THE IMPACT OF MATERNAL EDUCATION ON MATERNAL HEALTH SEEKING BEHAVIOR IN AFGANISTAN

By

FIDAKAR Mohammad

THESIS

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

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Committee in charge:

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ABSTRACT

Due to the improvement of maternal health seeking behavior Afghanistan has witnessed more than 70 percent reduction in maternal mortality between 1990 and 2015. This study is designed to find the impact of maternal education on maternal health seeking behavior in Afghanistan. In this quantitative research work the cross-sectional data comes from 2015 AfDHS (Afghanistan Demographic and Health Survey). The data analysis was performed by using STATA software. By employing the OLS and Fixed Effect regressions the effect of maternal education on antenatal care visits and delivery is estimated by regions and ethnicity. The model has validated by using possible controlling variables to find the pure effect of maternal education on maternal health habits. The study found that there is a significantly positive effect of maternal education on the number of visits and a strong negative effect on delivery performed by Untrained Birth Attendants in Afghanistan. Furthermore, the study found that the impact varies amongst different ethnicities and regions; Means that maternal education is positively correlated with maternal health seeking behavior across all nationalities and residents with highest impact on Hazara ethnic group and rural residents. These findings call for policymakers to pay a great deal of attention to increase investment in maternal education, considering incentives and imposing compulsory schooling law as these are all important factors that can help to remove rural difficulties and socio-cultural barriers of women education. Ultimately, improved maternal education will improve maternal health seeking behavior.

Keywords: Maternal Education, Maternal Health Seeking Behavior, Antenatal Care, Number of Visits, At least 4visits, Delivery by Doctor, Delivery at Hospital, Afghanistan

Dedicated to:

My father Saleem SHAH, FIDAKAR, my mother Sediqa BEGUME

And my life partner Basira BAHAR

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Mohammad Fidakar

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List of the Acronyms

AfHDS	Afghanistan Health and Demographic Survey
BBC	British Broadcasting Company
CSO	Central Statistics Organization
GDI	Gender Development Index
GDP	Gross Domestic Product
GPI	Gender Parity Index
HDI	Human Development Index
MDGs	Millennium Development Goals
MHSB	Maternal Health Seeking Behavior
MoPH	Ministry of Public Health
SDGs	Sustainable Development Goals
TBA	Trained Birth Attendant
UBA	Untrained Birth Attendant
UN	United Nation
UNICEF	United Nation for Children's Fund
USAID	United State Agency for International Development
WB	World Bank
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

Generally, there are many misfortunes occurring in rural Afghanistan that leads to dead of many pregnant women in the country. According to the WHO, World Bank, UNICEF, UNFPA, and United Nation Population Division, Afghanistan is one of the countries with high maternal mortality rate. Surprisingly, the recent reports and surveys show that there is a significant reduction in maternal mortality rate in Afghanistan. According to 2015 Health and Demographic Survey of USAID in Afghanistan, United Nation estimates that Afghanistan has witnessed more than 70 percent reduction in maternal mortality between (1990– 2015). Maternal mortality rate in 1990 has been 1340 per 100000 live births and it decreased to 396 per 100000 live births in 2015 (World Bank, 2015). Though maternal mortality rate has declined by 70 percent, but Afghanistan is still in the list of the countries with high maternal mortality rate in the world.

Indeed, the question to be asked is what made maternal mortality rate decline in Afghanistan. If we take a look over the details, the high maternal mortality rate in Afghanistan are due to reasons such as; lack of health facilities, unskilled assistants in rural area, large distance of villages from hospitals, untrained and less educated midwives, preference for home delivery, traditional barriers, unavailability of female skilled providers, and lack of other necessary services. This study demonstrates that, the main reason behind significant reduction in maternal mortality rate in Afghanistan is due to improvement in the country's education system. With good education system we can have well trained birth assistant, we can remove traditional barriers, and also educate women on the importance of antenatal and postnatal health checkup and on importance of delivery of child in the hospital. Therefore maternal education is said to be promoting good maternal health; leading to a healthier mother and child that ultimately lead to a healthy nation.

It is generally accepted that, well educated women are healthier. Due to improvement of maternal health seeking behavior, maternal mortality rate has decreased. Thus, the important question is that how education affects maternal health seeking behavior? And how can we improve maternal education in

order to reduce maternal mortality rate in Afghanistan? This study aims to find the impact of maternal education on maternal health seeking behavior that through maternal health seeking behavior how can education reduce maternal mortality rate in the country. Furthermore, this study will be finding the differences of maternal health seeking behavior base on rural-urban disparity, ethnic diversity and economic inequality. This study will further look into appropriate policies and easy ways of accessibility to maternal education, in order to improve maternal health seeking behavior and reduce maternal mortality rate in Afghanistan. Obviously, the results of this study will bring positive impact in the community and encourage the women in the country towards getting better education and health information.

This study will include six chapters; introduction, literature review which is organized to show direct and indirect channels of the impact of maternal education on maternal health. And the gap between this study and previous studies will be looked into as well. In chapter 3 under methodology part, data description and collection along with study model will be explained in details. The results of study will be showed in chapter 4. Chapter 5 will cover interpretations and discussions. The final chapter will conclude the study with policy implications for improvement of maternal health in Afghanistan. And lastly the paper will be concluded by providing some directions for further researches in this field.

CHAPTER 2

BACKGROUND

Maternal Mortality

According to the World Bank, maternal mortality is death of a woman during pregnancy, childbirth or within 6 weeks after births. Carine Rosmans and Wendy J Graham stated that maternal Mortality is the death of a pregnant woman or within 42 days after delivery, excluding accidental or incidental causes while Maternal Mortality Rate (MMR) is the number of maternal deaths per 100,000 reproductive women in certain time (Ronsmans and Graham, 2006).

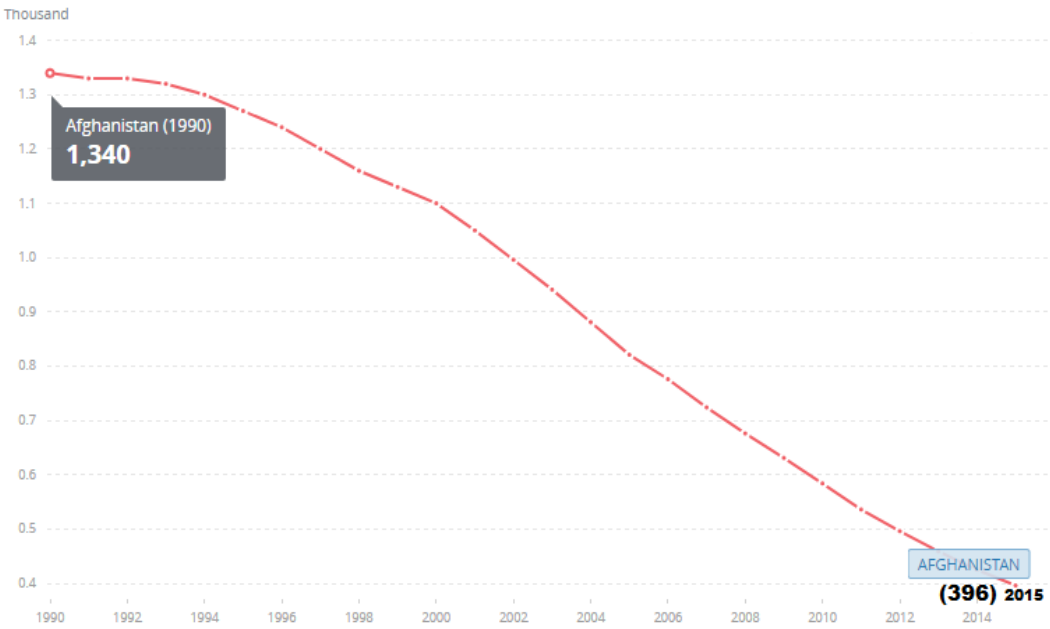
2.1 Maternal Health State in Afghanistan

Prior to the establishment of the new democratic government set up in Afghanistan, under the Taliban regime, the country was inflicted with poor health and education system (Turkmani, et al., 2013). It was estimated that maternal mortality rate was around 1900 deaths per 100,000 live births, of the rate almost 51.5% of the deaths was because of pregnancy complications (Bartlett et al., 2005). However World Bank reports different maternal mortality ratio between 1340 in 1990 and 1050 in 2002 (World Bank, 2015), but still there exist a higher mortality rate in the country during Taliban regime. With the end of Taliban regime, the education system has relatively improved followed by roads, cell phone coverage, and health care system which resulted into a significant decline in maternal mortality (MOPH, 2011).

