Maternal Health in Amhara Region, Ethiopia: Relationship between Continuum of Care and Perceived Maternal Trust of Frontline Healthcare Workers

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Relationship between Continuum of Care and Perceived Maternal Trust of Frontline Healthcare Workers

Approved:

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Date

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Abstract

Background: There has been rising attention paid to maternal health and the need to provide women in reproductive age with a full continuum of care. Nevertheless, the literature examining the impact of maternal trust of Frontline Healthcare Workers on the continuum of maternal care in rural Ethiopia is sparse. In 2010, the Maternal and Newborn Health in Ethiopia Partnership (MaNHEP) conducted a reproductive health survey in Amhara region, Ethiopia. This study uses the maternal health data collected at that time.

Objective: This study sought to examine the relationship between adherence to the World Health Organization (WHO) continuum of care (antenatal, delivery and/or postpartum) model and perceived maternal trust of Frontline Healthcare Workers in Amhara region. This study also examined whether maternal literacy, socioeconomic status, knowledge, access and utilization of Frontline Healthcare Workers influenced maternal trust of Frontline Healthcare Workers. Frontline Healthcare Workers include Health Extension Workers (HEWs), Voluntary Community Health Workers (vCHWs) and Trained Birth Attendants (TBAs).

Methods: Bivariate analyses were conducted to examine the potential association between utilization of the continuum of care and maternal socioeconomic status, literacy, maternal trust of the Frontline Healthcare Workers for antenatal, labor/delivery and postpartum care. Moreover, bivariate analyses were conducted to examine the general attitude of mothers whom they think should provide antenatal, labor/delivery and postpartum care during pregnancy. Finally, ordinal logistic regression looked at (1) the predictive value of the various components of maternal trust on Frontline Healthcare Workers and (2) to look at the predictive values of knowledge, access and utilization of Frontline Healthcare Workers on the reporting of maternal trust during pregnancy, delivery and postpartum.

Result: Less than 35% of pregnancies between 2009-2010 met WHO standards for antenatal, delivery and postpartum care. Meeting the WHO standards of care at one stage was significantly associated with meeting subsequent standard of care. About 61% of the women had heard of HEWs, 18% had heard of vCHWs and 79% had heard of TBAs. More than 50% of the women indicated *not trained* healthcare personnel should provide 61% antenatal care, 73% labor and deliver and 90% postpartum care. Greater maternal knowledge, easier access and prior utilization associated with at least two times higher odds of having more trust of FHWs.

Discussion: The Amhara region survey indicates many serious deficiencies in knowledge, access and utilization of care. However, it also points out providing women with a continuum of maternal health care presents an optimistic health outcome. Meeting the WHO recommendation decreases maternal mortality. This study found that subsequent antennal, delivery and postpartum care is positively associated with trust on the FHWs. How to gain maternal trust in short length of time needs additional research and it is critical to identify the barriers for trust in order to improve maternal access to care and positive health outcome.

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Acronyms

ANC	Antenatal Care
BF	Breast Feeding
DHS	Demographic and Health Survey
FDRE	Federal Democratic Republic of Ethiopia
FMOH	Federal Ministry of Health
FHW	Frontline Healthcare Worker
HEP	Health Extension Program
HEW	Health Extension Worker
HP	Health Post
HSEP	Health Services Extension Package
IRB	Internal Review Board
MaNHEP	Maternal and Newborn health in Ethiopia Partnership
MDGs	Millennium Development Goals
MNCH	Maternal Newborn Child Health
MOH	Ministry Of Health
MCH	Maternal and Child Health
PHC	Primary Health Care
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
TTBA	Trained Traditional Birth Attendant
U5MR	Under Five-Mortality Rate
VCHW	Voluntary Community Health Worker
WHO	World Health Organization

Glossary

Kebele	The smallest governmental administrative unit with a population estimate of about 5000 people.
Woreda	Similar to a district.

Chapter 1: Introduction

Addressing Reproductive Health in Ethiopia

Maternal mortality in Ethiopia declined about 27% over the past 15 years. In 2005, the Ethiopia Demographic and Health Survey (DHS) indicated an improved maternal mortality rate of 673/100,000 live birth as compared to 871/100,000 in 2000 and 920/100,000 in 1990[1]. Nevertheless, the overall lifetime risk of maternal mortality in Ethiopia still remains high (estimated 1 in 27)[1]. DHS 2005 also indicated that more than 90% of births took place at home, while the remaining 10% took place either in governmental or private healthcare facilities. The current 2010 Ethiopia DHS report estimated 25,000 women died each year giving birth and 300,000 newborn died annually across the country[2]. From 2007-2008 two hospitals in Addis Ababa Ethiopia reported 3(7%) deaths after abortion and 15(35.7%) deaths due to eclampsia /preeclampsia of all maternal death [3]. The health care personnel are very limited; the country has only three doctors and one midwife for every 100,000 citizens[2]. The non-use of modern health care services and lack of basic health care contributes to poor health outcomes among women and children[4]. Even if the common interventions to save the lives women and children are widely known, they are not available to those in great need.

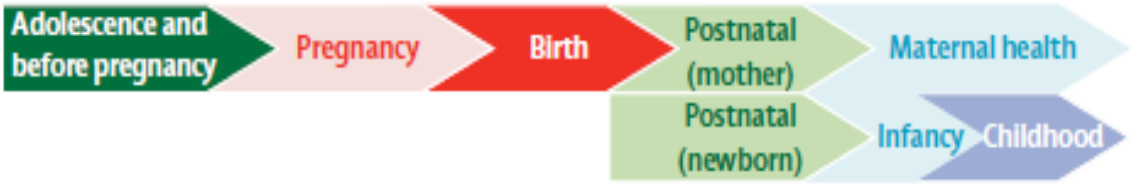
Continuum of Maternal, Newborn and Child Health Care

The World Bank estimated that 74% of maternal mortality could be averted globally if all women had access to interventions to prevent complications of pregnancy and complication during childbirth, mainly emergency obstetric care[5]. The collective package of interventions that would avert these complications includes good nutrition; access to family planning, antenatal, labor/delivery and postpartum care and referral services for complications. Effective practice of continuum of care model in resource-

poor settings highlighted as a core principle of programs to reduce the burden of maternal and newborn health [6]. However, the continuum of care model does not address complications that might arise from spontaneous or induced abortion, and ectopic pregnancies. In addition, the lack of definition on adolescence does not address pregnancies that might occur before adolescence. Thus, the core concept of the Maternal Newborn Child Health (MNCH) continuum of care is based on the assumption that the health of and the well being of women, newborns and children are intertwined and should be managed in a unified way [7]. In order to effectively apply the concept of this model; it is critical to have access to essential health care and reproductive services. The continuum of care model illustrates two core magnitudes: timing and place of care giving.

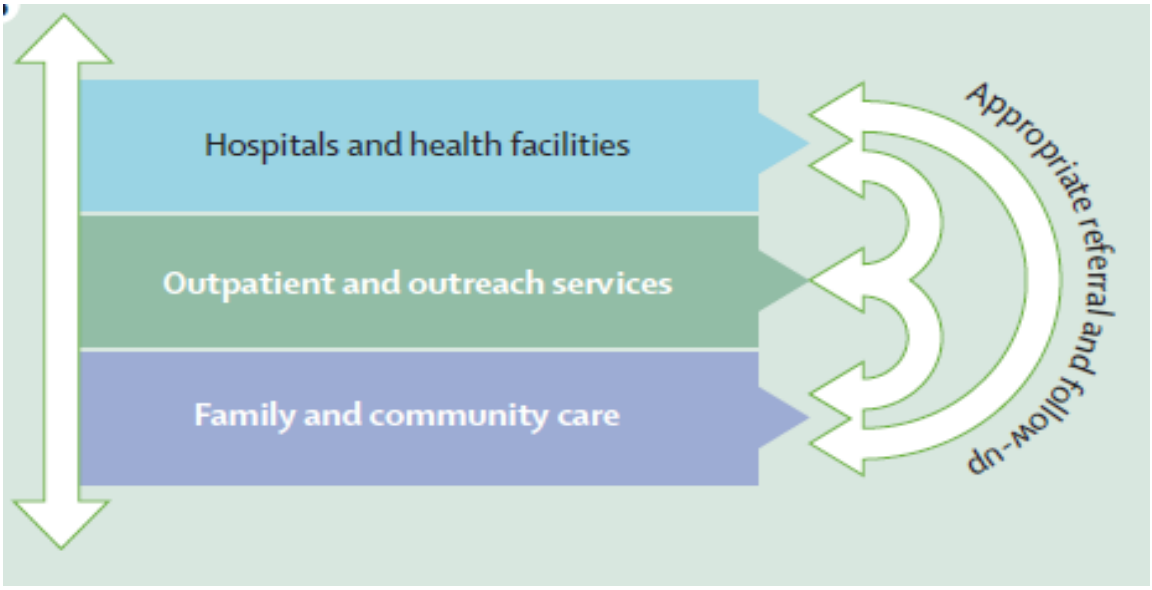
The enclosure of timing in the continuum of care model illustrates the significance of providing women and their children with effective care at all stages: from pre-pregnancy through pregnancy, child delivering, and postpartum period, as well as through the infancy and childhood (See Figure 1). Furthermore, care giving takes place in health facilities, home and community care. By highlighting place of care giving, the continuum of care model recognizes the importance to link all the three settings to ensure effective care for women and their children (See Figure 2).

Figure 1: The Role of Timing in the Continuum of Care Model



Source: Partnership for maternal, Newborn and Child health, 2006[6]

Figure 2 : The Role of place of care giving in the Continuum of Care Model



Source: Partnership for maternal, Newborn and Child health, 2006[6]

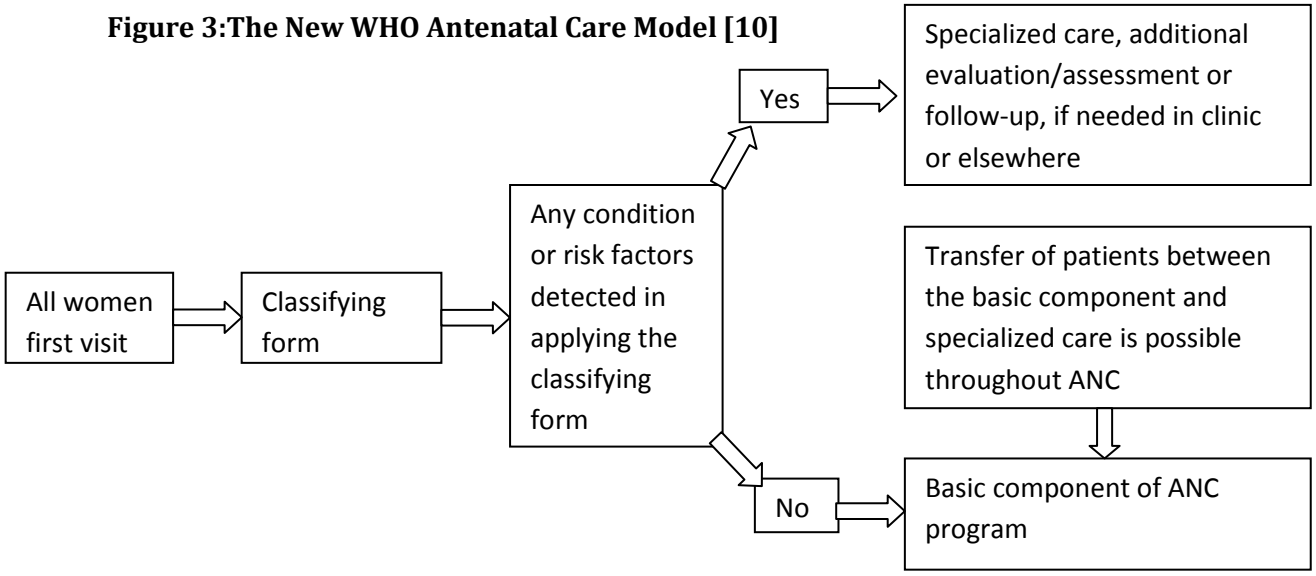
For the purpose of this analysis, antenatal care, delivery and postpartum care have been extracted from the continuum of care model for further examination. A complete list of all care that WHO considers both routine and essential at each of the three stages can be found in Annex A.

Antenatal care

By definition antenatal care (ANC) means “care before birth” provides education and screening to monitor and to promote the well-being of the mother and the fetus. This stage of the continuum of care model not only helps to bring women to the health care system but also it guides women to smooth transition to parenthood. Research has found that antenatal care also provides maternal feeling of preparedness for labor as well as childcare [8]. Furthermore, studies found that women that have at least one antenatal visit are more likely also to have trained health provider during delivery (Partnership for

maternal, Newborn and Child Health, 2006c) [9]. The WHO antenatal care model classifies pregnant women into two categories: (1) pregnant women who are eligible to receive routine ANC (also known as the basic component). (2) Pregnant women who need special care based on their specific health condition (See Figure 3).

