maldistribution, along with lack of funds to pay for transport and care, has resulted in inaccessibility of health services by people, especially women of reproductive age. The lack of a clear strategy for upgrading/downgrading of mal-distributed health facilities by MoPH continue to limit access to EmOC services.

By linking the different levels of health facilities through strengthening the existing referral mechanism more systematically, access to reproductive health services and maternal health can improve. Although a clear referral policy is mapped out in the BPHS, DHs and PHS are not always accessible to all people in the rural remote areas due to lack of transportation, geographical barriers and insecurity. Lack of ambulances or even a simple vehicle at many of the BHCs and most of the CHCs also contributes to women not seeking maternal health care services.

Finally, the lack of effective quality control programmes for public and private hospitals by MoPH result in high OOP expenses, which reflects the fact that many people seek health services in neighbouring countries as they do not trust services provided in Afghanistan.

Access to information about services:

The Ministry of Public Health and its counterparts provide health information materials in local languages to all health facilities and target populations through the Health promotion department.

Afghanistan's population only receives limited information about services as health promotion materials often go unused. Additionally, the limited radio and TV health education messages often do not reach who live in rural areas, as coverage is limited in these areas. Although the Ministry of Haj and Religious Affairs is powerful in convincing and directing people, and has the potential of promoting real change in relation to women's access to SRHR services, the inter-sectoral coordination between MoPH departments and line ministries is limited, and thus collaboration has only a limited impact.

Use of family planning:

Limiting family sizes through practicing Family Planning results in a reduction in maternal mortality simply by reducing the number of pregnancies, and thus deliveries, a woman experiences in her lifetime. In 2001, after rebuilding and restructuring of the health system with focused attention to maternal health through international community support, all the family planning commodities are being supplied regularly throughout the country. All modern family planning methods are available to be distributed free of charge to women at the reproductive age through all levels of BPHS health facilities, starting from provincial hospital down to health posts (community health workers). While access and availability do not pose a real constraint, families are still reluctant to practice family planning, as demonstrated by the high unmet need for FP in Afghanistan. This can partially be attributed to religious and cultural beliefs, especially in rural areas. Best practices from Iran clearly show that religious leaders can have great contribution in access and utilization of contraceptives, especially in rural areas of the country, the gap can be filled by closer collaboration between the Ministry of Haj and Religious Affairs at central, provincial and district levels.

5.2.3 Quality

Despite some remarkable achievements in the health sector, there are still challenges ahead of the MoPH of Afghanistan and its stakeholders. The incidence of diseases among women, specifically among mothers in reproductive age, remains high. The government of Afghanistan through the MoPH and other line ministries has developed the policies and strategies as well as some interventions for health status of the people of Afghanistan in terms of nutrition status, infection and parasitic diseases, and pregnancy complications. Yet the challenges still remain in the implementation of these policies. Still mothers and families and societies (as consequences of maternal mortality) suffer from the high burden of diseases (morbidity) and mortality. Existed challenges requiring immediate attention are high maternal mortality, poor access to health care services, low quality of health services, and low utilization of reproductive health services.

Women especially in reproductive age, as well as children, who do not have access to food are mostly situated in rural areas of the country. Growth monitoring is implemented with poor or no counselling session. Vitamin A supplementation and iron/folate tablets are distributed by health facilities widely in Afghanistan during ANC visits but only the coverage of the first ANC is in mediocre and the rest (ANC two to four) is still very low.

Quality of Care:

Quality is an important element in health care services. It is a cross-cutting issue and has links to access and utilization of health services. By improving the quality of health care services and monitoring it closely, health facilities be accredited. Improved and effective care can also contribute to a decrease in the OOP expenditures as the provision and costs of unnecessary care will be reduced. This can finally also lead to a reduction in the maternal mortality.

The current integration of reproductive health services within BPHS and EPHS is an opportunity for smooth implementation of the programmes within the health system in Afghanistan. The

presence of already trained CHWs throughout the country are a strong point within the health system and form an opportunity that can be used to benefit reproductive health services. The CHWs job description states that each CHW needs to visit 150 families in her area of coverage per month which ensures optimal access. The receiving of a regular supply of all kinds of modern methods of contraceptives is an opportunity to promote family planning services. Although community level access is promising, there are still gaps existing in the implementation of reproductive health services. Although all the programmes are integrated in the BPHS/EPHS, weak coordination and collaboration between the different health care levels in the provinces causes each level of service to act relatively independently.

This is also the case at central MoPH level. A big gap for reproductive health services is formed by the weak coordination between the Reproductive health directorate, the Community-based Health Care (CBHC) department which oversees the work of the CHWs, the Health Promotion Department, and the Expanded Programme on Immunization department the MoPH. This lack of coordination trickles down to provincial and health facility level, which can hamper the development and implementation of potential problem-solving approaches.

These big contributors to reproductive health services are therefore also not involved in any health related activities in the health facility. Due to this weak coordination, midwives do not know the CHWs and are seldom involved in the monthly CHW meetings to share the maternal health aims, advantages and the ways forward with them, which limits the quality of service delivery by CHWs. Community midwives can also play a key role in decreasing maternal mortality, but as with CHWs, the lack of regular supervision and on the job training for midwives by MoPH at central and provincial level is another gap for ensuring the delivery of good quality reproductive health services.

The low commitment of the ministry of public health leadership on the issue of quality assurance has led to a lack of interest by donors in this very crucial area of focus. From three main donors to the health sector, only USAID is committed to providing support technically and financially in the process of quality assurance/improvement of health services in Afghanistan. The other two main donors believe that it is still too early to invest in quality of health care services.