With a deteriorating health system in Afghanistan, the international organizations and donors came forward to provide assistance that bought a huge improvement in the sector in 2002, particularly in maternal health care (Assefi et al., 2013). At the early stage of new government formation, less than 40 percent of people had access to health services; 17percent of health care was providing basic pregnancy health care, around 10 percent of women were delivered by assisting of skilled providers, and people had to travel long to avail health services (Bartlett et al., 2017). However, after 2002, the Ministry of Public Health prioritized maternal health with the increase of level of investment in the sector, mainly to reduce

maternal deaths. The community health workers in rural areas were encouraged since mobile phone coverage and technology has improved. Further with much more policy emphasis from MOPH, midwifery and women education have sharply improved, family planning and maternal health seeking behavior [prenatal, delivery and postnatal health checkup] has also improved remarkably (Bartlett et al., 2017). As a result, maternal mortality fell down significantly from 1340 in 1990 to 396 in 2015 per 100,000 live births in Afghanistan.

Figure 1: Maternal Mortality Ratio in Afghanistan between 1990 and 2015



Source: https://data.worldbank.org/indicator/SH.STA.MMRT

2.1.1 Accessibility of Maternal Health in Afghanistan

With a traditional believes and culture coupled with three decades war and domestic conflicts in the country, the women have lost their freedom where they have been restricted and excluded form society. They have been imprisoned at home by extremism, traditional barriers, and Islamic governance. They were not able to access education and health services and restricted to undertake economic activities (Salma & Alwan, 2016). As such, all these barriers imposed threat and have basically worsened the wellbeing of women where they are not able to exercise their basic rights and privileges such as health and education.

Beside socio-cultural believes, the accessibility of maternal health can be determined by wealth and place of residence as well.

Socio-cultural practices: Some of the socio-cultural practices and traditional believes also differentiate men and women in Afghanistan. According to a report from ministry of public health in Afghanistan, in some areas girls education was forbidden, that's why the proportion of females in attending to primary, secondary and tertiary education was much more less than male. And due to such restriction for girls, the number of female skilled providers or workers is very rare. As reported in 2003, only 467 midwives were working in health sector around the country (MOPH, 2003). Further, women are restricted to receive health services if health worker is male and even some of the women are not able to go outside, but with male escort. Thereby, these restrictions put the women in a situation where they are not able to have the better maternal health seeking behavior.

Rural-urban disparity: Geographical disparity brings wellbeing inequality and affects maternal mortality. Huge Rural-urban disparity is one of the important and serious issues of high maternal mortality in Afghanistan. Afghanistan is a mountainous country. There is a huge gap of wellbeing between those who are living in rural areas and those in urban. There is a poor education and health facilities in rural areas, while people who are living in cities relatively have access to better health and education services.

A study stated that villages are scattered and faraway from health centers in Afghanistan. Snowy winter, unpaved roads, lack of transportation system, large distance to health facilities, poverty, and work intensity on the farms are the barriers to access the health care provision for pregnancy related checkup. Therefore maternal mortality rate tends to be higher in rural areas than urban (Turkmani et al, 2013).

To empower the women in general and to narrow down the rural-urban disparities, the study on Afghanistan Demographic and Health Survey was carried out in 2015. According to the report, women in urban areas have more access to health facilities than in rural as shown in the table below:

Table 1: Maternal Health State by Rural-Urban Disparities

	urban	**Rural**
Home delivery	23%	59%
Ante-natal care from skilled providers	46%	26%
Visited one time Ante-natal	42%	27%
Delivering in Health Facility	76%	40%
Assisted by skilled provider during delivery	79%	42%
Delivery by Cesarean	7%	2%
Post-natal health check for newborns	13%	8%
Problems in accessing health care	78%	92%

Source: Author's computation based on AfHDS (2015)

In addition, a study which has compared maternal health situation in Kabul city and Ragh village of Badakhshan province in Afghanistan found that maternal mortality rate was four times higher in Ragh than in Kabul (713-166 per 100,000 live births). Rural women are ignorant of health care services. They give births with the help of traditional untrained birth assistants (Bartlett et al, 2017). This means there exist a direct link between rural urban disparity and maternal mortality in Afghanistan.

Economic inequality: Though the SDG10 [reduced inequality] is green in 2015 SDGs DASHBOARD, but still Afghanistan is a country where there is a huge gap between poor and rich people. Clearly rich families have more access to health care than poor families. As a study concluded that, rich women tend to be healthier than poor women. Poor families are not able to seek better maternal health care services as the services are not free of cost. Though public health is free, but some of midwives are expecting informal payment as a gift; thus they cannot seek for health facilities and they are surrendering to God's will or to go for Mullah [religious scholar] words (Turkmani et al, 2013). The corrupt practices do exist in the system which further worsens the situation.

According to 2015 Afghanistan Demographic and Health Survey, women with high level of wealth have more access to maternal health than women with low level of wealth as shown in the table below:

Table 2: Maternal Health State by Wealth in Afghanistan

	Highest wealth	Second & Lowest wealth
Ante-natal care from skilled providers	76%	50%
Delivering in Health Facility	83%	22%
Assisted by skilled provider during delivery	85%	24%
Delivery by Cesarean	7%	1%
Post-natal health check for mothers	58%	31%
Problems in accessing health care	94%	88%

Source: author's computation based on AfHDS (2015)

2.1.2 Affordability of Maternal Health in Afghanistan

According to World Health Organization report, total capital health expenditure of Afghanistan has increased from 11 million current US dollars in 2002 to 43 million current US dollars in 2015. It is notable that due to donation of international agencies and donors there is a remarkable increase in 2007. Among this, 16% addressed reproductive, maternal, and newborn health.

Figure 2: Health Expenditure in Afghanistan between 2002 and 2015

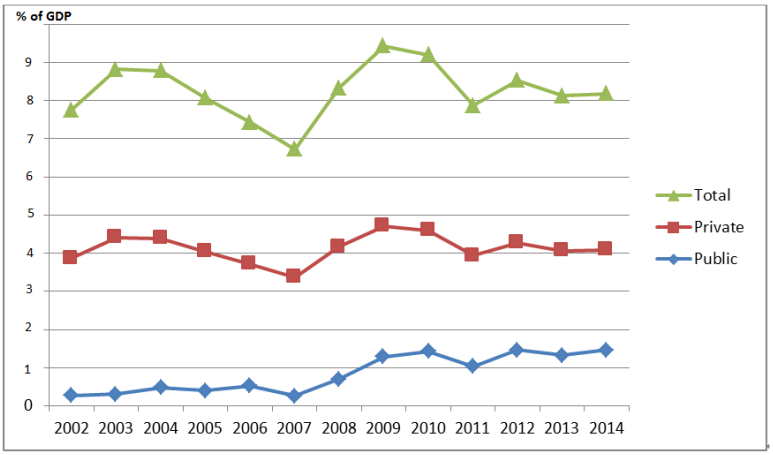
Country	Indicators	Years													
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Afghanistan	Capital health expenditure (in million current US$)	11	26	4	8	25	64	19	9	26	19	28	38	34	43

Source: http://apps.who.int/nha/database/ViewData/Indicators/en

The proportion of public health expenditure in GDP has increased significantly since 2007 while the proportion of private health expenditure in GDP has decreased slightly; therefore the proportion of

total health expenditure in GDP of Afghanistan shows an increasing trend as it is shown in the figure below:

Figure 3: Total Health Expenditure in GDP between 2002 and 2015



Source: http://apps.who.int/nha/database/ViewData/Indicators/en

The table shows an expansion path in total health expenditure in Afghanistan. This was due to the government investment on health along with the donation of internal and international agencies for health care. The Ministry of Public Health of Afghanistan estimated significant increase in health expenditure from 2012 to 2020 and prioritized to spend more on maternal health (MOPH, 2017).

2.2 Maternal Education State in Afghanistan

According to 2015 Afghanistan Health and Demographic Survey, in Afghanistan, almost 50 percent of the population completed the average years of schooling, which is 8 to 9 years education attainment. Around 31% of females have ever attended school; males have ever attended school almost double 57%. Only 4% of females and 10% of males have completed secondary school or more. Women living in urban areas are much more likely to have completed secondary school than women living in rural areas (10% versus 2%). Rich women much more likely to be educated than poor women; 13% of women in the rich families have completed secondary school, while only 1% of women in poor families have completed secondary school. Maternal education state varies by province as well; some of the provinces have the lowest level of maternal education and some of the provinces have the highest level of

maternal education. For instance Nooristan has 0.2% of women completed secondary school, as compared with Kabul that has 6.2% of women completed secondary school (AHfDS, 2015).