Figure 3:The New WHO Antenatal Care Model [10]



The new WHO antenatal care model recommends that low-risk women to receive four antenatal visits during their pregnancy. The first visit should occur within the first 12 weeks, the second visit between 24 and 26 weeks, the third visit at the 32 weeks and the fourth between 36 and 38 weeks. In order to provide quality care during each visit, WHO's protocol for action includes an examination, careful review of women's health history, screening and testing , treatments, preventive measure, health education and counseling [11].

Delivery/Childbirth and Postpartum care

The WHO childbirth/delivery care package highlights the importance of skilled attendant during labor /delivery and the availability of emergency obstetric care. According to WHO, skilled attendants are defined as "*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 newborns*"[12]. Even if many studies indicated skilled attendant at birth has significantly increased the survival and the health of both mothers and babies; however, the rates of skilled attendant in sub –Saharan Africa still remains low. In addition, skilled attendants are frequently the only health care providers that are accessible at the community level [13].

within the three continuum of care model, postpartum care has been neglected. The neglect might be due to lack of structured postpartum care plan for the mother and newborn care for the baby [13]. Regardless, the importance of postpartum care is critical. WHO recommends that the postnatal package for mothers and babies should include routine visits in the first days after birth, promotes healthy behaviors, and identification of complications. Health care providers should confirm that the woman has no complications and is free from any danger signs as well as emergency preparedness [14].

Reproductive Health in the Ethiopia Context

Located in the Horn of Africa, Ethiopia is a unique country in Africa to have escaped the western colonization. Ethiopia is the second most populous country in African. The current population of Ethiopia is estimated to be 90 million [15] and the female population accounts for half of the total population. Over 93% of births are occurring rural setting. Over all health care coverage is poor and only 45% of the population is served with formal health care. Antenatal care coverage targeted to women is about 25% [16]. Access to reproductive health continues to be critical in Ethiopia. Over 80 percent of the maternal deaths are directly associated to lack of inadequate skilled health care personnel, insufficient equipment, limited drug supplies and especially inefficient health referral system [17].

Continuum of Care in Ethiopia

In Ethiopia, women in reproductive age 15-49 years make up about 23% of the total population. This makes up 20.7 million women in the reproductive age group out of the total population of 90 million. The population growth rate is 2.9% and the total fertility rates of 5.4 children per woman [17]. The 5.4 total fertility rates indicate that the average woman spends at least five of her reproductive years being pregnant or immediate postpartum state. This is a great indication for providing women with adequate and high quality continuum of care to ensure both healthy mother and children.

Antenatal Care

Antenatal care coverage has been associated with women's education, wealth, religion and household decision autonomy. Women with secondary education and above are more likely to access antenatal care than those with no-education. Further, women who have

good antenatal care during pregnancy are more likely to have safer birth and healthier babies. By definition, Ministry of Health of Ethiopia (MOH) defines antenatal care coverage as the proportion of pregnant women attended at least once during pregnancy by a health professional such as Health Extension worker [18]. In Ethiopia, only 28% of Ethiopian women receive antenatal care from skilled medical personnel [19].

Delivery Care

The total fertility rate of 5.4 children per woman being one of the highly in the world, it also exposes women to the risks of early and frequent childbearing. However, only 6 percent of the women have skilled attendant present at delivery. Due to this, approximately 20,000 mothers die each year [20]. Even if several studies indicated the use of skill birth attendant at every delivery greatly improve maternal mortality and improve poor delivery outcome [21], little has been done to achieve this in Ethiopia particularly in rural part of the country.

Postpartum care

Residence, place of birth, socioeconomic status and education has been associated with disparities in access and utilization of postpartum care. Only 6% of mothers deliver in health facilities [22] and almost all of these facility births occur in urban areas. Thus, most mothers in rural setting do not receive sufficient postpartum care, due to this Ethiopia is ranks fifth in the world in the number of maternal deaths, given the high maternal mortality rate 673 deaths per 100,000live births [22].

Ethiopian Health Policy

Health is a major challenge to Ethiopia's development goal. However, Ethiopia has demonstrated an enormous improvement in Maternal and Child Heath (MCH). In order to address the issue of MCH, the government of Ethiopia increased the national investment in basic health services to achieve 25 percent reduction in under five mortality rate (U5MR) between 2000 and 2005 [20]. While maternal health services have been slow to expand throughout the country, the government once again has recognized the need for development of a new level of the health system to increase access to primary health services. In order to achieve this goal, the Ministry of Health has trained and deployed more than 24,000 new, primarily female health extension workers (HEWs) and aimed to train 6,000 more HEW by the end of 2008. The totals of 30,000 HEWs are targeted to be allocated two HEW along with a basic health facility in every community [20].

Study Rational

The quality of care that both mother and newborn receive during antenatal, labor/delivery and postnatal period is highly essential to ensure women remain healthy and the children get a strong start. In order to achieve these comprehensive care packages, understanding maternal trust in the health care providers is important. Trust is one of the central features of mothers- Frontline Healthcare Workers relationships. Understanding maternal trust in Frontline Healthcare Workers might improve:

- Quality of antenatal care;
- Ensure that most women receive at least four antenatal visits;
- Increase the number of skilled attendants at delivers and;
- Ensure at least one postpartum visit within six weeks of delivery.

Purpose of this study

In order to better ensure the WHO continuum of care package and implement the above recommendations, this study sought to understand women's perception of antenatal, labor/deliver and postpartum care providers and women's trust particularly in Frontline Healthcare Works and utilization of the WHO continuum of care model.

Research Questions

The primary research question was: Is there a relationship between continuum of care (antenatal, delivery and/or postpartum) and perceived maternal trust of Frontline Healthcare Workers in Amhara Region?

Nevertheless, in order to effectively address this research question, the following questions also needed to be asked:

1. What proportion of previous pregnancies met the WHO standards for antenatal, delivery and postpartum care?
    a. Is there a significant difference in meeting WHO standards of care when stratified by literacy and socioeconomic status?
    b. Is there an association between meeting one WHO standard of care and meeting the subsequent standard of care?
2. What portion of previous pregnancies had heard of Frontline Healthcare Works during antenatal, delivery and/or postpartum?
    a. Is there a significant difference in knowledge, access and use of Frontline Healthcare Works when stratified by literacy and socioeconomic status?
3. What portion of women indicated who should provide maternal health care during antenatal, labor/delivery, and postpartum care?
    a. Is there a proportional difference when stratified by *highly trained*, *moderately trained* and *not trained* of maternal health care provider?
4. What determines perceived maternal trust of Frontline Healthcare Workers in utilization WHO standards for antenatal, delivery and postpartum care?

Chapter 2: Review of the Literature

Maternal Morbidity and Mortality

Between the years of 1990-2015, the Millennium Development Goal 5(MDG-5) seeks to improve maternal health by decreasing the maternal mortality ratio by 75% and increase the number of skilled health professional and birth attendants. However, Ethiopia remains one of the world's poorest nations where 78 % of the population lives on less than 2 dollars per day [23]. Health care service in Ethiopia is generally deprived and it is not evenly distributed and is biased towards urban areas than rural area [16]. Health care services targeted at women have an even lower coverage [24]. For example, antenatal care coverage is about 28%, delivery at health care facilities is only 5% and family planning coverage is about 15% [22]. At least 1% of the Ethiopian women have experienced obstetric fistula [1]. Poor health outcome is associated with the non-use of modern health care services by the majority of the women in Ethiopia and accounts for the high maternal and child mortality of 850 per 100,000 live births and 110 per 1,000 live births respectively [13].

The other factor for poor health outcome is the wide income disparity between men and women. Due to this, women in general have little or no control over resources and their reproductive health decisions is nonexistence [17]. Husbands make most of the active decisions. Women's active participation on decision making of such as family planning, number of children and resources utilization is not welcome by their husband. Particularly, women in rural setting, the decision to seek health care is mostly depend on the husband's willingness.

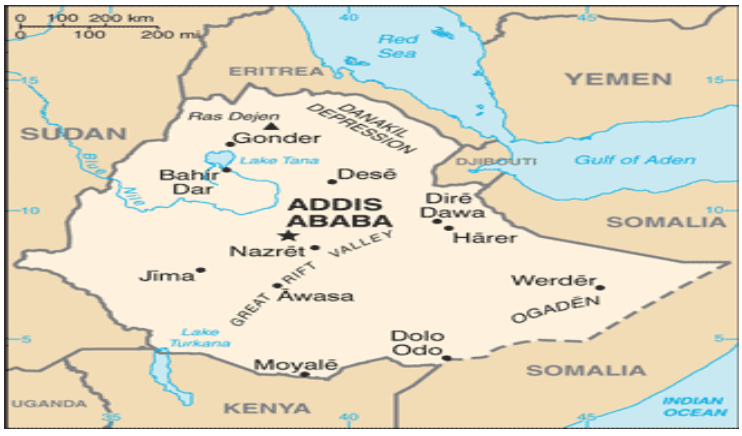
Continuum of Care

In 2003, Ethiopian government with the support of Child Survival Partnership carried out analyses of maternal and child health interventions. The product of this evidence-based analysis indicated the need to shift from a facility-based model to an approach that extended access to basic health services to communities. The government of Ethiopia developed an innovative Health Service Extension Package (HSEP), which will assign two female health workers in each community, supported by health centers and several thousands of trained medical officers. As of 2005, the government of Ethiopia has shown a substantial progress in expanding and improving health services through continuum of care model; furthermore, the country is moving from strategies and policy development to implementation and incorporating these intervention strategies into the Ethiopia's major policy initiatives programs. This approach coincides with the United Nation's Millennium Project task force for the new focuses in the rights of mothers and children, investment in newborn health, and for integrated system [25].

Reproductive Health in Rural Amhara Region

The Amhara National Regional State is one of the Federal Regional States of Ethiopia, consisting of ten zones Bahir Dar is the regional capital city (See Figure 4).

Figure 4: Map of Ethiopia[26]



The Amhara region has 106 woredas (districts) and 208 towns. The lowest administrative units are kebeles. The Amhara region has a population of 17.3 million whom 8.6 million were men and 8.5 million women (See Figure 4) [27]. About 88 percent of the inhabitant lives in rural areas and 12 percent in urban areas [27]. In the same manner most of the Amhara women live in rural areas (See Figure 5).

Figure 5: Population Pyramid for Amhara Region Ethiopia 2007: Ethiopia Census Bureau