Finally, the knowledge of health staff at management and first provider level on quality assurance is weak. As quality is a new concept within the ministry of public health, the leadership does not recognize quality assurance programmes' advantages and positive effects on (maternal) health outcome. Advocacy in this regard is needed widely involving Afghanistan National Public Health Association (ANPHA) with MoPH, donors and all health stakeholders.

6. CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

Maternal mortality is a major public health problem and is significantly influenced by various determinants in Afghanistan. The aim of this thesis is to identify the key determinants and analyse the intervention strategies in order to reduce maternal morbidity and mortality in Afghanistan. Several factors influence maternal mortality in Afghanistan. The distant and

intermediate determinants are essential determinants of maternal mortality. After an extensive literature review, it is concluded that a number of structural challenges exist in the form of women's rights in Afghanistan. Also, despite huge donor and international support, gaps still exist in terms of implementation of the (maternal) health services. Maternal mortality is a multi-sectorial challenge which requires various interventions in health, education, economy, security and other sectors.

One key issue is that the health care system's limited resources play a significant role in high maternal mortality in Afghanistan. The resulting limitations in the availability of health information to the population, limited human resources, and limited resources for a strong referral system negatively influence perceptions of users and limit the provision of quality care.

In addition, it is critical to address the health status in women in Afghanistan by addressing their right to health in an effective and sustainable manner. This requires performing a range of activities and multi-sectoral programmes including improving access to and quality of EmOC and other RH services, special attention to gender issues and to vulnerable groups (teenage mothers), health education, and improving quality of RH services,.

Inadequate access to health services due to maldistribution of services, limited quality of services, and insufficient access to information can be improved through investment in system strengthening (quality and price control mechanisms and investment in and use of data collection systems), and a more reliable provision of modern family planning methods to those living in remote rural areas. The efforts to increase access need to be consistent, only providing of sufficient midwives will not solve the problem unless there is an enabling environment such as EmOC centres, transportation for referrals, and women empowerment programmes.

Women's roles in the society and household need to be improved through provision of opportunity for schooling and higher education, reducing gender discrimination and elimination of violence against women with support of Ministry of Haj and Religious Affairs (MoHRA), Ministry of Education (MoE), civil society and a solid political commitment. Improved women's rights can contribute to an improvement of maternal health status as a sustainable approach with long term effects. Community involvement is critical in effecting positive changes in terms of the demand for services and the perception of users of these services. This can be achieved through strengthening the leadership role of the CHWs and increasing the knowledge of women, and their family members who will benefit from sensitization on the benefits of timely access and provision of skilled birth care.

In conclusion, in order to change the current maternal health status and improve the health outcomes, a set of short and long term activities at household, community and national levels are required to be done by MoPH, and other stakeholders and players.

6.2 RECOMMENDATIONS

The following recommendations are provided to MoPH for the implementation of activities that may improve the health status of women in Afghanistan:

Strengthen the recognition of women's rights to effective health care

- Improve access to key information on SRHR through delivering reproductive health messages by CHWs, religious leaders and involving local media at village and district level;
- Involve CHWs in all maternal health related activities in their areas of coverage and support them in strengthening their communication with religious and community leaders, healthcare providers and districts' heads through implementing NGOs;
- Advocacy to civil society, national and international organizations, UN agencies and other line ministries e.g. MoE, and other line ministries to further promote education of school students and teachers on topics supporting empowerment of women and the improvement of their education, including information on the risks of teenage marriage and pregnancy.

Improve access to services and quality of care

- Strengthen the role of CMWs and CHWs in the provision of RH services by conducting regular supportive supervision, providing continued refresher trainings, providing non-monetary incentives and involving them in community-based planning and interventions;
- Increase the number of SBAs through expansion of community-based midwifery education programmes. Candidates should primarily be recruited from rural areas;

Strengthen the evidence base for the provision of effective RH services

- Strengthen monitoring, evaluation and research for reproductive health through establishing a unified data collection mechanism that regularly reports on women's health status using data from both public and private sectors, as well as from community monitoring of vulnerable groups and households utilizing maternal health programmes.
- Conduct research studies on topics related to maternal health, such as retention of midwives and alternative strategies for care such as task shifting in tertiary and maternity hospitals would be more useful.

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ANNEXES

Annex I: Cause, manifestation, management and prevention of major micronutrients deficiencies

Nutrient	Causes of deficiency	Manifestation of isolated deficiency	Management and prevention
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Iron	Poor diet Elevated needs (e.g. while pregnant in early childhood) Chronic loss from parasite infections (e.g. hookworms, schistosomiasis, whipworm)	Anaemia and fatigue Impaired cognitive development Reduced growth and physical strength	Foods richer in iron and with fewer absorption inhibitors Iron-fortified weaning foods Low-dose supplements in childhood and pregnancy Cooking in Iron pots
Iodine	Except where seafood or salt fortified with iodine is readily available, most diets worldwide are deficient	Goiter, hyperthyroidism, constipation Growth retardation Endemic cretinism	Iodine supplementation Fortified salt Seafood
Vitamin A	Diets poor in vegetable and animal products	Night blindness, xerophthalmia Immune deficiency Increased childhood illness, early death Contributes to development of anaemia	More dark green leafy vegetables, Animal products Fortification of oils and fats Regular supplementation
Zinc	Diets poor in animal products Diets based on refined cereals (e.g. white bread, pasta, polished rice)	Immune deficiency Acrodermatitis Increased childhood illness, early death Complication in pregnancy, childbirth	Zinc treatment for diarrhoea and severe malnutrition Improved diet

Annex II: A framework for analyzing the determinants of maternal mortality and morbidity