2015 AfHDS reported that, 50% of girls from age 7 to 12 attend primary school, this ratio fell down to half in secondary school. It is notable that the net attendance ratio for secondary and high school increases by increasing wealth and moving to the urban areas. The Gender Parity Index (GPI) is 0.7 for primary school and 0.5 for secondary school. Which is, in primary school the ratio of school attendance between boys and girls are respectively three and two, and in secondary school this ratio is two boys and one girl (AfHDS, 2015). According to the report of this survey there are many reasons for not attending school such as; parental short-sightedness, distance to school, the need to work or earn money. And the main reason for boys to drop school is to go for immediate gain by working and earning at home for their family. The main reason for dropping out of school for girls is traditional socio-cultural barriers; 30% their family did not allow them to go school and 15% of girls were not able to go school because of early child marriage (AfHDS, 2015). Overall only 15% of the women are literate in Afghanistan. It is briefly reflected in the table below:

Table 3: Educational Attainment of the Female Household Population in Afghanistan

Characteristics	No education	Completed primary	Completed secondary	More than secondary	Median years completed
Residence					
Urban	50.1	4.1	5.6	4.2	0.0
Rural	74.9	2.4	1.5	0.6	0.0
Wealth Quintile					
Lowest	75.1	2.8	0.8	0.2	0.0
Middle	78.6	2.0	1.2	0.4	0.0
Highest	46.6	4.2	6.8	5.8	0.8

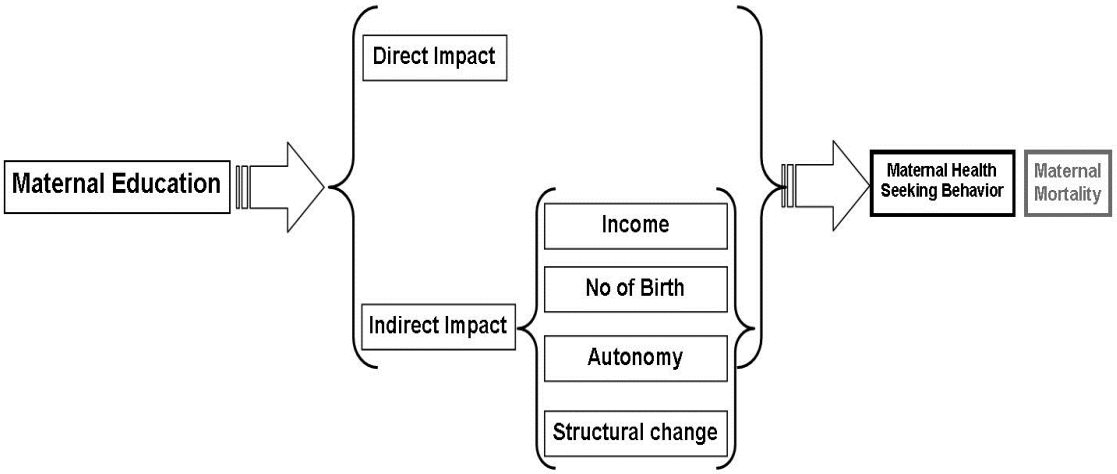
Source: Author's computation based on AfDHS (2015)

CHAPTER 3

LITERATURE REVIEW

Over the last twenty five years due to a dramatic improvement of maternal health seeking behavior, Afghanistan has experienced an almost 70.5 percent decline of maternal mortality (World Bank 2015). There are many potential factors for this significant decline. Without a doubt, one of the reasons for the reduction in maternal mortality in Afghanistan can be the substantial improvement of maternal education. This paper is designed to study maternal education as a factor that significantly influenced maternal health seeking behaviors through direct and indirect channels.

Figure 4: The Channels of the Impact of Maternal Education on Maternal Health Seeking Behavior



Source: Author's computation

3.1 Direct Channel

Since 1990, world maternal health has sharply improved. Maternal education might contribute to the rise in maternal health (Karlsen et al., 2011). This means that one of the reasons for improvements in global maternal health is maternal education. Several studies have also indicated that maternal mortality is positively related to women's education (Weitzman 2017; Falkingham, 2003; Onah et al., 2006; Raghupathy, 1996). Every improvement in maternal education works alongside improvements in health seeking behaviors and this will ultimately reduce maternal mortality.

A study has been done by a group of researchers and found that compare to educated women, the risk of maternal death is almost triple for illiterate women and double for women who completed primary level of education (Karlsen, et al., 2011).

Another study has been done by McAlister and Baskett, (2006) and stated that the Human Development Index (HDI) and Gender Development Index (GDI) are the strongest indicators of maternal and infant mortality. Based on this argument, female literacy rate which is the subset of HDI and one of the important elements of GDI is negatively related to maternal mortality. This means the more years of education for women indicates a higher female HDI and GDI rating, and it is associated with less maternal deaths.

Another study conducted by Weitzman (2017) showed that improvements in maternal education raised the probability of pregnant women seeking health care. Her findings showed that one year increase in maternal education resulted in women seeking prenatal checkups more often than those with less education and a four percent increase in delivery at health care centers was the result of one year's increase in mother's education.

Another study states that the impact of primary education on maternal health is greater than secondary level education. One the contrary, another study declared that improving maternal education from zero to one year will reduce maternal deaths by 174 per 100,000 live births, while improving from seven to eight years of female education may reduce maternal deaths by 15 per 100,000 live births (Bhalotra and Clarke, 2013). These findings suggested that due to the decreasing return of maternal health behavior to education, the effect of secondary education is smaller, but still significant.

On the whole, in the context of development, education and health are strongly correlated with each other and considered as two important elements and indicators of development (Todaro & smith, 2015). It is generally proved that increasing the level of maternal education can improve maternal health. Educated women have good health seeking behaviors; because they have the capacity of understanding the advantages of pre-natal, delivery and post-natal health care. Educated women are able to know the preventive measures for pregnancy risks; they are less likely to smoke and drink, they are

highly likely to avoid strenuous physical activities and they try to have appropriate food nutrients. Educated women are also able to make appropriate additional health seeking decisions; for instance they are less willing to follow traditional and religious beliefs. They are more confident, they can decide their birth spacing, they can ask further questions about their health care from midwives, they have the capacity to understand what the skilled provider is telling them and they have the mental capacity to remember what treatments were provided by the health care professionals. All of the above behaviors indicate good maternal health seeking behaviors which ultimately reduces maternal mortality.

3.2 Indirect Channel

Indirectly, maternal education can improve maternal health seeking behaviors through income, fertility rate, autonomy, and socio-structural change. obviously, high maternal income, low fertility rate, gender equality, high women's participation in decision making, maternal autonomy, and utilizing of technological advancement are due to improvements in maternal education which in turn improve maternal health seeking behaviors.

Income

Maternal education can improve maternal health seeking behavior indirectly through its influence on maternal income. This claim is proved by many studies, a study which has focused on socio-economical vulnerability of pregnant women, stated in different words that the pregnancy period had a negative consequence for illiterate females who were in poor economic situations (Filippi, et al, 2006). The study demonstrated that poor pregnant women are more likely to be vulnerable to negative effects of pregnancy and delivery than rich pregnant women and they are less able to meet basic health care needs during their pregnancy (Filippi et. al. 2006).

The more educated women tend to have more accessibility to health facilities (Lleras-Muney, 2005; Cutler and Lleras-Muney, 2010). According to these studies, educated women may live in cities, they are working, and they have monthly incomes, so they are able to reach health facilities more

frequently than less educated women. As it is also claimed by Ronsmans and Graham (2006) that rich women tend to have better qualities of life and they tend to be healthier than poor women.

Thereby, the more educated women are more likely to be wealthy, and they have better health seeking behaviors. This is primarily so because they have the ability to buy health facilities, to seek for better health care, to purchase medications and treatments, to have transportation facilities and can also hire private skilled and well trained midwives.

Fertility rate (No of births):

Equally important, another possible indirect impact of maternal education on maternal health is through quantity of births. High maternal mortality rate is associated with high fertility rate. This is concluded by a study which has found the relationship between maternal mortality and fertility rate and detailed that, particularly women with four or more previous births have the higher risk of deaths than women with no number of previous births (Karlsen et al., 2011). They adjusted the model and found this relationship between women with nine numbers of births and no number of previous births. Their results indicated that women with nine previous births have the higher risk of death rather than women with no number of previous births.

In addition, a study in Peru, which has been completed by (Weitzman, 2017) argued that education may influence maternal health behaviors by its influence on fertility practices and antenatal healthcare. She suggested that education played a significant role in the reduction of maternal deaths in Peru through spacing the births. The results also showed that a one year increase in maternal education increased the use of modern contraceptives by three percent.