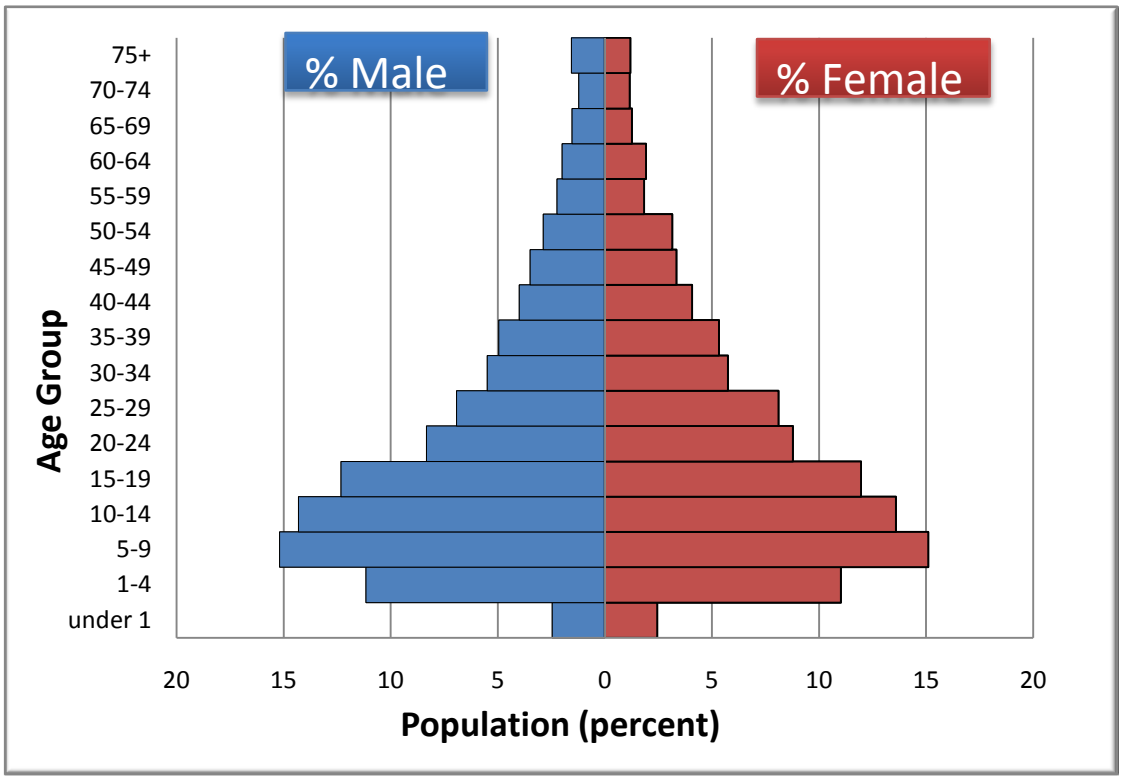
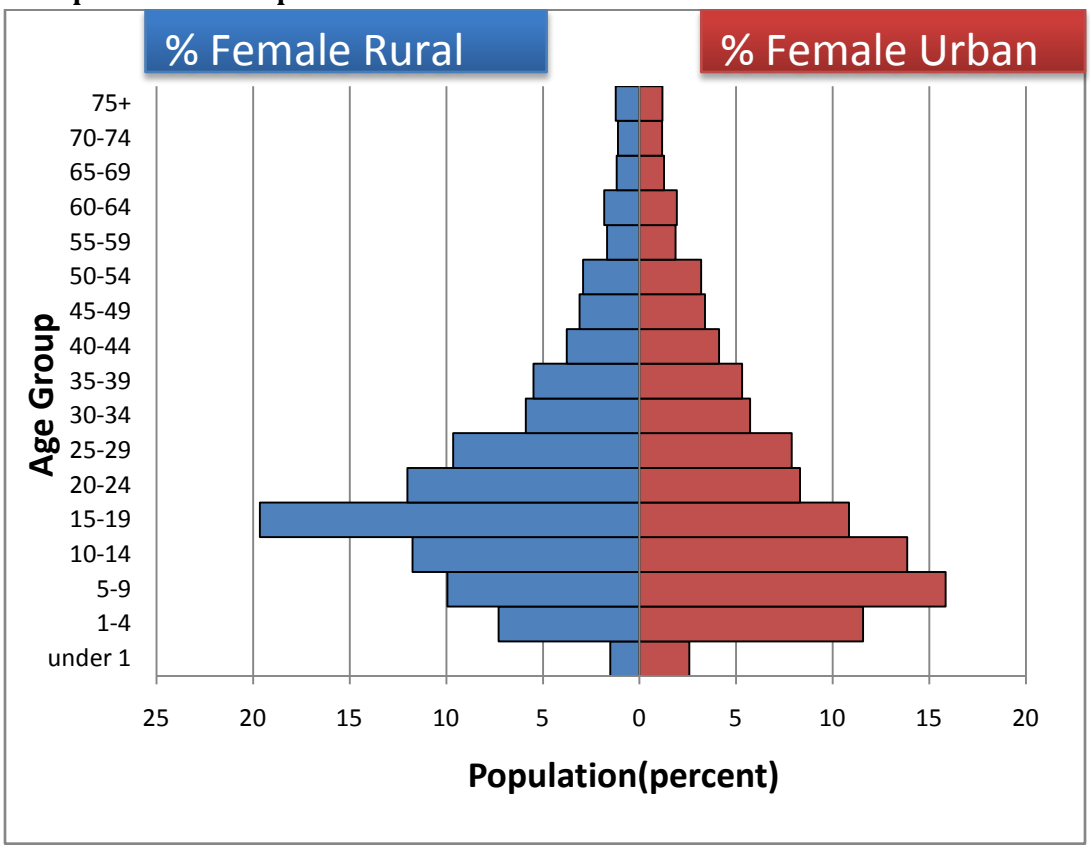
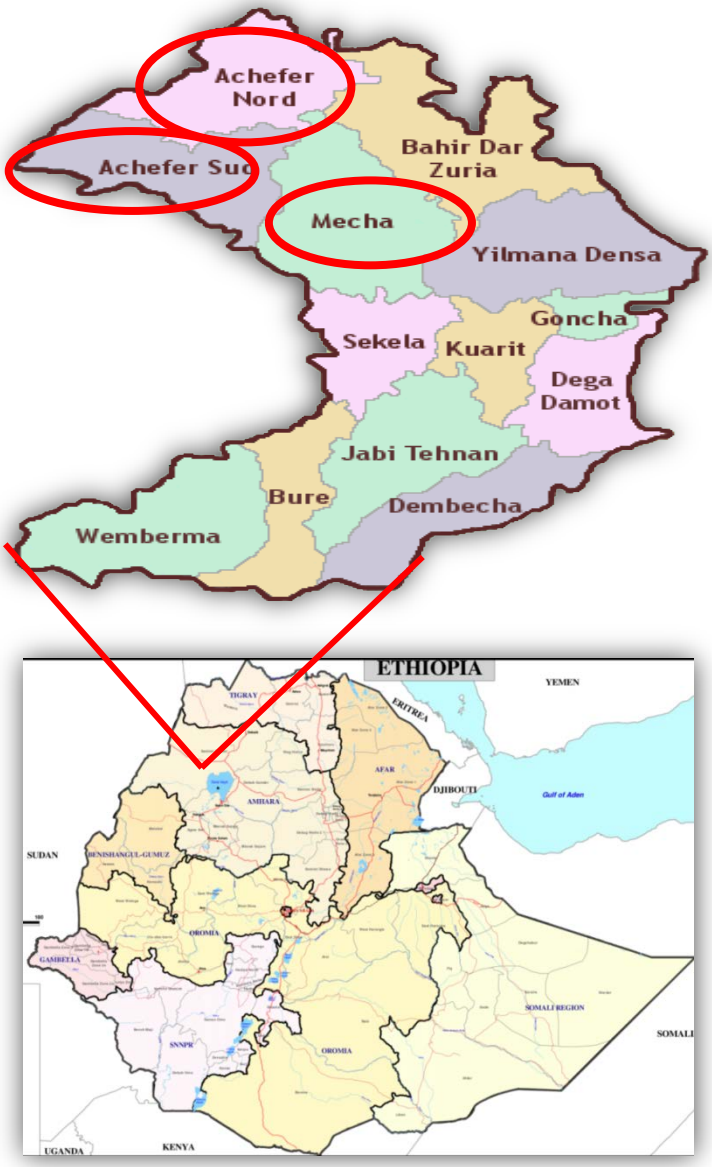


Figure 6 : Population Pyramid of Females by Place of Residence Amhara Region Ethiopia 2007: Ethiopia Census Bureau



The North *Achefer woreda* has an estimated total population of 182,807, of whom 93,516 are men and 89,291 are women, and 7.5% of its population are urban dwellers [27, 28]. The South *Achefer woreda* has an estimated total population of 164,500, of whom 83,192 are men and 81,308 are women [29]. Also, *Mecha woreda* has an estimated total population 308,444 of whom 155,799 are men and 152,645 are women [30] (See Figure 6).

Figure 7: Map of Ethiopia Amhara Region Ethiopia[31]



Several studies indicated that sexual initiation and childbearing begins early, often having little knowledge of reproductive health services [32]. Particularly in Amhara region of Ethiopia, 50 percent of the girls get married before the age of 15 [33]. Even earlier by the age of nine or ten most of the girls are betrothed and they are sent to live with their future husband's family. The consequences of early marriage victimize the girls to gender-based violence, marital rape, sexual transmitted infections, obstructive labor and obstructive fistula. Early marriage is one of the many harmful traditional practices and young girls who are victims of early marriage suffer major physical, emotional, economical and socialdisadvantages . The total fertility rate (TFR) of the Amhara region was estimated at 5.1 children per women [1]. Traditionally, entry into marriage marks the start of sexual activity among women in Ethiopia. Thus, early marriage and onset of childbearing at young age are highly associated with high TFR (See Table 1).

Table 1: Mean Age at Marriage and First Birth, Amhara Region, 2000 [34]

Background Characteristics	First Marriage	First Birth
Residence		
Urban	15.41	18.80
Rural	14.04	18.13
Education		
No education	14.04	18.15
At least Primary	15.19	18.59
Total	**14.17**	**18.20**

Note: Means are calculated for women who have experienced each event, 88.0 percent of women who have ever married, and 76.0 percent of women who have had a first birth.

Education and religion have some association with the high fertility rate in Amhara region. One of the most consistent finding is the inverse relationship between education and fertility. The TFR of women with no education is 2.22 children greater than that for women with at least some primary schooling. In addition, the average number of children ever born is greater by two children for women with no education compared with women with some primary schooling [34]. In the aspect of the relationship between religion and TFR, the TFR for Orthodox women is 6.03 compared to 5.60 for Muslin women, and the average number of children ever born is 7.26 compared to 6.16 [34].

Ethiopia's Health Extension Program

Frontline Healthcare workers (HEWs, vCHWs, TBAs)

In Ethiopia, particularly in Amhara region, maternal, infant and under-five mortality rates are still the highest. In order to combat these burdens and achieve the health related Millennium Development Goals (MDGs), the Ethiopia government has formulated a serious of health development programs. One of the development approaches is the Health Extension Program (HEP) [35]. The HEP uses the concept and principles of Primary Health Care to improve the health status of families with their full participation, using local technologies and community's skill and wisdom. The main philosophy of HEP is that if the right knowledge and skill are transferred to households they can take responsibility to produce and their own health [35]. In order to provide coverage for the entire country, the Ethiopian government planned to train and deploys 30,000 Health Extension Workers by the year 2009 [35].

A kebele is the smallest governmental administrative unit with an average of 5,000 populations. Each kebele has one Health Post and it is the operational center for two

HEWs. The health extension approach requires Health Extension Workers (HEWs) to spend 75 percent of their time conducting outreach activity by visiting households and spend 25 percent of their time in health post [35]. In addition, the HEWs are expected to interact and teach mothers how to care for newborn, prepare nutritious meal, and construction of latrines and proper disposal of wastes. The main three approaches the HEWs utilize are:

Model Family

The HEWs identify and train model families that have acceptance and credibility by the community in order to help diffuse health messages leading to the adoption of the desired practices and behaviors by the community [35].

Community Based Health Packages

This approach utilizes women, youth, and traditional associations where the community members participate by providing money, raw materials, and labor. HEWs communicate health messages by involving these associations from the planning stage all the way through evaluation [35].

Health Posts

Each *kebele* has a Health Post and two HEWs and provide antenatal care, delivery, immunization, growth monitoring, nutritional advice, and family planning and referral services [35].

In addition to HEWs, voluntary Community Health Workers (vCHWs) and Trained Birth Attendants (TBAs) provide a wide range of maternal and child care to improve the health status of mothers and their families.

Summary

Trust is one of the defining elements in any interpersonal relationship between care provider and care receiver. Perceived maternal trust on Frontline Team Workers is an important and useful indicator for measuring women's need for health care services and meeting the WHO continuum of care. The relationship between the continuum of care model and maternal trust requires further research, particularly in Ethiopia where the current government is scaling up the availability of Frontline Team Workers in most rural communities. It is essential to understand this relationship to guarantee basic health care and improve maternal and child health outcome in the country.

Chapter 3: Methodology

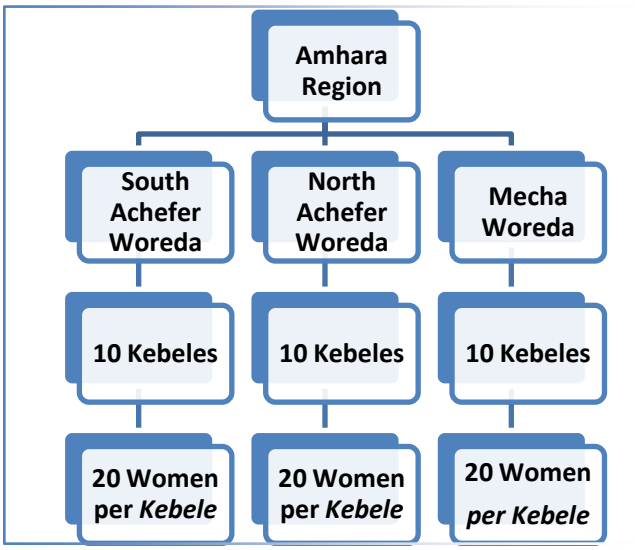
Study Population

Although high maternal and child mortality impacted most regions in Ethiopia, Amhara region was chosen for three reasons: (1) it is the focal point for maternal and child mortality; (2) mother's literacy is considered to be the lowest; and (3) previous reports indicated majority of the mothers reported experiencing the death of at least one of their children. Resources limited the survey to three *Woredas* in Amhara region (South *Achefer*, North *Achefer* and *Mecha*). The survey was conducted in 30 *kebeles*; 10 *kebeles* were randomly selected from each of the three *Woredas (*See Figure 5). The target population for the surveys was women who have had a birth in the 12-month period before the data collection. Given that this was a reproductive health survey, the population of interest was women between 15 and 49 years of age, which is the standard measure of women of reproductive age.

Sample Size and Research Design

The target sample was 600 women of reproductive age in the three *Woredas*, based on women who have had a birth in the last 12 months. It was proposed to interview 20 women per *kebele*, for the total sample size of 600 women (See Figure 5). The 20 women per *kebele* were chosen randomly. Starting for the center of the *kebele*, every fifth house was sampled until the sample size of 20 women per *kebele* was reached. The final sample size consisted of 496 women of reproductive age who had given birth in the 12-month period preceding the data collection. The present analysis centered on the population of 496 women who had given birth in the 12-month period preceding the data collection.