Many studies claim that maternal education affects fertility rate and fertility rate affects maternal health seeking behaviors. More educated women try to make further space between their births and postpone their pregnancy by using modern contraceptives to reduce the number of their births in a certain point. Normally they prefer to have one or two children. They also take antenatal checkups continuously and seek better health care. Thereby, we can argue that high maternal education may reduce

fertility rate and low fertility rate is associated with good health seeking behavior. And this flow automatically reduces maternal mortality.

Autonomy

Another indirect channel for impact of maternal education on maternal seeking behaviors is autonomy. Maternal education changes the family balance in relation to decision-making (Ronsmans, & Khlat, 1999). This means that illiterate women are not able to contribute in decision-making. A study found that the more educated women tend to be more autonomic; they are able to make their decisions about the number of children by their own and are able to seek health care during their pregnancy (Shen & Williamson, 1999). Based on this, high level of maternal education increases women's autonomous, self-respect and confidence. Thus these things allow them to make their health related decisions on their own.

Many other studies such as Nussbaum (2004), Gerein (2005), and Lancet (2010) claimed that achieving MDG3 [Good Health and wellbeing] is the way to achieve MDG5 [Improving Maternal Health] and to achieve SDG3 especially, maternal health we must not forget SDG5 [Gender Equality]. Therefore, to promote gender equality, maternal education is one of the important requirements.

According to above mentioned studies, educated mothers are more likely to be self-respected with a high level of self-confidence. This transcends to their capacity to make their decisions related to their pregnancy health care. They will be able to take prenatal and postnatal check-ups many times and they will be able to deliver in health facilities.

Socio-structural and technological change

A country in a post-war situation, strives to move from traditional to new modern political and economic structures. This state will experience socio-economic and technological change simultaneously. The political system will become democratic and in such a situation, maternal health seeking behaviors will also improve (Foster and Rosenzweig, 2004). In a democratic system, men and women both are equal, so that mothers can get an education, join the labor market, earn money, and seek better health.

Educated mothers using technological advancement can learn more about pregnancy (Cutler et al., 2006). For instance, they buy smart phones and get more information about pregnancy complications such as; bleeding, infection, unsafe abortion, and check-ups. They also strive to go for prenatal health care, accept treatments, try to have a better food composition, prefer to deliver in health facilities, and go for postnatal check-ups (Cutler et al., 2006).

According to these studies we can argue that, Afghanistan after the fall of Taliban regime in 2001 established a new democratic political system and faced multidimensional changes such as; its economic structure became market economy, technological improvements occurred, the government reformed the education system and paid more attention to females' education. Female education affects maternal health seeking behaviors and finally maternal mortality has declined sharply.

CHAPTER 4

METHODOLOTY

4.1 Data Description

The research has used cross-sectional data to investigate the impact of maternal education on maternal health seeking behavior in Afghanistan. The data comes from the 2015 Afghanistan Demographic and Health Survey (2015 AfDHS); which is a part of worldwide Demographic and Health Survey Program. This survey was implemented by the jointly works of Central Statistics Organization of Afghanistan (CSO) and the Ministry of Public Health (MoPH) with financial support from the United State Agency for International Development (USAID) and technically assistance from the United Nations Children's Fund (UNICF). The 2015 AfDHS is a national sample survey on maternal and child health which provides information about fertility, family planning, women's work history, women's pregnancy history; their antenatal health care, delivery, post-natal health care; number of children they have; their age; education; place of resident, other demographic characteristics, and as well as health service utilization.

The survey targets women and men age 15-49 in urban and rural areas of all 34 provinces of Afghanistan. The sample size is 25,741 households; which randomly selected by two-stage stratified method. The first stage determined totally 950clusters (260 in urban areas and 690 in rural areas) with every cluster comprised of 27 households. Second stage was a systematic household sampling. Due to security threats and lack of access to some locations, 101 reserve clusters were determined to replace with inaccessible places. Of all sample size, 24,395 households were successfully interviewed with 98% of response rate. Our sample consists of 32,712 married women aged 15-49 years

4.2 Summary of Statistics

Table 1 shows the summary of statistics which includes the mean, standard deviation, minimum and maximum observations for dependent and independent variables. Maternal education in single year as main variable of interest (independent variable) and the outcome measures are maternal

health seeking behavior – measured as antenatal visits and delivery care. Control variables included in this study are number of children ever born, maternal age, age at first birth, husband's age, and distance to health facility, wealth and place of residence.

Table 4 Summary Statistics of women aged 15-49 years

	Mean	Standard Deviation	Min	Max
Number of antenatal care visits	1.676	2.078	0	20
At least four visits (=1 if had four visits)	0.165	0.372	0	1
Delivery by doctor (=1 if delivery is performed by doctor)	0.132	0.341	0	1
Delivery in hospital (=1 if delivery is performed in hospital or private health facility)	0.431	0.495	0	1
Delivery by untrained birth attendant (=1 Untrained birth attendant)	0.311	0.461	0	1
Maternal education in single years	1.035	2.901	0	14
Number of children ever born	4.470	2.564	1	16
Maternal age	28.70	6.545	15	49
Age at first birth	19.57	3.178	15	44
Husband's age	33.66	8.594	15	95
Distance to health facility (=1 if distance is a big problem)	0.695	0.460	0	1
Wealth Index	2.904	1.326	1	5
Rural	0.763	0.425	0	1
Observations	32712			

Specifically, the table shows that on average women have 2 antenatal care visits and almost 16 percent of the women have at least four antenatal visits which are very below than World Health Standards. 13 percent of deliveries have been performed by doctor compare to other unsafe methods and 43 percent of deliveries have been performed in hospital or private health facilities. Similarly 31 percent of deliveries have been performed by untrained birth attendant (UBA) which can be one of the reasons of high maternal and infant mortality in Afghanistan.

Education is quite low among mothers, women in our sample have completed only one year of education, and standard deviation shows that there is huge variation in maternal education in Afghanistan; therefore, this study included the regional variations in regression result to capture these variations. On average women have 4.5 children and the average maternal age is almost 29 year. The average age at first birth is almost 19 year which is not surprising in Afghanistan. Husband's age is almost 34 year. Almost 70 percent of the women have cited that distance to health facility is a big problem. Wealth index is almost 3 which are in middle income families. And 76 percent population of the women comes from the rural areas indicates that the data has huge cover in rural areas which gives us an important point that the women in urban areas have more access to health facilities rather than the women in rural areas.

4.3 Measurements of maternal health seeking behavior

Outcome measures, such as maternal health seeking behavior include antenatal, delivery, and postnatal habits. For antenatal health care, the outcome measures are "No of visits" and "at least 4 visits" a woman have had before their last birth. In the sample, 44% of the women had no antenatal check-up, 11% had one visit, almost 17% had two visits, 11.5% had three visits and 16.3% women had reported more than 4 visits. As at least four prenatal visits is recommended by World Health Standards. The variable *at least 4visits* is a binary (=1 if they had, =0 if they had not). Only 16.5% of the women have had at least four visits during their pregnancy.

The other outcome measures are related to type and place of delivery, whether a delivery is performed by a doctor, untrained birth attendant and whether a baby is delivered a in hospital. All these outcome measures are binary;

- ✓ Weather their delivery performed by doctor (=1 if yes, =0 otherwise).
- ✓ Weather their delivery performed by untrained birth attendant (=1 if delivery performed by UBA, =0 otherwise)
- ✓ Weather their delivery has taken place in hospital (=1 if yes, =0 otherwise).

In the sample; 13% deliveries performed by doctor and 87% deliveries performed by others, 31% deliveries performed by untrained birth attendant (UBA) and 69% of deliveries performed by trained birth attendant (TBA). Similarly, 43% of deliveries have taken place in hospital & other private health facilities.

4.4 Measurement of maternal education

Maternal education is the primary variable of interest (independent variable) which measures education in single years of completed schooling. Every single years of education may influence maternal health seeking behavior directly or indirectly through its influence on income, fertility rate, autonomy, and socio-cultural changes. For the single years of education, the question asked from the respondent was: *what is the highest grade you completed*. In the sample 86% of the respondents have no education, 2.03% has completed sex years of education, only 2% of the respondents have completed 12 years of education and almost 1.5% of respondents have completed higher level of education.

4.5 Measurement of other-controlling variables

Beside maternal education, there are many other variables which may influence maternal health seeking behavior. To address this omitted variable bias, the study controlled for number of covariates including children even born, maternal age, age at first birth, husband's age, husband's education, and distance to health facilities, wealth/income index, and residency of the mothers.