Figure 8: Study Population and Methodology for Study Sample size Design



Procedures

20 interviewers collected the survey data, 15 women and 5 men and they were chosen from Bahir Dar University (nurses, graduate students and under graduate students). The interviewers received one-week intensive training course. The training course for the data collectors included basic interviewing techniques, a review of Maternal and Neonatal Health (MNH) in order the interviewers understand what they were asking, dialogue on local terminologies on MNH and instruction on ethical treatment of study participants. The training focused on to make the interviewers to become comfortable with interviewing techniques and collecting sensitive data. After the completion of one week training, two-day pilot testing of the survey instrument was conducted and each interviewer conducted the survey at least once to identify issues with the survey questionnaire. (Dr. Rob Stephenson Emory University, Rollins School of Public Health)

Instrument

The survey questionnaire developed from the Demographic and Health Survey. The final instrument included ten sections: demographics, birth history, contraceptive use, general attitudes towards maternal care, knowledge of Frontline Healthcare Workers, prenatal, delivery and/or postpartum care, breastfeeding, harmful traditional practices, Home Based Life Saving Skills (HBLSS) package and practices, and community consensus.

The five sections used in this analysis were demographic information, birth history, general attitude towards maternal care, knowledge of Frontline Healthcare Workers, and prenatal, danger signs, delivery and/or postpartum care. The demographics section included age, religion, marital status, literacy, income, as well as husband's income and literacy. The birth history section included number of pregnancies, number of live births, number of children who died in first year and number of current living children by sex. The maternal care section integrated maternal trust, knowledge on who should provide care during antenatal, labor and postpartum, knowledge and trust of Health Extension Workers, knowledge and trust of Voluntary Community Health Workers, Knowledge and trust of Traditional Birth Attendants. The prenatal, delivery and postnatal care section included antenatal care during the last pregnancies; time elapsed before accessing the first antenatal care, number of antenatal care for the most recent pregnancy, antenatal care provider, place of delivery, and care during delivering and postnatal care.

IRB and Confidentiality

The study was exempt from the Emory Internal Review Board review because it was anonymous; only involved participation of the participants and was based on women who have had a birth in the last 12 months. Verbal consent was requested and obtained before

each interview and all the responses were kept confidential. Before leaving a *Kebele*, all the questioners were reviewed by the team leader of accuracy and completeness. All the required corrections to the questionnaires were made in the field. All the women that were interviewed were given a unique identification number based on their *woredas*. Data were entered into a computer system. Due to the anonymous nature of the survey, the present analysis was also exempt from Emory IRB for secondary data analysis (see Annex D).

Data Analysis

In order to perform univariate and ordinal logistic regression SAS® 9.2 was used to analyze the data. The current analysis used demographic information, birth history, general attitude towards maternal care providers, knowledge of Frontline Healthcare Workers, and prenatal, danger signs, delivery and/or postpartum care of the survey to investigate the relationship between WHO continuum of care model and perceived maternal trust of the Frontline Healthcare Workers (HEWs, vCHWs, TBAs).

Variable Recoding and Creation

Maternal age (Question 2) was recoded into six level including 'don't know age' for mother who did not know their actual age. A variable for literacy (Question 6 and 13) was created with three levels: 1-4 years of schooling, 5-8years of schooling and 9-12 years of school attended.

Three levels of maternal care providers were recoded (Question 28-39): the variable *highly trained* care providers include physicians, health officer/clinical officers, nurses, and midwifes. The variable *moderately trained* care providers include trained traditional birth attendants, health extension workers, and voluntary community health workers. The

variable *not trained* care providers includes untrained traditional birth attendants, family/friends/other non-trained, the mother herself, and do not know.

Pregnancies that have at least four antenatal visits (Question 64) were considered to have met the WHO standard and were classified as having received a sufficient amount of care. Those that received information on high fever, convulsion/fit/eclampsia, any amount of vaginal bleeding and retained placenta during the antenatal visit(s) was considered to have met the WHO standards for quality of information received (Question 68) (see Annex C).Place of delivery where categorized into government hospitals/health center and own home (Question 73). In order to meet the WHO definition of skilled health care providers, Midwife, Nurses, Physician and clinical officers were put in one group (Question 75). Skilled health care providers were also categorized for postpartum care (Question 80) (see Annex C). The main outcome of 'trust' has five levels, 1 being the least trust and 5 being the most trust of FHWs to provide care during antenatal, delivery and postpartum care.

Univariate Analyses

Given that the immensity of the analysis focuses on the pregnancies of the 496 women who had given birth in the 12-months period, univariate analysis were performed to compare the demographics of this population. The variables included age, marriage age, religion, marital status; both the mother and the husband's schooling and literacy statues trust of antenatal, delivery and postpartum care providers.

Bivariate Analyses

Demographic, WHO continuum of care and knowledge, access and use of FHWs were stratified by education and land ownership to examine associations. The antenatal, delivery and postpartum care variables were stratified by education and land ownership as well. Chi-square tests were used to examine the relationships and look for associations within the continuum of care and education and landownership.

Ordinal Logistic Regression

Ordinal logistic regression was performed to examine the individual predictive values of the various component trusts on the FHWs (1) meeting the standard of care and (2) trusting of HEWs vCHWs and TBAs during antenatal, delivery and postpartum care.

Chapter 4: Results

Descriptive characteristics of the study population

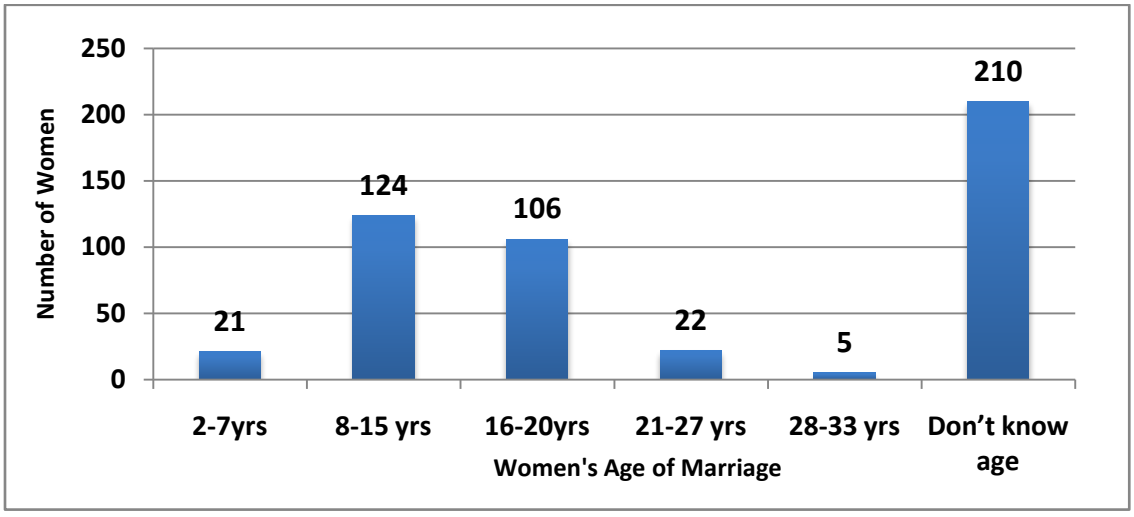
Of the 496 women sampled, the average age of the women was 25.7 years (SD=4.50). These women reported getting married at young age, the average marriage age was 15.2 years (SD=3.80). All the 496 women indicated having been pregnant in the previous years of the data collection June 2009-June2010 and 493 of the women reported giving live birth. Of the 493 live births, 85 of the children died in the first year of life, which indicated 17.2% of the children did not make it to the first year of life. The 496 women reported range of pregnancies between 1-14 and total numbers of 1947 pregnancies in their entire life (See Table 2).

Table 2 : Descriptive Analysis of Women's Age and Birth History in Amhara Region Ethiopia June-July 2010 (n=496)

Variables	N	Mean	Std Dev	Range
Age	492	25.7	4.50	15-40
Marriage Age	488	15.2	3.80	2-33
Number of Pregnancies	496	4.00	2.40	1-14
Number of live Birth	493	3.70	2.22	0-12
Number of Child death in the first year of life	85	1.30	0.70	1-5
Total frequency of Pregnancies	1947	146.8	108.8	1-14

Of the 488 women who indicated being currently married, 210 of the women reported not knowing their age of marriage, which was 43% of currently married women. The 230 of the women were married when they were between 8-20 years of age, which was 47% of the women. The 2-7 years of age of marriage reported to indicate verbal agreement of marriage between families, and it can occur as early as 2 years of age (See Figure 8).

Figure 9: Age of Marriage Women with birth in the past year in Amhara Region Ethiopia June- July 20101 (n=488)



Of the 492 women, 157(32%) women know neither their age during the survey nor the age they got married (See Table 3).Women ever attended school only 8(1.6%) do not know their age, compared with 177(36%) never attended school (See Table 4).

Table 3 : Distribution of known and unknown age by marriage age, women with Birth in the past year Amhara Region Ethiopia June-July 2010 (n=492)

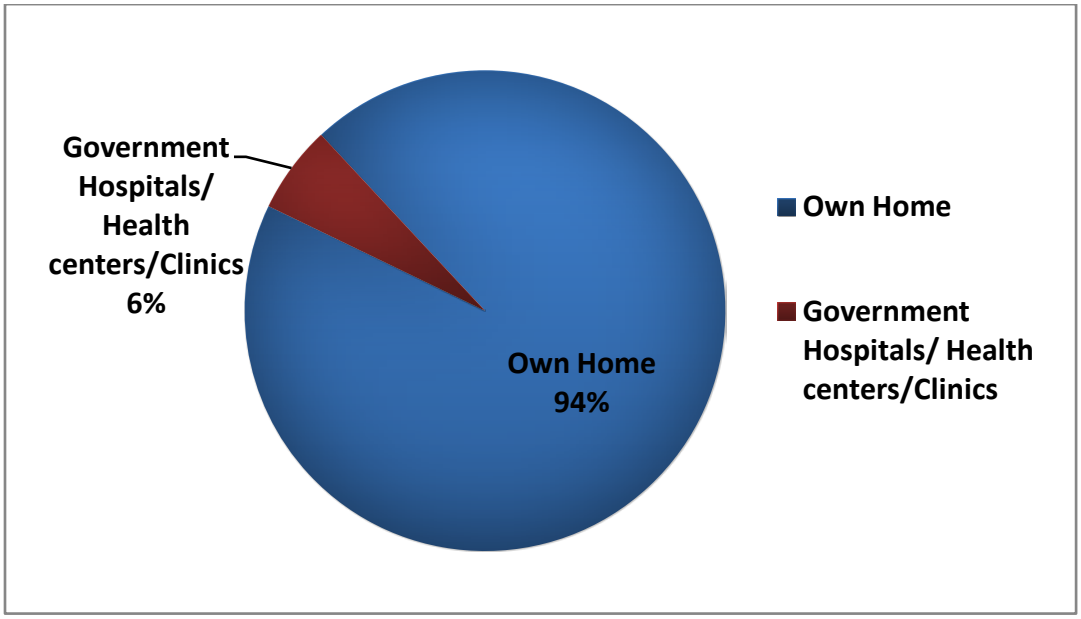
		Women's Age	
		known Age	Unknown Age
Women's Age of Marriage	Known Marriage Age	254(52%)	22(4.5%)
	Unknown Marriage Age	51(10%)	157(32%)

Table 4: Distribution of known and unknown age by education of women with Birth in the past year Amhara Region Ethiopia June-July 2010 (n=492)

		Women's Age	
		known Age	Unknown Age
Women's Age of Marriage	Ever Schooling	67(13.6%)	8(1.6%)
	Never Schooling	240(48.8%)	177(36%)

Of the 494 reported pregnancies between 2009-2010, 94% of the deliveries took place in the mother's home and only 6 % occurred in governmental hospitals or health centers (see Figure 9).

Figure 10: Place of Delivery of Women with Birth in the past year in Amhara Region Ethiopia June-July 2010 (n=496)



Demographics Characteristics

All the 496 women who were interviewed for this survey reported giving birth in the past year June 2009-June 2010. The majority of the 239 women of reproductive age were between the 20 and 34 years of age. Approximately 7.1% of the women were between 15-19 years and 6.5% between 35- 40 years of age. Close to 38% of the women did not know when they were born, thus failed to report their age. Even if 184 women identified not knowing their age, 122 women's household did own land. Most 95% women were married; 85% had never attended school and 67% of their spouses had never attended school as well. Out of 490 women only 74 women and 125 of husbands identified ever-attending school. Almost all 99.6% of the women identified as Christian Orthodox. When stratified by household owning land and household not owning land, as the age increases from 25 to 40 years of age household ownership of land also goes up. However, out of the 20 women who are either divorced/separated only 0.9% of them identified owning land.

Overall, the demographic characteristics matched the full sample size of 496 women with birth in the past year 2009-2010. Only 12 out of 496 women identified attending school for 9-12 years (See Table 5).