Maternal age has included as important controlling variable. It is possible that the younger women have more access to modern health facilities, such as: modern medicine, smart mobile phone with health applications and etc. so that ultimately it causes to have better health habits (Elo, 1992). And it is also possible that older women tend to have better health seeking behavior rather than younger women (Raghupathy, 1996). Because they have enough experience from their previous pregnancy and using better health facilities.

Income/wealth is another important controlling variable that tend to be positively related with health seeking behavior (Ronsmans & Graham 2006). Richer women tend to have better health seeking

behavior. The 2015 AfDHS do not contain any specific data for the wealth index, Assets and goods like radio, TV, refrigerator, and car that the respondents owned are used as a proxy to differentiate and classify the levels. Wealth index is categorized in poorest, poorer, middle, richer, and richest levels. In the sample each category is reflected in the table below with its frequency and percentage.

Table 5: The Percentage of Wealth Indexes in the Sample

Wealth Index	Frequency	Percentage
Poorest	5,940	18.16%
Poorer	7,631	23.33%
Middle	7,380	22.56%
Richer	7,142	21.83%
Richest	4,619	14.12%
Total	**32,712**	**100.00%**

Place of residence is another important controlling variable that the study included. It is generally accepted that those who are living in urban area have better access to health facilities (Elo, 1992). Place of residence is measured by weather they live in rural or urban area of Afghanistan. In the sample 23.7% are living in urban and 76.3% is living in rural area. In addition, distance to health facility is also controlled. It affects maternal health seeking behavior, because if the home is far away from health center, it is difficult to reach health facilities. The question in the survey was asked, weather distance to health facility is a big problem or not (=1 if Yes, =0 if No). Husband's education may also influence maternal health seeking behavior.

4.6 Hypothesis development

Several researchers have investigated the impact of education on health. Studies generally estimated maternal education to be positively related to maternal health seeking behavior (Raghupathy, 1996 and Elo, 1992). Increasing single years of education will increase the feeling of having better health behavior. From the studies, this study will hypothesize the impact of maternal education on ante-natal visits and delivery.

Hypothesis 1: Maternal education will be positively related to ante-natal care visits.

H1a: single years of maternal education will increase the "No of visits".

H1b: single years of maternal education will raise the probability of completing "at least 4visits".

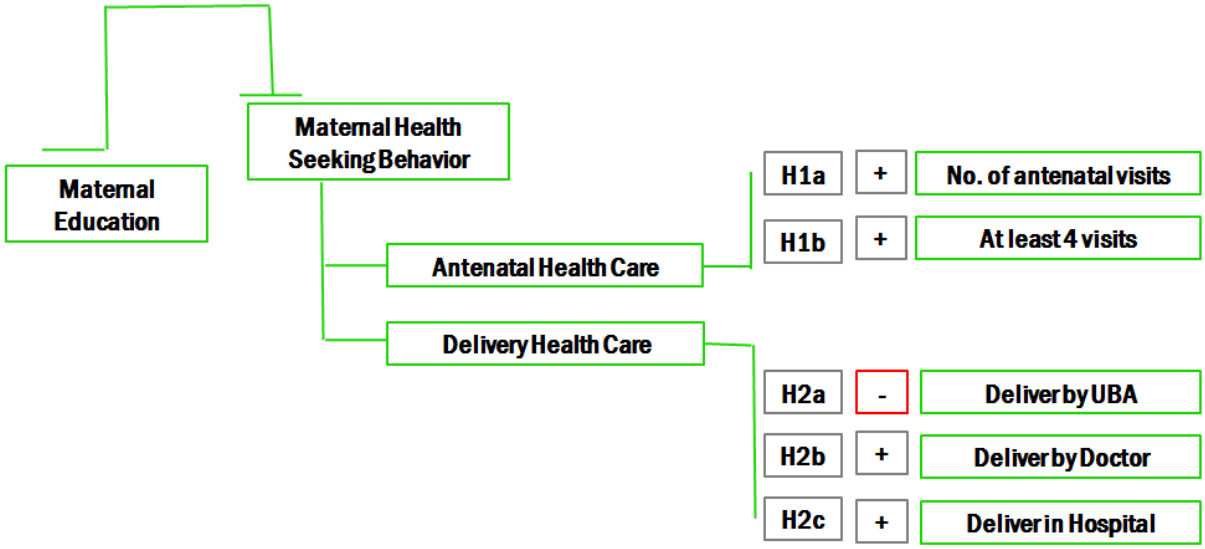
Hypothesis 2: Maternal education will be positively influence on delivery.

H2a: single years of education will reduce the probability of performing the delivery by UBA.

H2b: single years of education will raise the probability of performing the delivery by doctor.

H2c: single years of education will raise the probability of performing the delivery at hospital.

Figure 5: Hypothesis Development



4.7 Model specification

To measure the impact of maternal education on maternal health seeking behavior, this study uses the following linear model;

$$\boldsymbol{MHealthSB = \alpha + \beta MEdu + \delta Other - controls + \varepsilon}$$

Where *MHealthSB* denotes Maternal Health Seeking Behavior which is the dependent variable defined by antenatal visits and delivery. It is the outcome of the study which includes the number of antenatal care visits, at least 4 visits (=1 if had 4visits), delivery by doctor (=1 if delivery is performed by doctor),

whether a baby delivered in hospital or private health facilities (=1 if yes, =0 otherwise), and delivery performed by untrained birth attendant (=1 if delivery performed by UBA). $MEdu$ is the mother's education in single year. $Other - controls$; is the other controlling variables assumed to affect maternal health seeking behavior. Includes number of children even born, maternal age, age at first birth, husband's age, husband's education, distance to health facilities (=1 if distance is a big problem), wealth/income, and residency of the mothers (=1 if rural areas, =0 if urban areas). α is constant and ε is the errors. Furthermore regions fixed effect is included in all the regressions.

CHAPTER 5

RESULTS AND DISCUSSIONS

Generally, this paper attempts to analysis the Maternal Education on Maternal Health Seeking Behavior by employing OLS and Fixed Effect estimators from the model equation, through three approaches. The first one is general estimation of maternal education on Ante-natal care visits and delivery, the second and third is the same estimation by Ethnicity and Region respectively.

5.1 General Analysis

Table 6 displays the general empirical estimates of single year of completed education on antenatal care visits for pregnant women aged 15-45. There appears to be a significantly positive effect of maternal education on the number of visits. Controlling mother specific characteristics and income level, if mother education increases by one more year, it increases the number of ante-natal visits by nearly 12.5% significantly. It will be interesting to see the impact of number of visits on their maternal health. However, since analysis of the same goes beyond the scope of this paper, it's not covered therefore. This can be the topic of study in the future. This effect remains still significant at 9% after we applied the regional fixed effect.

The Column 3 and 4 depicts results for the effect of maternal education on the number of "At Least Four Visits" which is highly significant at around 2% and 1% respectively. As per the World Health Organization, at least four visits to the nearest health facilities are considered important and necessary to provide basic awareness of pregnancy related education to pregnant women such as on early child health care and birth control matters.

However the number of children reduces the number of antenatal care visit significantly which is plausible given the socio-economic conditions of rural Afghanistan. Literature also suggests that the higher number of children causes women to reduce their care for children due to multiple cultural factors such as: Son Preferences, Husband influences, and as well as income restrictions (Khan, 2017). And in

other parts of the world, birth spacing and low fertility rate increases the number of antenatal care visit (Weitzman, 2017).

Income-related control variables reflect a logical pattern. The poor families tend to make fewer visits to health centers, perhaps due to affordability issues and other indirect factors. On the other hand, women with higher income tend to visit 67% more than poorest women. There were several other studies agreeing on the same line of conclusion (Cutler and Lleras-Muney, 2010; Ronsmans & Graham, 2006). Further, the overall effect is stronger in urban regions as compared to rural areas mainly on account of difficulties associated with facilities, geographical terrain and the law and order situation in the country.

Table 6: General Estimates of Maternal Education on Antenatal Care Visits

	Number of visits		At least four visits	
	(1)	(2)	(3)	(4)
Maternal education	0.1263***	0.0902***	0.0189***	0.0133***
	(0.0061)	(0.0060)	(0.0012)	(0.0012)
Number of children	-0.0767***	-0.0182	-0.0109***	-0.0007
	(0.0139)	(0.0131)	(0.0024)	(0.0024)
Maternal age	0.0330***	0.0048	0.0050***	0.0007
	(0.0064)	(0.0061)	(0.0011)	(0.0011)
Age at first birth	-0.0014	0.0094	-0.0009	0.0015
	(0.0069)	(0.0065)	(0.0012)	(0.0012)
Husband's age	-0.0026	-0.0038	-0.0002	-0.0007
	(0.0028)	(0.0027)	(0.0005)	(0.0005)
Distance to health facility	0.1399***	0.2552***	0.0228***	0.0333***
	(0.0331)	(0.0324)	(0.0061)	(0.0062)
Income (Reference group is Poorest=0)				
Poorer	-0.1517***	0.2273***	-0.0088	0.0425***
	(0.0395)	(0.0412)	(0.0070)	(0.0077)
Middle	0.1121***	0.4735***	0.0294***	0.0833***
	(0.0419)	(0.0441)	(0.0076)	(0.0084)
Richer	0.3092***	0.5997***	0.0509***	0.1003***
	(0.0450)	(0.0485)	(0.0083)	(0.0093)
Richest	0.6735***	0.9844***	0.1111***	0.1718***
	(0.0698)	(0.0715)	(0.0130)	(0.0137)
Rural	-0.3593***	-0.2443***	-0.0522***	-0.0365***
	(0.0498)	(0.0480)	(0.0094)	(0.0093)
Regions fixed effect	No	Yes	No	Yes
Observations	19005	19005	19005	19005

Note: *, **, *** represents significance level at 10, 5 and 1 percent respectively. Maternal education is measured as single years of education. Distance to health facility is dummy variable with value equals 1 represent if distance to health facility is not a problem. Column (2) and column (4) report results with regions fixed effect. Robust standard errors are in parenthesis.

The Table 7 shows the general empirical estimates of single years of completed education on Delivery by Untrained Birth Attendant (UBA), Delivery by Doctor, and Delivery at Hospital for pregnant women aged 15-45. The findings appear to be interesting. There is a significant positive effect of maternal education on Delivery by Doctor and Delivery at Hospital with 1.2% and 1.9% respectively. These effects remain still significant at almost 1% and 1.5% after application of Region Fixed Effect meaning more educated women tend to deliver their births at health facilities.

Table 7: General Estimates of Maternal Education on Delivery

	Delivery by UBA		Delivery by Doctor		Delivery at Hospital	
	(1)	(2)	(3)	(4)	(5)	(6)
Maternal Education	-0.0127***	-0.0087***	0.0122***	0.0086***	0.0196***	0.0149***
	(0.0007)	(0.0007)	(0.0009)	(0.0008)	(0.0009)	(0.0009)
Number of Children	0.0059**	0.0077***	0.0014	-0.0042**	-0.0196***	-0.0085***
	(0.0023)	(0.0020)	(0.0017)	(0.0016)	(0.0024)	(0.0024)
Maternal age	-0.0025**	-0.0012	0.0014*	0.0012	0.0071***	-0.0001
	(0.0011)	(0.0009)	(0.0008)	(0.0008)	(0.0011)	(0.0011)
Maternal age at 1st birth	-0.0098***	-0.0028***	0.0033***	0.0009	0.0028**	0.0041***
	(0.0011)	(0.0010)	(0.0009)	(0.0008)	(0.0012)	(0.0012)
Husband's age	0.0019***	0.0005	-0.0011***	-0.0001	-0.0027***	-0.0007
	(0.0005)	(0.0004)	(0.0004)	(0.0003)	(0.0005)	(0.0005)
Distance to health facility	-0.0401***	-0.0107**	0.0133***	0.0286***	0.0594***	0.0738***
	(0.0054)	(0.0049)	(0.0043)	(0.0044)	(0.0059)	(0.0058)
Income (Reference group is Poorest=0)						
Poorer	-0.1616***	-0.0635***	0.0277***	0.0192***	0.0785***	0.0962***
	(0.0085)	(0.0077)	(0.0040)	(0.0045)	(0.0076)	(0.0079)
Middle	-0.2292***	-0.1098***	0.0713***	0.0462***	0.1635***	0.1584***
	(0.0084)	(0.0078)	(0.0046)	(0.0051)	(0.0079)	(0.0084)
Richer	-0.2948***	-0.1483***	0.1340***	0.0765***	0.2809***	0.2478***
	(0.0083)	(0.0080)	(0.0057)	(0.0060)	(0.0083)	(0.0089)
Richest	-0.3324***	-0.2031***	0.2147***	0.1517***	0.3520***	0.3145***
	(0.0104)	(0.0102)	(0.0094)	(0.0096)	(0.0114)	(0.0123)
Rural	0.0204***	0.1083***	-0.0046	-0.0239***	-0.0995***	-0.1080***
	(0.0076)	(0.0069)	(0.0067)	(0.0064)	(0.0086)	(0.0086)
Regions fixed effect	No	Yes	No	Yes	No	Yes
Observations	32030	32030	32030	32030	32159	32159

Note: *, **, *** represents significance level at 10, 5 and 1 percent respectively. Maternal education is measured as single years of education. Distance to health facility is dummy variable with value equals 1 represent if distance to health facility is not a problem. Column (2), (4) and (6) report results with regions fixed effect. Robust standard errors are in parenthesis.

Interestingly, there is a significant negative effect of education on Delivery by Untrained Birth Attendants. It is quite logical and rational. Because the more educated women always prefer better

health care for well-trained health workers. Controlling other mothers' socio-economic characteristics, if mothers education increases by one more year, it reduces the probability of delivery with the help of UBA by 1.2%. It is also stated in one of research hypothesis that maternal education is negatively related to delivery by UBA. It is still significant at 0.8% after Region Fixed Effect estimation.

The correlation between number of children and delivery by UBA is positive but, not significant. Because it is possible that the higher number of children is associated with delivery by un-skilled providers. Income related controlling variables also shows a rational negative effect. Poorer and richest families tend to reject UBA by 16% and 33% respectively compare to their poorest families which is strongly significant. The overall effect is much stronger in urban places compare to rural areas which demonstrates that the rural areas have not access to health facilities.

5.2 Analysis by Ethnicity

An analysis was made to study the effect of maternal education on health care by ethnicity. To do this, the study applied Fixed Effect Regression and created five ethnic groups such as: Pashtun, Tajik, Hazara, Uzbek, and others to find the variation of MHSB among different ethnic groups. While interestingly, the study found a significant variation. Table 8 and table 9 show that generally, maternal education is positively correlated with health seeking behavior across all nationalities in Afghanistan with highest impact on Hazara and Uzbek ethnic group. One year increase in Hazara maternal education increases the number of visits by nearly 9.5%. This effect is also higher for Uzbeks around 9.7% while 7% and 8% for Pashtun and Tajik families respectively. The effect is lesser in magnitude when we take into account at least 4visits as an outcome variable.

Notably, distance to health facility happens to be a big problem as shown by the coefficient of the distance dummy. The positive and significant coefficient of the distance dummy shows the fact that distance to health facilities has been one of the biggest problems. Those households for whom distance is not a big problem depicts a stronger relation with the number of health care visits. This effect also varies significantly across multiple ethnic groups. For example if distance is not a big issue, then Tajik ethnic group shows a much stronger response to maternal education. There may be several reasons to this difference. On reason could be the relative income or socio-economic advantages of Tajik community

which enables them respond more quickly to maternal education. In other words availability of health care facilities has restricted the utilization of mother's education in terms of health care visits. One policy direction could be, achieving maternal education in isolation would not be sufficient, unless it coupled with interventions that reduce distance to hospital in Afghanistan. Comparing to urban areas, the effect of maternal education in rural areas reflect a negative effect on health care visits. This also supplements the problem of distance to health facility.

Similarly, the income dummies (poorest, poorer, middle, richer, and richest) as controlling variable strongly affected the number of visits. The table shows that poor women tend to have less number of ante-natal visits, while rich women tend to have higher number of ante-natal visits. The table also shows significant difference with a higher impact on Hazara community. For instance, compare to Hazara poorest women, Hazara poorer families tend to have 15% more antenatal visits while Pashtun, Tajik, and Uzbek Poorer families tend to have more visits then their poorest families by 12%, 9%, and 26% respectively. Hazara richer families tend to have 96% more antenatal visits compare to their poorest income families while, this effect is lesser for Pashtun, Tajik, and Uzbek ethnic group by 32%, 61%, and 72% respectively.

This difference appears to be also significant in delivery estimations. According to the findings in table 4, if maternal education increases by one more year, it will decrease the probability of delivery by Untrained Birth Attendant (UBA) by 0.4% for Pashtun, 0.7% for Tajik, 1.1% for Hazara, and 1.5% for Uzbek people.