Table 5: Demographic characteristics of Women with birth in the past year by Land Ownership Amhara region Ethiopia June- July 2010

	Total		Land Ownership				
			Household do not own land		Household own land		
	n	%	n	%	n	%	P-Value
Age	**Total**	**n=490**	**Total**	**n=163**	**Total**	**n=327**	**0.006***
15-19 years	35	7.1%	13	8.0%	22	6.7%	
20-24 years	94	19.2%	47	28.8%	47	14.4%	
25-29 years	88	18.0%	36	22.1%	52	16.0%	
30-34 years	57	11.6%	4	2.5%	53	16.2%	
35-40 years	32	6.5%	1	0.6%	31	9.5%	
Reported unknown Age							
Don't know age	184	37.6%	62	38.0%	122	37.3%	
Religion	**Total**	**n=493**	**Total**	**n=166**	**Total**	**n=327**	**0.320**
Christian Orthodox	491	99.6%	166	100.0%	325	99.4%	
Christian Protestant	2	0.4%	0	-	2	0.6%	
Marital Status	**Total**	**n=493**	**Total**	**n=165**	**Total**	**n=328**	**0.0001***
Single & never Married	2	0.4%	1	0.6%	1	0.3%	
Married	470	95.3%	147	89.1%	323	98.5%	
Divorced/Separated	20	4.1%	17	10.3%	3	0.9%	
Widowed	1	0.2%	0	-	1	0.3%	
Schooling (women)	**Total**	**n=494**	**Total**	**n=166**	**Total**	**n=328**	**0.057**
Ever attended	74	15.0%	32	19.3%	42	12.8%	
Never attended	420	85.0%	134	80.7%	286	87.2%	
Literacy (women)	**Total**	**n=74**	**Total**	**n=32**	**Total**	**n=42**	**0.032***
9-12 yrs Schooling	12	16.2%	6	18.8%	6	14.3%	
5-8 yrs Schooling	26	35.1%	15	46.9%	11	26.2%	
1-4 yrs Schooling	36	48.7%	11	34.4%	25	59.5%	
Schooling (Husband)	**Total**	**n=469**	**Total**	**n=145**	**Total**	**n=324**	**0.068**
Ever attended	125	26.7%	47	32.4%	78	24.1%	
Never attended	314	67.0%	90	62.1%	224	69.1%	
IDK	30	6.4%	8	5.5%	22	6.8%	
Literacy (Husband)	**Total**	**n=118**	**Total**	**n=45**	**Total**	**n=73**	**0.2685**
9-12 yrs Schooling	12	10.17%	5	11.1%	7	9.6%	
5-8 yrs Schooling	53	44.9%	24	53.3%	29	39.7%	
1-4 yrs Schooling	53	44.9%	16	35.6%	37	50.7%	

* Statistically significant

Continuum of Care and WHO Standards

Of the 494 reported pregnancies between 2009-2010, approximately 13% (p=0.88) had at least four antenatal visits, 6.7% (p=0.14) were attended by a trained health professional at delivery and 12% (p=0.41) had a postpartum visit within six weeks. About 32% (p=0.88) received the full continuum of care, which consisted at least four antenatal visits, delivery by a skilled attendant and one postpartum visit. When stratified by land ownership, lower portion of pregnancies of women whose household did not own land received proper continuum of care. For example, household that did not own land, 41% (p=0.052) received sufficient information on breast-feeding, 10% (p=0.0002) on birth plan, 37% (p=0.97) on danger signs, 23% (p=0.017) on emergencies preparedness and only 10% (p=0.41) on postpartum care.

In addition, when stratified by land ownership, lower portion of pregnancies of women whose household did not own land received low proportion on postpartum sufficient information. For example, household that did not own land, 28% (p=0.04) of the mothers informed to get sufficient rest after giving birth, 43 %(0.008) to exclusively breast feed for 6 months and 0% on prevention and detection of complications after giving birth (See Table 6).

Approximately 51% (p=0.31) of all pregnancies met the WHO standard for quality education at antenatal visits, which included sufficient information on breastfeeding, birth plan, danger signs, emergency preparedness and postpartum care. The survey question did not ask the women about syphilis test, tetanus toxoid vaccination, receiving iron tablets and regular blood pressure checkups. Thus, the information is not available for this analysis. Approximately 35% (p=0.0031) met the WHO Standards for quality

education at the postpartum visit, which included receiving information on breastfeeding, immunizations and contraception (See Table 6).

Table 6: Proportion of pregnancies that meet WHO standards of care, by Land Ownership; Women with birth in the past year Amhara region Ethiopia June- July 2010

WHO Standard	Total (n=494)		Land Ownership				P Value
			Household do not own land (n=166)		Household do own land (n=328)		
Continuum	n	%	n	%	n	%	
Antenatal Visits	208	42.1%	72	43.4%	136	41.5%	0.85
Full[1]	157	31.8%	55	33.3%	102	30.1%	0.88
4 or more Visits	65	13.3%	23	31.9%	42	30.9%	0.88
Antenatal Sufficient Information[2]							
Breast Feeding	228	46.2%	68	41%	159	48.5%	0.052
Birth plan	96	19.4%	17	10.2%	79	24.1%	0.0002*
Danger Signs	184	30.82%	62	37.4%	122	37.2%	0.9733
Emergency preparedness	148	24.8%	38	23%	109	33.2%	0.017*
Postpartum care	60	12.1%	17	10.2%	42	12.8%	0.4065
Delivery care							
Skilled attendant	33	6.7%	15	9.0%	18	5.5%	0.14
Postpartum Visit[3]							
Visit in first 6 weeks[3]	59	12.0%	17	10.2%	42	12.8%	0.41
Postpartum Sufficient Information[4]							
Sufficient rest	171	34.6%	47	28.3%	123	37.6%	0.04*
6 months exclusive BF	254	51.3%	71	42.77%	181	55.4%	0.008*
Prevention and detection of complications (Bleeding)	1	0.2%	0	0%	1	0.3%	0.477

**Statistically significant*

[1] At least four antenatal visits, a skilled attendant at delivery and postpartum visit in the first six weeks

[2] Received sufficient information on breastfeeding, birth plan, danger signs, emergency preparedness and postpartum care.

[3] WHO recommends a postpartum visit within the first week of delivery, but the reproductive health survey only asked about care received in the first six weeks.

[4] Received information to rest for at least 12 days after birth, 6 months exclusive breastfeeding, and given misoprostol to prevent bleeding.

Having at least some access to school education appears to influence whether or not care was received during or after pregnancy. For example, 44% (p=0.0003) of the pregnancies of women never attended school received some antenatal visits, compared with 67% (p=0.0003) of the pregnancies of women ever-attended school. The same kind of trend can be seen the breakdown of continuum of care: among women never attended school 29% (p=0.14) of the pregnancies had at least four or more antenatal visit, 5% (p=0.0001) has skill attendant during delivery and 11% (p=0.13) has postpartum visit in the first 6 weeks. Conversely, 40% (p=0.14) of the pregnancies of women ever attended school had at least four or more antenatal visit, 18% (p=0.0001) has skill attendant during delivery and 17% (p=0.13) has postpartum visit in the first 6 weeks (See Table 7).

For example, women never attended school, 46% (p=0.73) received sufficient information on breast-feeding, 19% (p=0.87) on birth plan, 36% (p=0.41) on danger signs, 27% (p=0.0036) on emergencies preparedness and only 11% (p=0.131) on postpartum care.

Lower portion of pregnancies of women never attended school received low proportion on postpartum sufficient information. For example women never-attended school, 34% (p=0.77) of the mothers informed to get adequate rest after giving birth, 49 %(0.033) to exclusively breast feed for 6 months and 0% on prevention and detection of complications after giving birth (See Table 7).

Table 7: Proportion of pregnancies that meet WHO standards of care, by School Attended; Women with birth in the past year Amhara region Ethiopia June- July 2010

WHO Standard	Total (n=496)		School Attended				P-value
			Never Attended (n=421)		Ever Attended (n=75)		
Continuum	n	%	n	%	n	%	
Antenatal Visits	235	47.3%	185	43.9%	50	66.7%	0.0003*
Full[1]	159	32.0%	113	33.3%	46	30.1%	0.0001*
4 or more Visits	66	13.3%	47	29.0%	19	40.4%	0.14
Antenatal Sufficient Information[2]							
Breastfeeding	228	46.2%	194	46.1%	34	45.3%	0.73
Birth plan	96	19.4%	81	19.2%	15	20%	0.87
Danger signs	184	30.82	153	36.3%	31	41.33%	0.41
Emergency preparedness	148	24.8%	115	27.3%	33	44.0%	0.0036*
Postpartum care	60	12.1%	47	11.2%	13	17.33%	0.131
Delivery Care							
Skilled attendant	33	6.7%	19	4.5%	14	18.7%	0.0001*
Postpartum Visit[3]							
Visit in first 6 weeks[3]	60	12.1%	47	11.2%	13	17.3%	0.13
Postpartum Sufficient Information[4]							
Sufficient rest	171	34.6%	144	34.3%	27	36.0%	0.77
6 months exclusive BF	254	51.3%	207	49.3%	47	62.7%	0.033*
Prevention and detection of complications (Bleeding)	1	0.2%	0	0%	1	1.35%	0.017*

**Statistically significant*

[1]At least four antenatal visits, a skilled attendant at delivery and postpartum visit in the first six weeks

[2] Received sufficient information on breastfeeding, birth plan, danger signs, emergency preparedness and postpartum care.

[3] WHO recommends a postpartum visit within the first week of delivery, but the reproductive health survey only asked about care received in the first six weeks.

[4] Received information to rest for at least 12 days after birth, 6 months exclusive breastfeeding, and given misoprostol to prevent bleeding.

Knowledge, access and use of Front-Line Healthcare Workers

Of the 496 reported pregnancies between 2009-2010, 61% (p=0.0006) heard of Health Extension Workers (HEWs), 18% (p=0.006) heard of Volunteer Community Health Workers (vCHWs) and 79% (p=0.12) heard of Trained Birth Attendants (TBAs).

308 pregnancies between 2009-2010 indicated having heard of HEWs. Out of the 308 women who heard of the HEWs, 94% (p=0.74) of the women indicated knowing the HEWs in their *kebele*, 86% (p=0.74) of the women indicated how to reach the HEWs if they needed help. About 89% (p=0.17) had at least used the services of a HEWs. This result indicated that if the women heard of the HEWs, there is a greater probability of knowing the HEWs in the *kebele*, being able to reach the HEWs and use the services when it needed (See Table 8).

Of 496 women with pregnancies between 2009-2010, 90 (18.1%) indicated having heard of vCHWs. Out of the 90 women who heard of the cVHWs, 86% (p=0.72) of the women indicated knowing the vCHWs in their kebele, 86% (p=0.72) of the women indicated being able to reach the vCHWs if they needed help. 83% (p=0.91) had at least used the services of a vCHWs. This result indicated that if the women heard of the vCHWs, there is a greater probability of knowing the vCHWs in the kebele, being able to reach the vCHWs and use the services when it needed.

Of 496 women who had pregnancies between 2009-2010 393(79.2%) indicated having heard of TBAs. Out of the 393 women who heard of the TBAs, 96% (p=0.21) of the women indicated knowing the TBAs in their kebele,95% (p=0.05) of the women indicated being able to reach the TBAs if they needed help. 90% (p=0.02) had at least used the services of a TBAs. This result indicated that if the women heard of the TBAs,

there is a greater probability of knowing the TBAs in the kebele, being able to reach the TBAs and use the services when it needed.

When stratified by land ownership, lower portion of pregnancies of women whose household did not own land have some knowledge, access and use of Frontline Healthcare workers (HEWs, VCHWs, TBAs). For example, household that did not own land only 28%(p=0.0006) heard of HEWs, 21% (p=0.006)heard of vCHWs and 35% (p=0.12) heard of TBAs, whereas household owned land, 72% (p=0.006) heard of HEWs, 79% (p=0.006) heard of vCHWs and 68% (p=0.12) heard of TBAs (See Table 8).