Table 8: Estimation of Maternal Education on Antenatal Care Visits by Ethnicity

							At least 4Visits			
	Pashtun	Tajik	Hazara	Uzbek	Others	Pashtun	Tajik	Hazara	Uzbek	Others
Maternal Education	0.0793***	0.0840***	0.0948***	0.0971***	0.0735***	0.0111***	0.0143***	0.0122***	0.0102***	0.0079*
	(0.0139)	(0.0087)	(0.0194)	(0.0195)	(0.0214)	(0.0024)	(0.0018)	(0.0034)	(0.0038)	(0.0043)
Number of Children	-0.0116	-0.0229	-0.0547	-0.0892	-0.0157	-0.0015	0.0008	-0.0050	-0.0098	-0.0028
	(0.0184)	(0.0258)	(0.0491)	(0.0634)	(0.0335)	(0.0033)	(0.0049)	(0.0090)	(0.0107)	(0.0062)
Maternal Age	-0.0038	0.0123	0.0100	0.0231	0.0056	0.0007	0.0000	0.0011	0.0042	0.0017
	(0.0086)	(0.0117)	(0.0223)	(0.0271)	(0.0152)	(0.0015)	(0.0022)	(0.0040)	(0.0046)	(0.0028)
Age at 1st birth	0.0211**	0.0024	-0.0282	0.0336	-0.0058	0.0012	0.0018	-0.0025	0.0073	-0.0027
	(0.0093)	(0.0126)	(0.0212)	(0.0280)	(0.0167)	(0.0017)	(0.0024)	(0.0040)	(0.0047)	(0.0032)
Husband's age	-0.0006	-0.0088*	0.0043	-0.0042	-0.0006	-0.0007	-0.0005	0.0013	-0.0017	-0.0007
	(0.0038)	(0.0053)	(0.0101)	(0.0091)	(0.0061)	(0.0007)	(0.0010)	(0.0019)	(0.0018)	(0.0011)
Distance to health facility	0.1595***	0.3426***	0.2047	0.2674**	0.2191***	0.0221**	0.0546***	0.0149	0.0044	0.0212*
	(0.0465)	(0.0643)	(0.1450)	(0.1290)	(0.0658)	(0.0088)	(0.0126)	(0.0263)	(0.0251)	(0.0121)
Income (Reference group is Poorest=0)										
poorer	0.1233*	0.0902	0.1584	0.2640*	0.2429**	0.0130	0.0228	0.0215	0.0432	0.0486**
	(0.0655)	(0.0774)	(0.1402)	(0.1379)	(0.1098)	(0.0117)	(0.0149)	(0.0257)	(0.0295)	(0.0213)
middle	0.2630***	0.4290***	0.6714***	0.5658***	0.3177***	0.0397***	0.0732***	0.1130***	0.0953***	0.0560**
	(0.0684)	(0.0886)	(0.1783)	(0.1685)	(0.1129)	(0.0125)	(0.0176)	(0.0350)	(0.0343)	(0.0220)
richer	0.3272***	0.6190***	0.9631***	0.7225***	0.3260***	0.0441***	0.1039***	0.1577***	0.1345***	0.0572**
	(0.0726)	(0.1023)	(0.2080)	(0.1741)	(0.1187)	(0.0135)	(0.0196)	(0.0420)	(0.0353)	(0.0236)
richest	0.7220***	0.9439***	1.2771***	1.0066***	1.0615***	0.1128***	0.1762***	0.1846***	0.1941***	0.2081***
	(0.1003)	(0.1364)	(0.3396)	(0.2547)	(0.3013)	(0.0186)	(0.0263)	(0.0644)	(0.0482)	(0.0596)
rural	-0.2226***	-0.1890*	-0.0653	-0.2297	-0.7293***	-0.0268**	-0.0290	-0.0152	-0.0484	-0.1207**
	(0.0641)	(0.0979)	(0.1949)	(0.1540)	(0.2347)	(0.0124)	(0.0189)	(0.0409)	(0.0324)	(0.0475)
Regions FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8090	5661	1663	1310	2281	8090	5661	1663	1310	2281

Note: *, **, *** represents significance level at 10, 5 and 1 percent respectively. Maternal education is measured as single years of education. Distance to health facility is dummy variable with value equals 1 represent if distance to health facility is not a problem.

Table 9: Estimation of Maternal Education on Delivery by Ethnicity

						Delivery by Health Facility				
	Pashtun	Tajik	Hazara	Uzbek	Others	Pashtun	Tajik	Hazara	Uzbek	Others
Maternal Eucation	-0.0041*** (0.0014)	-0.0079*** (0.0009)	-0.0113*** (0.0025)	-0.0150*** (0.0024)	-0.0101*** (0.0029)	0.0144*** (0.0019)	0.0142*** (0.0013)	0.0128*** (0.0030)	0.0179*** (0.0031)	0.0151*** (0.0038)
Number of Children	0.0156*** (0.0029)	0.0049 (0.0035)	0.0070 (0.0075)	0.0059 (0.0097)	-0.0149** (0.0062)	-0.0136*** (0.0036)	-0.0048 (0.0044)	-0.0204** (0.0082)	-0.0065 (0.0105)	0.0048 (0.0014)
Maternal age	-0.0031** (0.0014)	-0.0023 (0.0016)	-0.0002 (0.0034)	0.0009 (0.0041)	0.0080*** (0.0029)	0.0013 (0.0017)	0.0001 (0.0020)	0.0000 (0.0037)	-0.0024 (0.0045)	-0.0041 (0.0027)
Maternal age at 1st birth	-0.0021 (0.0015)	0.0002 (0.0017)	-0.0005 (0.0034)	-0.0116*** (0.0042)	-0.0089*** (0.0033)	0.0020 (0.0019)	0.0053** (0.0021)	0.0016 (0.0037)	0.0105** (0.0046)	0.0054* (0.0031)
Husband's age	0.0003 (0.0007)	0.0010 (0.0007)	-0.0017 (0.0015)	0.0007 (0.0015)	-0.0006 (0.0012)	-0.0007 (0.0008)	-0.0017** (0.0008)	0.0005 (0.0017)	0.0012 (0.0017)	0.0014 (0.0012)
Distance to health facility	-0.0055 (0.0078)	-0.0411*** (0.0080)	0.0047 (0.0218)	-0.0364* (0.0203)	0.0766*** (0.0142)	0.1118*** (0.0096)	0.0655*** (0.0103)	0.0525** (0.0249)	-0.0258 (0.0230)	0.0017 (0.0115)
Income (Reference group is Poorest=0)										
poorer	-0.0847*** (0.0140)	-0.0488*** (0.0133)	-0.0028 (0.0242)	-0.0693** (0.0293)	0.0155 (0.0202)	0.1086*** (0.0140)	0.0645*** (0.0144)	0.0525** (0.0247)	0.1138*** (0.0309)	0.0497** (0.0196)
middle	-0.1292*** (0.0140)	-0.0912*** (0.0137)	-0.0760*** (0.0290)	-0.1826*** (0.0307)	0.0251 (0.0218)	0.1479*** (0.0144)	0.1599*** (0.0158)	0.1494*** (0.0321)	0.1985*** (0.0336)	0.0566*** (0.0206)
richer	-0.1508*** (0.0143)	-0.1803*** (0.0133)	-0.1176*** (0.0310)	-0.1886*** (0.0314)	0.0379 (0.0240)	0.2182*** (0.0151)	0.2922*** (0.0164)	0.1452*** (0.0390)	0.2560*** (0.0347)	0.1161*** (0.0220)
richest	-0.2391*** (0.0171)	-0.1896*** (0.0163)	-0.0760* (0.0448)	-0.1933*** (0.0381)	-0.1142*** (0.0414)	0.3154*** (0.0193)	0.3028*** (0.0215)	0.1551*** (0.0601)	0.2432*** (0.0436)	0.2393*** (0.0519)
rural	0.0883*** (0.0102)	0.1058*** (0.0116)	0.1211*** (0.0294)	0.0576** (0.0251)	0.1732*** (0.0357)	-0.1179*** (0.0126)	-0.1145*** (0.0155)	-0.1105*** (0.0361)	0.0081 (0.0291)	-0.1392*** (0.0425)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14245	9067	2482	2123	4113	14309	9102	2490	2131	4127

Note: *, **, *** represents significance level at 10, 5 and 1 percent respectively. Maternal education is measured as single years of education. Distance to health facility is dummy variable with value equals 1 represent if distance to health facility is not a problem.

As such, Hazara's and Uzbek's families tend to have better health seeking behavior than Pashtuns and Tajiks families. The logic behind this pattern is that majority of Afghan populations are living in rural area, obviously 76.3% of the sample are rural resident. Of the rural residents, Uzbek families have socio-economic advantages and Hazara families are more civilized with socio-cultural advantages which enable them to have better health seeking behavior. In civilized families men and women tend to be equal; both attending school together. Husbands are open-minded and do not put any barriers for their wives. It is reported by BBC Persian that there are less socio-cultural restrictions for women in Hazara's families; their women are involved in decision making, labor market, civil movements and every social activities. For instance, Dr. Sima SAMAR the first female vice-president and the first female minister of women affairs (BBC, 2009), Habiba SARABI the first female governor (BBC, 2005), Masuma MORADI the second female governor (BBC, 2015), Ozra JAFARI the first mayoress (BBC, 2017), Somyia GHULAMI the only girl whom gained Gold medal at Techwando (BBC, 2015), are Hazara's activists women (BBC, 2015). And they are continuing their education up to higher level; for instance in economic department of Ghazni University in Afghanistan, there are lots of Hazara's girls studying in higher education, but the number of girls from other ethnicities is rare. In some other rural communities, girl's education is forbidden, women are unseen and socially excluded due to cultural practices and traditional-religious believes. Furthermore, their women are restricted to receive health services from male health workers. Thereby, these restrictions put the women in a situation where they are not able to have the better maternal health seeking behavior.

5.3 Analysis by Region

Another analysis was made to study the effect of education on maternal health seeking behavior by place of resident. The study has applied Fixed Effect, to examine whether this effect varies in rural and urban area. Table 10 shows the findings which indicate that the impact of education on MHSB for rural women is pretty high compared to women in urban. It is rational, because rural residents were not able to access the facilities easily, they respond positively and quickly to the incentives. This variation appears not to be significant.

Table 10: Estimates of Maternal Education on Antenatal and Delivery Health Care by Rural-Urban

	Rural				Urban			
	No. of Visits	At least 4visit	Delivery by UBA	Delivery by Doctor	No. of Visits	At least 4visit	Delivery by UBA	Delivery by Doctor
Maternal Education	0.0897***	0.0136***	-0.0090***	0.0170***	0.0826***	0.0119***	-0.0073***	0.0115***
	(0.0071)	(0.0016)	(0.0010)	(0.0013)	(0.0104)	(0.0018)	(0.0009)	(0.0013)
No. Children	-0.0068	0.0003	0.0046*	-0.0034	-0.0636*	-0.0070	0.0093**	-0.0170***
	(0.0140)	(0.0026)	(0.0023)	(0.0027)	(0.0328)	(0.0057)	(0.0039)	(0.0050)
Maternal age	0.0011	0.0000	-0.0000	-0.0022*	0.0156	0.0031	-0.0001	0.0016
	(0.0065)	(0.0012)	(0.0011)	(0.0012)	(0.0145)	(0.0025)	(0.0018)	(0.0022)
Maternal age at 1st birth	0.0176**	0.0024*	-0.0036***	0.0047***	-0.0126	-0.0016	-0.0028	0.0032
	(0.0070)	(0.0013)	(0.0012)	(0.0013)	(0.0152)	(0.0027)	(0.0018)	(0.0024)
Husband's age	-0.0036	-0.0003	0.0003	-0.0002	-0.0041	-0.0015	-0.0000	-0.0005
	(0.0029)	(0.0006)	(0.0005)	(0.0006)	(0.0055)	(0.0010)	(0.0007)	(0.0009)
Distance to health facility	0.2508***	0.0357***	-0.0002	0.0784***	0.1685**	0.0112	-0.0269***	0.0466***
	(0.0345)	(0.0069)	(0.0061)	(0.0069)	(0.0746)	(0.0135)	(0.0084)	(0.0110)
Income (Reference group is Poorest=0)								
poorer	0.2213***	0.0398***	-0.0577***	0.1079***	0.1918	0.0097	-0.0031	0.0022
	(0.0429)	(0.0081)	(0.0083)	(0.0083)	(0.1936)	(0.0344)	(0.0269)	(0.0331)
middle	0.4651***	0.0791***	-0.1024***	0.1664***	0.3812**	0.0526	0.0034	0.0752**
	(0.0467)	(0.0089)	(0.0086)	(0.0089)	(0.1653)	(0.0321)	(0.0239)	(0.0301)
richer	0.6021***	0.0964***	-0.1338***	0.2660***	0.3815***	0.0564**	-0.0197	0.0440*
	(0.0543)	(0.0104)	(0.0094)	(0.0101)	(0.1361)	(0.0265)	(0.0197)	(0.0252)
richest	0.8190***	0.1724***	-0.2017***	0.3424***	0.8578***	0.1310***	-0.0763***	0.1285***
	(0.1225)	(0.0257)	(0.0175)	(0.0220)	(0.1384)	(0.0268)	(0.0195)	(0.0252)
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnicity Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14457	14457	24408	24505	4514	4514	7564	7596

Note: *, **, *** represents significance level at 10, 5 and 1 percent respectively. Maternal education is measured as single years of education. Distance to health facility is dummy variable with value equals 1 represent if distance to health facility is not a problem.

Interestingly, comparing to urban areas, if distance is not a big problem, then, rural areas shows a bigger impact of maternal education on antenatal health care. And for those whom distance is a big problem, then rural areas shows a small impact on health care. It is rational because distance has been one of the main bottlenecks for rural residents regarding health seeking behaviors.

CHAPTER 6

CONCLUSION

Although many studies have been undertaken examining the effect of maternal education on maternal health, not much is done about the effect of Maternal Education on Maternal Health Seeking Behavior in Afghanistan. Our results demonstrate a significant influence of women's education on their health care. After controlling for other determinants which probably affect maternal health care, we found that there is a significantly positive effect of maternal education on antenatal care visits. And furthermore we found that maternal education exerts a positive influence on delivery by doctor and delivery at hospital and a negative influence on delivery by Untrained Birth Attendants. This effect remains still significant in all estimations after application of the regional fixed effect. The conclusion is that maternal education strongly affects maternal antenatal and delivery care. The study on the impact of antenatal visits and delivery performed by skilled providers on maternal health can be taken up in the future.

Additional examinations were carried out on the effect of maternal education on maternal health care by ethnicity and region. It was evident that the effect varies amongst different ethnicities; the findings would seem to prove that the effect of maternal education on maternal health seeking behavior is highly significant for Hazara compared to other ethnic groups. To the best our knowledge Hazara people are more civilized with less traditional believes. The effect also varies around different regions; it appears to show that the effect is more significant for rural rather than urban residents. The possible conclusion for this issue would be that, rural residents are more sensible as they positively respond to education and health facilities.

The shortcoming of this paper is use of data from a survey which was undertaken in 2015 since latest data is not yet released. Similar study would be taken later after the publication of 2018 DHS data. It is also recommended for other researchers to do further studies on the socio-cultural factor of maternal health seeking behavior in Afghanistan by applying 2018 AfDHS which will have an expansion coverage of socio-cultural and socio-economic measures.

Policy Recommendations

As per the findings of this paper, the maternal health care improves with an increase of a single year maternal education. Thus, the policies should be concentrated to improve maternal education. The 2015 AfDHS reported that of 31% of females who have attended school; only 4% of females have completed secondary school or more, this ratio fell down to half for girls living in rural areas. Overall around 85% of females are uneducated (AfDHS, 2015). The main reason for girls dropping out of school is mostly traditional socio-cultural barriers and rural difficulties, such as; early marriage, religious misapprehension, distance to school, and low income. Hence, compulsory schooling and incentives scheme are strongly encouraged to attract more girls in the school.

Compulsory schooling would deal with socio-cultural barriers. Government should impose compulsory schooling law, and compel the families to send their children to public schools for free. It should be made mandatory for girls and boys to continue their schooling up to secondary level. Compulsory schooling will prevent early marriages and it will works as an important instrument to remove the socio-cultural barriers. It will pave the ground for females to be educated as it is successfully implemented in many countries.

To overcome the problem of rural difficulties, one recommendation would be to provide incentives to rural residents. It is proved in rural areas of Afghanistan that families were sending their girls to schools for wheat, oil, and biscuit. UNICEF has had a program which was distributing oil to the female students. It will be interesting in the future to see the impact of distribution of oil on the female education in Afghanistan. Government can strengthen this scheme or any alternative incentives to encourage female to get educated. Furthermore considering free transportation system for girls between villages and schools and between villages and health centers would be also another ways to solve the distance problem and reach education and health facilities.

Lastly, the main objective of this study is to diagnosis the emerging problems to apply appropriate policies to improve maternal health seeking behavior; increase the number of antenatal care visits and perform the deliveries by skilled providers.

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