Table 8: Proportion of knowledge, access and use of Front-Line Healthcare Workers (HEW, vCHW, TBA) by Land ownership of Women with birth in the past year Amhara Region Ethiopia June- July 2010

Knowledge, access and use of Front-Line Healthcare Workers	Total (n=496)		Land Ownership				P Value
			Household do not own land		Household do own land		
Heard of Health Extension Workers (HEW)	**n=308**	**61%**	**n=87**	**28%**	**n=221**	**72%**	0.0006*
Use	274	89.0%	74	85.1%	200	90.5%	0.17
Knowledge/*Kebele*	288	93.5%	82	94.3%	206	93.2%	0.74
Access	260	86.4%	67	79.8%	193	88.9%	0.04*
Heard of Volunteer Community Health Workers (vCHW)	**n=90**	**18%**	**n=19**	**21%**	**n=71**	**79%**	0.006*
Use	75	83.3%	16	84.2%	59	78.9%	0.91
Knowledge/*Kebele*	78	86.7%	16	84.2%	62	87.3%	0.72
Access	68	75.6%	12	63.2%	56	78.9%	0.16
Heard ofTrained Birth Attendant (TBA)	**n=393**	**79%**	**n=125**	**32%**	**n=268**	**68%**	0.12
Use	356	90.6%	107	85.6%	249	92.9%	0.02*
Knowledge/*Kebele*	378	96.2%	118	94.4%	260	97.0%	0.21
Access	374	95.2%	115	92.0%	259	96.6%	0.05*

**Statistically significant*

Having at least some access to school education appears to not influence whether or not hearing about the Frontline Healthcare Workers during pregnancy. For example, 82 % (p=0.31) of the pregnancies of women never attended school heard of the HEWs, compared with 18% (p=0.31) of the pregnancies of women ever-attended school. The same kind of trend can be seen for vCHWs and TBAs: among women never attended school 77% (p=0.14) of the pregnancies heard of vCHWs, compared with 23% (p=0.14) of the pregnancies of women ever-attended school. Again, among women never attended school 84% (p=0.27) of the pregnancies heard of TBAs, compared with 16% (p=0.27) of the pregnancies of women ever-attended school (See Table 9).

Table 9: Proportion of knowledge, access and use of Front-Line Healthcare Workers (HEW, vCHW, TBA) by Schooling of Women with birth in the past year Amhara region Ethiopia June-July 2010

Knowledge, access and use of Front-Line Healthcare Workers	**Total (n=493)**		**School Attended**				**P Value**
			Never attended		**Ever attended**		
Heard of Health Extension Workers (HEW)	n=310	62%	n=253	82%	n=57	18%	0.31
Use	275	88.7%	226	89.3%	49	86.0%	0.79
Knowledge/Kebele	290	93.6%	236	93.3%	54	94.7%	0.66
Access	262	86.5%	208	84.6%	54	94.7%	0.05*
Heard of Volunteer Community Health Workers (vCHW)	n=91	18%	n=70	77%	n=21	23%	0.14
Use	76	83.5%	58	82.7%	18	85.7%	0.86
Knowledge/Kebele	79	86.8%	60	85.7%	19	90.5%	0.72
Access	69	75.8%	52	74.2%	17	81.0%	0.59
Heard of Trained Birth Attendant (TBA)	n=395	80%	n=332	84%	n=63	16%	0.27
Use	357	90.4%	308	92.8%	49	77.8%	0.002*
Knowledge/*Kebele*	380	96.2%	322	97.0%	58	92.1%	0.019
Access	376	95.2%	319	96.1%	57	90.5%	0.08

**Statistically significant*

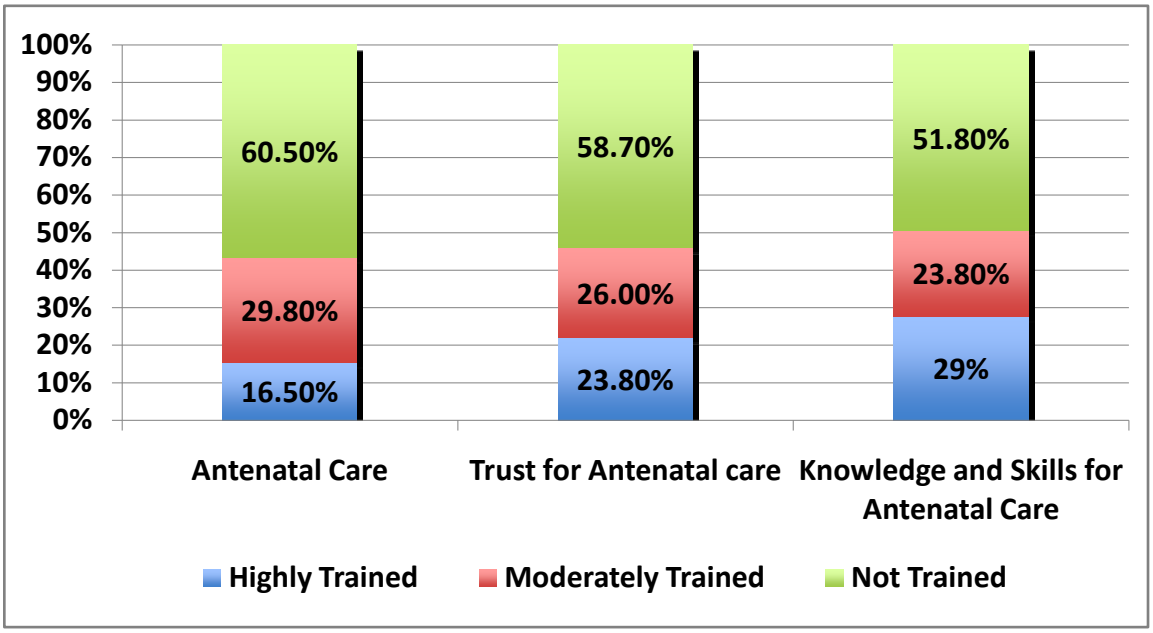
General Attitude of Care Provide during Antenatal, Labor and Delivery and Postpartum Care

For this analysis, *highly trained* maternal care providers include physicians, health officer/clinical officers, nurses, midwifes. *Moderately trained* maternal care providers include trained traditional birth attendants, health extension workers, and voluntary community health workers. *Not trained* maternal care providers include untrained traditional birth attendants, family/friends/other non-trained, the mother herself, and do not know.

Of the 496 reported pregnancies between 2009-2010; mother's general attitude indicated, 300 (61%) of *not trained* care provider should provide antenatal care during pregnancies, compared with 148(30%) of *moderately trained* and 82(16%) of *highly trained* maternal care providers. The same kind of trend can be seen from women's attitude whom they do trust and they think have the knowledge and skills to provide care while they are pregnant. For example, 219(59%) of the women indicated they trust *not trained* care providers for antenatal care, compared with 129(26%) *moderately trained* and 118(24%) *highly trained* antenatal care providers (See Figure 11) (See Table 10).

Even though the mothers knew the antenatal care providers were *not trained*, they still indicated that the *not trained* personnel had the knowledge and skills to provide antenatal care. For instance, 257(52%) of the women indicated the *not trained* personnel had the knowledge and skills to provide antenatal care; compared with 118(24%) *moderately trained* and 144(29%) *highly trained* antenatal care providers (See Figure 11).

Figure 11: Women's Attitude of Antenatal care Providers, Trust for Antenatal Care Providers and the knowledge and the skills for the antenatal care providers Amhara Region Ethiopia June- July 2010 (n=496)

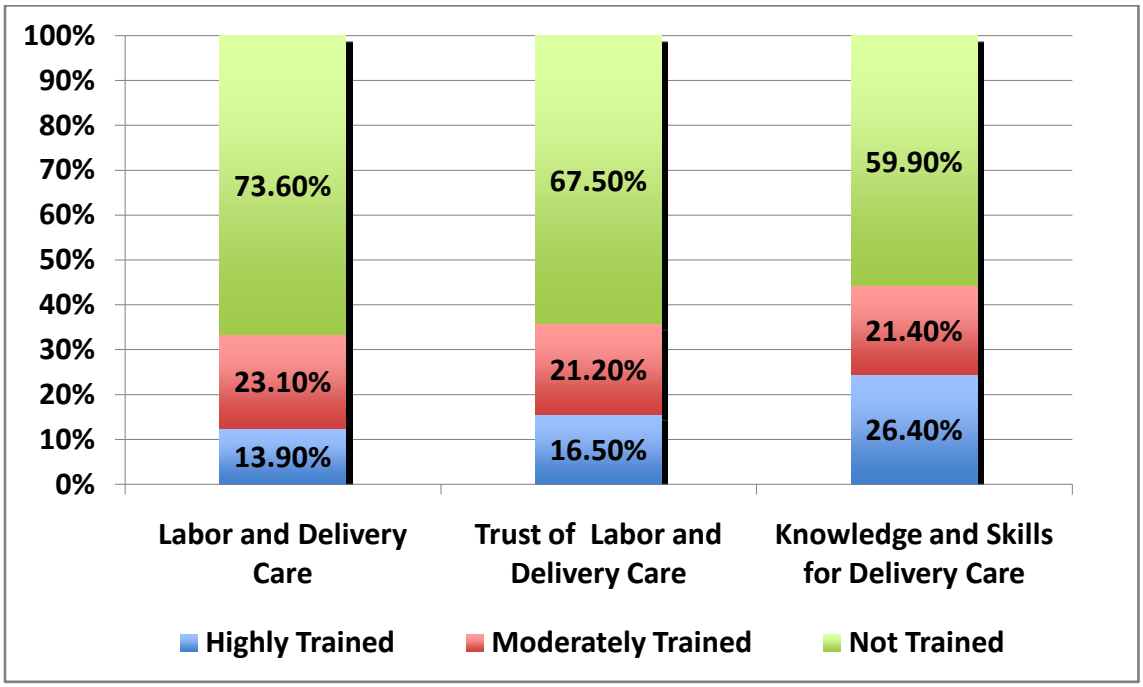


Of the 496 reported pregnancies between 2009-2010; mother's general attitude indicated, 365 (74%) of *not trained* care provider should provide labor and delivery care, compared with 115(23%) of *moderately trained* and 69(14%) of *highly trained* care providers. The same kind of trend can be seen from women's attitude whom they do trust and they think have the knowledge and skills to provide labor and delivery care. For example, 335(66%) of the women indicated they trust *not trained* labor and delivery care provider for antenatal care, compared with 129(26%) *moderately trained* and 118(24%) *highly trained* labor and delivery care provider (See Figure 12) (See Table 10).

Although the mothers knew the labor and delivery care providers were *not trained*, the mothers still indicated that the *not trained* personnel had the knowledge and skills to provide labor and delivery care. For instance, 297(60%) of the women indicated the *not trained* labor and delivery personnel had the knowledge and skills to provide labor and

delivery care; compared with 106(21%) *moderately trained* and 131(26%) *highly trained* labor and delivery care providers (See Figure 12).

Figure 12: Women's Attitude of Labor and Delivery Care Providers, Trust for Labor and Delivery Care Providers and the knowledge and the skills for the Labor and Delivery care providers, Amhara Region Ethiopia June-July 2010 (n=496)



Of the 496 reported pregnancies between 2009-2010; mother's general attitude indicated; 442 (89%) of *not trained* care provider should provide postpartum care, compared with 7(1.4%) of *moderately trained* and 21(4.2%) of *highly trained* postpartum care providers. The same kind of trend can be seen from women's attitude whom they do trust and they think have the knowledge and skills to provide postpartum care. For example, 434(88%) of the women's indicated they trust *not trained* postpartum care provider, compared with 6(1.2%) *moderately trained* and 27(5.4%) *highly trained* postpartum care provider (See Table 10).

Although the mothers knew the postpartum care providers were *not trained*, the mother still indicated that the *not trained* personnel had the knowledge and skills to provide postpartum care. For instance, 413(83%) of the women indicated the *not trained* postpartum care provider had the knowledge and skills to provide postpartum care; compared with 7 (1.4%) *moderately trained* and 53 (11%) *highly trained* postpartum care providers (See Figure 13) (See Table 10).

Figure 13: Women's Attitude of Postpartum care Providers, Trust of Postpartum Care Providers and knowledge and the skills of the Postpartum care Provider, Amhara Region Ethiopia June- July 2010 (n=496)

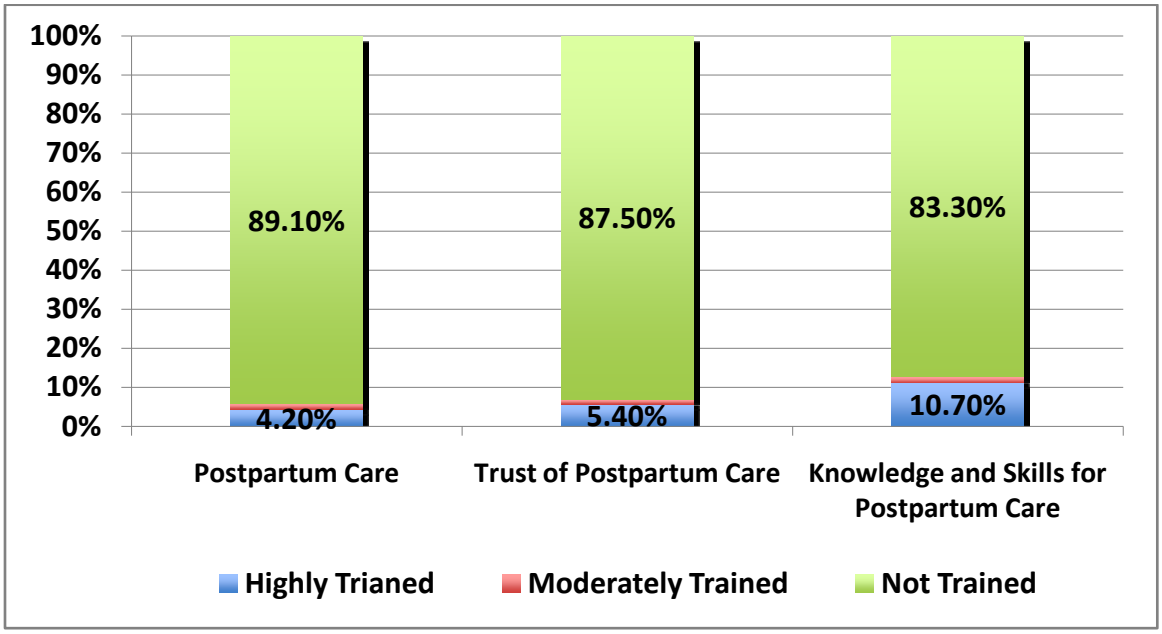


Table 10:Proportion of general attitude who should provide care during Antenatal, labor and delivery and postpartum care, Women with birth in the past year Amhara region Ethiopia June- July 20101[1]

Women's Attitude	Maternal Care providers		
	Highly Trained [2] (n=496)	Moderately Trained[3] (n=496)	Not Trained[4] (n=496)
Antenatal			
Antenatal care	82(16.5%)	148(29.8%)	300(60.5%)
Trust for Antenatal care	118(23.8%)	129(26.0%)	291(58.7%)
Knowledge and skills for Antenatal care	144(29.0%)	118(23.8%)	257(51.8%)
Labor and Delivery			
Labor and delivery care	69(13.9%)	115(23.1%)	365(73.6%)
Trust of labor and delivery care	82(16.5%)	110(21.2%)	335(67.5%)
Knowledge and skills for labor and delivery care	131(26.4%)	106(21.4%)	297(59.9%)
Postpartum			
Postpartum Care	21(4.2%)	7(1.4%)	442(89.1%)
Trust for postpartum care	27(5.4%)	6(1.2%)	434(87.5%)
Knowledge and skills for postpartum care	53(10.7%)	7(1.4%)	413(83.3%)

[1]Multiple answers were allowed to indicate who should provide antenatal, labor and delivery and postpartum care

[2]Highly trained care providers include physicians, health officer/clinical officers, nurses, midwifes

[3]Moderately trained care providers include trained traditional birth attendants, health extension workers, and voluntary community health workers

[4]Not trained care providers includes untrained traditional birth attendants, family/friends/other non-trained, the mother herself, and don't know.

Perceived Maternal Trust of Frontline Healthcare Workers

Perceived maternal trust of HEWs for antenatal, delivery and postpartum care

Knowledge, access and previous use of HEWs during pregnancies, delivery and postpartum care were found to increase the odds of subsequent maternal trust of HEWs for antenatal, deliver and postpartum care. For Example, women who knew the HEWs in their *kebele* are associated with 4.81 times higher odds having more trust, when compared to women who did not know their HEWs in their *kebele* for antenatal care. Similarly, women who knew how to reach the HEWs in their *kebele* are associated with 4.15 times higher odds having more trust, when compared to women who didn't know how to reach their HEWs in their *kebele* for antenatal care (See Table 11).

Correspondingly**,** those women reported knowing the HEWs in their *kebele* are associated with 3.53 times higher odds having more trust, when compared to women who did not know their HEWs in their *kebele* for labor and delivery care. Similarly, women who knew how to reach the HEWs in their *kebele* are associated with 3.79 times higher odds having more trust, when compared to women who didn't know how to reach their HEWs in their *kebele* for labor and delivery care (See Table 11).

Equally, women who indicated knowing the HEWs in their *kebele* are associated with 5.68 times higher odds having more trust, when compared to women who did not know their HEWs in their *kebele* for postpartum care. Similarly, women who knew how to reach the HEWs in their *kebele* are associated with 5.6 times higher odds having more trust, when compared to women who didn't know how to reach their HEWs in their *kebele* for postpartum care (See Table 11).

Table 11: Logistic Regression Analysis of Women's Trust of HEWs for Antenatal, Labor & Delivery and Postpartum care (N=496)

Logistic Regression Analysis of Women's Trust of HEWs for Antenatal care (N=496)							
	β	**β(SE)**	**Wald χ^2**	***df***	***p***	***e* β (Odds ratio)**	**95%CI**
Education	0.075	0.265	0.08	1	0.7770	1.078	0.641-1.811
Wealth	0.365	0.231	2.492	1	0.1140	1.440	0.916-2.266
Know HEW	1.572	0.445	12.501	1	0.0004*	4.814	2.014-11.503*
USED HEW	1.165	0.336	12.50	1	0.0005*	3.204	1.660-6.185*
Reach HEW	1.425	0.316	20.30	1	0.0001*	4.157	2.237-7.726*
Test			**χ^2**	***df***	***p***		
Overall Model Evaluation							
Likelihood ratio			31.56	5	0.0001*		
Score			30.71	5	0.0001*		
Wald			27.40	5	0.0001*		
Logistic Regression Analysis of Women's Trust of HEWs for Labor & Delivery Care (N=496)							
Education	0.059	0.262	0.051	1	0.822	1.061	0.634-1.774
Wealth	0.260	0.228	1.295	1	0.255	1.296	0.829-2.027
Know HEW	1.261	0.440	8.227	1	0.004*	3.530	1.491-8.359*
USED HEW	0.879	0.333	6.957	1	0.008*	2.408	1.253-4.626*
Reach HEW	1.333	0.319	17.42	1	0.0001*	3.792	2.028-7.090*
Test			**χ^2**	***df***	***p***		
Overall Model Evaluation							
Likelihood ratio			23.37	5	0.0003*		
Score			22.94	5	0.0003*		
Wald			20.64	5	0.0009*		
Logistic Regression Analysis of Women's Trust of HEWs for Postpartum Care (N=496)							
Education	0.389	0.264	2.166	1	0.1411	1.475	0.879-2.476
Wealth	0.186	0.230	0.654	1	0.4186	1.204	0.768-1.888
Know HEW	1.736	0.485	12.81	1	0.0003*	5.675	2.193-14.687*
USED HEW	0.812	0.335	5.873	1	0.0154*	2.252	1.168-4.342*
Reach HEW	1.735	0.341	25.85	1	0.0001*	5.670	2.905-11.069*
Test			**χ^2**	***df***	***p***		
Overall Model Evaluation							
Likelihood ratio			35.89	5	0.0001*		
Score			32.28	5	0.0001*		
Wald			29.39	5	0.0001*		

**Statistically Significant*

Perceived maternal trust of vCHWs Workers for antenatal, delivery and postpartum care
Mainly access and previous use of vCHWs during pregnancies, delivery and postpartum care were found to increase the odds of subsequent maternal trust of vCHWs for antenatal, deliver and postpartum care. For Example, women who previously used the vCHWs in their *kebele* are associated with 8.5 times higher odds having more trust, when compared to women who did not previously used their vCHWs their *kebele* for antenatal care. Similarly, women who knew how to reach the vCHWs in their *kebele* are associated with 9.58 times higher odds having more trust, when compared to women who didn't know how to reach their vCHWs in their kebele for antenatal care (See Table 12).

Similarly**,** only those women reported knowing how to reach the vCHWs in their *kebele* are associated with 8.11 times higher odds having more trust, when compared to women who did not know how to reach their vCHWs in their *kebele* for labor and delivery care (See Table 12).

Equally, women who indicated knowing the vCHWs in their *kebele* are associated with 4.88 times higher odds having more trust, when compared to women who did not know their vCHWs in their *kebele* for postpartum care. Similarly, women who knew how to reach the vCHWs in their *kebele* are associated with 13.9 times higher odds having more trust, when compared to women who didn't know how to reach their vCHWs in their *kebele* for postpartum care (See Table 12).

Table 12: Logistic Regression Analysis of Women's Trust of vCHWs for Antenatal, Labor & Delivery and Postpartum care (N=496)

Logistic Regression Analysis of Women's Trust of vCHWs for Antenatal Care (N=496)							
	β	**β(SE)**	**Wald χ^2**	***df***	***p***	***e* β (Odds ratio)**	**95%CI**
Education	0.007	0.458	0.0002	1	0.987	1.007	0.411-2.470
Wealth	0.844	0.522	2.613	1	0.106	2.325	0.836-6.466
Know vCHWs	1.181	0.655	3.253	1	0.071	3.258	0.903-11.763
USED **v**CHWs	2.136	0.777	7.559	1	0.006*	8.464	1.846-38.812*
Reach vCHWs	2.260	0.612	13.64	1	0.002*	9.586	2.889-31.810*
Test			**χ^2**	***df***	***p***		
Overall model evaluation							
Likelihood ratio			25.830	5	0.0001*		
Score			18.820	5	0.0021*		
Wald			16.590	5	0.0053*		
Logistic Regression Analysis of Women's Trust of vCHWs for Labor and Delivery Care (N=496)							
Education	0.039	0.459	0.007	1	0.932	1.040	0.423-2.559
Wealth	0.526	0.499	1.004	1	0.292	1.691	0.637-4.493
Know vCHWs	1.046	0.652	2.577	1	0.108	2.847	0.794-10.209
USED vCHWs	2.846	1.034	7.577	1	0.663	17.218	2.270-130.622
Reach vCHWs	2.093	0.607	11.88	1	0.0006*	8.112	2.467-26.671*
Test			**χ^2**	***df***	***p***		
Overall Model Evaluation							
Likelihood ratio			26.31	5	0.0001*		
Score			17.82	5	0.0022*		
Wald			14.07	5	0.0152*		
Logistic Regression Analysis of Women's Trust of vCHWs for Postpartum Care (N=496)							
Education	0.0186	0.463	0.0016	1	0.9680	0.982	0.396-2.435
Wealth	0.7230	0.491	2.1695	1	0.1408	2.061	0.787-5.393
Know vCHWs	1.5847	0.703	5.0812	1	0.0242*	4.878	1.230-19.349*
USED vCHWs	2.2711	0.778	8.528	1	0.0035*	9.690	2.110-44.495*
Reach vCHWs	2.6314	0.666	15.617	1	0.0001*	13.893	3.767-51.233
Test			**χ^2**	***df***	***p***		
Overall Model Evaluation							
Likelihood ratio			26.74	5	0.0001*		
Score			19.79	5	0.0014*		
Wald			17.41	5	0.0038*		

**Statistically Significant*

Perceived maternal trust of TBAs Workers for antenatal, delivery and postpartum care

Wealth, knowledge, access and previous use of TBAs during pregnancies, delivery and postpartum care were found to increase the odds of subsequent maternal trust of TBAs for antenatal, deliver and postpartum care.

For example, those women where the household did own land are associated with 1.33 times higher odds having more trust on TBAs, when compared to women where the household did not own land for antenatal care.

Similarly, women who knew the TBAs in their *kebele* are associated with 5.97 times higher odds having more trust, when compared to women who did not know their TBAs in their *kebele* for antenatal care. Similarly, women who knew how to reach the TBAs in their *kebele* are associated with 3.68 times higher odds having more trust, when compared to women who didn't know how to reach their TBAs in their *kebele* for antenatal care (See Table 13).

Correspondingly**,** those women reported previous use of the TBAs is associated with 18.76 times higher odds having more trust, when compared to women who did not previously use TBAs for labor and delivery care. Similarly, women who knew how to reach the TBAs are associated with 6.77 times higher odds having more trust, when compared to women who did not know how to reach their TBAs for labor and delivery care (See Table 13).

Equally, women who indicated knowing the TBAs in their *kebele* are associated with 2.15 times higher odds having more trust, when compared to women who did not know their TBAs in their *kebele* for postpartum care. Similarly, women who knew how to reach the TBAs in their *kebele* are associated with 3.08 times higher odds having more trust, when compared to women who didn't know how to reach their TBAs in their *kebele* for postpartum care (See Table 13).

Table 13: Logistic Regression Analysis of Women's Trust of TBAs for Antenatal, Labor & Delivery and Postpartum care (N=496)

Logistic Regression Analysis of Women's Trust of TBAs for Antenatal Care (N=496)							
	β	**β(SE)**	**Wald χ^2**	**df**	***p***	***e* β (Odds ratio)**	**95%CI**
Education	0.3811	0.249	2.339	1	0.1260	0.683	0.419-1.113
Wealth	0.2844	0.197	2.093	1	0.1480	1.329	0.904-1.953
Know TBAs	1.7859	0.525	11.59	1	0.0007*	5.965	2.133-16.681*
USED TBAs	1.8908	0.335	31.85	1	0.0001*	6.625	3.436-12.775*
Reach TBAs	1.3032	0.448	8.457	1	0.0036*	3.681	1.529-8.860*
Test			**χ^2**	***df***	***p***		
Overall model evaluation							
Likelihood ratio			32.41	5	0.0001*		
Score			29.89	5	0.0001*		
Wald			31.43	5	0.0001*		
Logistic Regression Analysis of Women's Trust of TBAs for Labor and Delivery Care (N=496)							
Education	0.6573	0.253	6.741	1	0.0094*	0.518	0.316-0.851*
Wealth	0.7056	0.203	12.12	1	0.0005*	2.025	1.361-3.013*
Know TBAs	2.1354	0.517	17.06	1	0.0001*	8.460	3.071-23.306*
USED TBAs	2.9317	0.359	66.87	1	0.0001*	18.759	9.290-37.877*
Reach TBAs	1.9120	0.452	17.93	1	0.0001*	6.767	2.793-16.396*
Test			**χ^2**	***df***	***p***		
Overall Model Evaluation							
Likelihood ratio			73.34	5	0.0001*		
Score			62.45	5	0.0001*		
Wald			65.00	5	0.0001*		
Logistic Regression Analysis of Women's Trust of TBAs for Postpartum Care (N=496)							
Education	0.1997	0.245	0.661	1	0.4162	0.819	0.506-1.325
Wealth	0.3555	0.194	3.360	1	0.0668	1.427	0.976-2.087
Know TBAs	0.7636	0.504	2.289	1	0.1303	2.146	0.798-5.771
USED TBAs	1.2325	0.325	14.32	1	0.0002*	3.426	1.811-6.483*
Reach TBAs	1.1270	0.452	6.216	1	0.0127*	3.086	1.273-7.486*
Test			**χ^2**	***df***	***p***		
Overall Model Evaluation							
Likelihood ratio			17.70	5	0.0033*		
Score			16.93	5	0.0046*		
Wald			16.95	5	0.0046*		

**Statistically Significant*

Chapter5: Discussion

Summary of findings

This study examined the relationship between the WHO continuum of care model and maternal trust on the Frontline Healthcare Workers. Frontline Healthcare Workers are Health Extension Workers (HEWs), Voluntary Community Health Workers (VCHWs) and Trained Birth Attendants (TBAs). Trust on the Frontline Healthcare Workers was measured on five scales (5) being the most trust and (1) being the least trust during antenatal, labor /delivery and postnatal care. Univariate analysis was performed to compare the demographic characteristics of the 496 women who had given birth in the 12-month period preceding the data collection. Descriptive statistics were used to look at the general attitude of the mothers who did they think should provide care during antenatal, labor and delivery and postpartum care. Univariate analyses were performed to compare the characteristics of the women. Then bivariate analyses were used to look at the potential association between utilization of continuum of care and maternal literacy and socioeconomic status. Bivariate analyses were also used to look at the potential effect of the two variables (literacy and socioeconomic status) on knowledge, access and utilization of the Front-line Healthcare Workers.

Demographic characteristics

Statistically significant differences in women's age were found when stratified by household land ownership. The lack of statistically significant difference in religion when it is stratified by household that do own land and household that do not own land is a reflection of the complete homogeneity of Christian orthodox religion in Amhara region. The lack of statistically significant difference in education was observed for both women and their husbands when it was stratified by land ownership. This is a reflection of the near complete lack of education in

Amhara region. When comparing the marital status of women, significantly more women who identified as married, the household owned land.

Continuum of Care

Statically significant difference in utilization of the WHO standard of care was found when stratified by current land ownership and literacy. Significantly more pregnancies of women whose household owned land than household did not owned land-received information on breastfeeding, birth plan, danger signs, emergency preparedness and postpartum care. Significantly more women ever attended school than never attended school met the WHO standard of care. Furthermore, significantly more women identified ever-attended school than never-attended school identified having skilled attendant for delivery care.

Having at least four antenatal visits was significantly associated with the likelihood of having a skilled attendant at delivery and with having a postpartum visit within the first six weeks. Furthermore, having a skilled attendant at delivery significantly increased the odds of later having a postpartum visit.

Knowledge, Access and Use of Frontline Healthcare Works

Knowledge, access and utilization were all found to be significantly associated with maternal awareness of Frontline Health Workers (FHWs) during antenatal, delivery and postpartum care. Higher proportion of pregnancies of women whom the household owned land had higher knowledge, access and utilization of FHWs at all stage (antenatal, delivery and postpartum) and higher proportion of pregnancies of women with some school education had higher knowledge, access and utilization of FHWs at all stage. This is an expected finding, indicating higher wealth and some education potentially increase maternal health seeking behavior.

Relationships between CareProviders and Maternal Trust

Knowledge and skills of the care provider did not significantly impact the perception of maternal trust on the care provider. For example, even though highly trained health personnel had the knowledge and skills to provide care, most mothers indicated not trained health personnel should provide care during pregnancies, deliver and postpartum. Not trained care providers included untrained traditional birth attendants, family/friends/other non-trained, the mother herself. Trust is a central element in any interpersonal relationship between care provider and care receiver. This interpersonal relationship can be build through repeated interaction with the health care provider through which the person's trustworthy behavior can be noted over time. Mothers' being inclined to seek care from their family member other than trained health personnel proved the above point in which the less repeated interaction with the health care provider, the less perceived maternal trust. Even if the mothers indicated the highly trained health care personnel had the knowledge and skills, they rather receive care from family member for antenatal, deliver and postpartum care. The other explanation might be the accessibility of the health care provider. For example, not trained health care providers as family/friends and untrained traditional birth attendants are easily accessible and they are part of the community and the neighborhood system than the highly trained care provider. Thus, this makes the not trained health care providers to have a strong interpersonal relationship through which the person's trust worthy behavior is recognized among the community and the mothers.

Relationship between Trust and FHWs

Knowledge, access and previous use of the FHWs during antenatal, delivery and postpartum care significantly influenced maternal trust. For example, women who knew the TBAs in their *kebele* are associated with 5.97 times higher odds having more trust, when compared to women who did not know their TBAs in their kebele for antenatal care. Over the last century, TBAs have been trained and been the milestones of maternal health; this study also found that the previous use of TBAs indicated higher maternal trust compared to trust for HEWs or vCHWs. For example, those women reported previous use of the TBAs is associated with 18.76 times higher odds having more trust, when compared to women who did not previously use TBAs for labor and delivery care.

Implications and Strength of the Analysis

One of the strength of the analysis is that it looks at both individual and combined effect of meeting the WHO continuum of care on perceived maternal trust. The result demonstrated that women in Amhara region need access to this continuum if they are to have better health outcome. Having at least four antenatal visits is the key to ensure women receive subsequent cares at the standard set by the WHO. Wealth and education are also the indicators to ensure meeting the WHO standard. Given the effect that having a skilled attendant at delivery has only significant association with education but no significant association with income status, however, increased emphasis needs to be paid to (1) to increase number of skilled attendants at delivery and (2) increase the number of skilled attendants available in the region. The presence of skilled attendant will help to ensure the risk of postpartum hemorrhage, as well as identifying and treating complications early on in order to decrease maternal mortality. This analysis also showed whom the women consider to provide care during antenatal, delivery and postpartum

care. The result indicated that the majority of the women prefer their family member (not trained) to provide antenatal, delivery and postpartum care than trained health care provider. Furthermore, this analysis went in depth and examined whether or not maternal trust has a significant association with antenatal, delivery and postpartum care seeking behavior. The findings indicated a significant association between maternal trust with knowledge, access and previous use of the FHWs. If the mothers knew the FHWs in their kebele and previously utilized their services, the more likely the mothers trust the FHWs for antenatal, delivery and postpartum care.

Limitations of the Analysis

Literacy was self-reported measure and thus it is open to a degree of bias. In order to account for some of the bias, ever-schooling and never- schooling were used for the analyses. Since most rural part of Ethiopia does not grant birth certificate, maternal age and marital age are self reported and most mothers indicated not knowing their actual age and reported 'I don't know' and this might be open to bias. Finally, the survey was limited to *kebeles* that were within a two-hour walk of a road, which means that those rural populations were not included. Women who are close to the *kebele* might have had higher likelihood of obtained care than women in the *kebele* that were living far away from health post and health care facilities, thus it is not possible to know this for sure.

Recommendations

Because of this analysis, the following recommendations are proposed:

1. The survey instrument needs to be revised and takes into consideration of the potential effect of maternal age and incorporate distance from health facility during antenatal, delivery and postpartum.

2. More research need to conducted to better understand perception of what constitute trust, and what factors speed up maternal trust on FHWs in order to improve the health seeking during antenatal, delivery and postpartum care.

3. Knowledge about the availability of health care is the key. Thus, the importance and need for at least four antenatal visits, having skilled attendant at delivery and a postpartum visit should be promoted, and they should be made more accessible to the mothers.

4. The training and the deployment of FHWs need to be scaled up in Amhara region.

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Annex A. WHO recommended Interventions for Improving Maternal Health

Essential Care and interventions during pregnancy, childbirth and postpartum period for mothers	
Antenatal Care 4 visits *Essential*	Confirmation of pregnancy
	Monitoring of progress of pregnancy and assessment of maternal and fetal well-being
	Detection of problems complicating pregnancy (e.g., anemia, hypertensive disorders, bleeding, malpresentations, multiple pregnancy
	Respond to other reported complaints.
	Tetanus immunization, anemia prevention and control (iron and folic acid supplementation)
	Information and counseling on self care at home, nutrition, safer sex, breastfeeding, family planning, healthy lifestyle
	Birth planning, advice on danger signs and emergency preparedness
	Recording and reporting
	Syphilis testing
Labor/Delivery	Care during labor and delivery
	Diagnosis of labor
	Monitoring progress of labor, maternal and fetal well-being with pantograph
	Providing supportive care and pain relief
	Detection of problems and complications (e.g. malpresentations, prolonged and/or obstructed labor, hypertension, bleeding, and infection)
	Delivery and immediate care of the newborn baby, initiation of breastfeeding
	Newborn resuscitation
	Active management of third stage of labor
Postpartum (Immediate)	Immediate postnatal care of mother
	Monitoring and assessment of maternal well being, prevention and detection of complications (e.g. hypertension, infections, bleeding, anemia)
	Treatment of moderate post-hemorrhagicanemia
	Information and counseling on home self care, nutrition, safe sex, breast care and family planning
	Postnatal care planning, advice on danger signs and emergency preparedness
	Recording and reporting
Postpartum (up to 6 weeks)	Assessment of maternal wellbeing
	Prevention and detection of complications (e.g. infections, bleeding, anemia)
	Information and counseling on nutrition, safe sex, family planning and provision of some contraceptive methods
	Postnatal care planning, advice on danger signs and emergency preparedness
	Provision of contraceptive methods

Source: WHO 2009

Annex B. Questions Used in Analysis

Informed Consent Obtained: [ ] Yes [ ] No

Section I – Background and Demographics		
INTERVIEWER COMPLETE: **Interviewer Number: _____** **Survey Identification Number: _____** **Kebele: _____** **Woreda: _____** **Date Interview Performed: _____**		
Interview Say: *"I am going to start by asking you some questions about you and your household."*		
QUESTION	**ANSWERS**	**SKIP**
1. Have you given birth in the past year? (CIRCLE RESPONSE) [BIRTH_LASTYR]	Yes……..……...1 No…….....0	→END SURVEY
2. What is your age? (WRITE ANSWER IN SPACE) [AGE]	[_____] years **OR** Don't Know……....99	

3. What is your religion? (DO NOT READ LIST) (ONLY ONE ANSWER POSSIBLE) (CIRCLE RESPONSE) [RELIGION]	Christian Orthodox …….…….1 Christian Protestant……..……2 Roman Catholic……3 Adventist …….4 Muslim ……5 Traditional Religion…… …6 Other ……...……..…7 None……...…..……8	
4. What is your current marital status? (DO NOT READ LIST) (ONLY ONE ANSWER POSSIBLE) (CIRCLE RESPONSE) [MARRIAGE]	Single & Never Married……...1 Married…….2 Divorced / Separated.…….....…...3 Widowed……..…4	1→ Q12 3→Q10 4→Q10
5. Has your spouse ever attended school? (CIRCLE RESPONSE) [SPEVRSCH]	Yes…….…..……...1 No…….....0	0→Q7
6. How many years did your spouse attend school? (WRITE ANSWER IN SPACE) [SPSCHYRS]	[_____] years **OR** Don't Know……....99	
11. How old were you when you were married? (WRITE ANSWER IN SPACE) [AGEMAR]	[_____] years **OR** Don't Know……....99	
12. Have you ever attended school? (CIRCLE RESPONSE) [EVERSCH]	Yes…….…..……...1 No…….....0	0→ Q14
13. How many years did you attend school? (WRITE ANSWER IN SPACE) [SCHYRS]	[_____] years **OR** Don't Know……....99	
18. Does this household own any land? (CIRCLE RESPONSE) [LANDANY]	Yes…….…..……...1 No…….....0	0→Q21

Section II – Birth History

Interview Read: *"Now I would like to ask you some questions about your experiences with pregnancy and childbirth."*

QUESTION	ANSWER	SKIP
21. **How many times have you been pregnant?** (WRITE ANSWER IN SPACE) [NUMPREG]	[_____] times **OR** Don't Know……....99	
22. How many live births have you had in your life? (WRITE ANSWER IN SPACE) [NUMLB]	[_____] live births **OR** Don't Know……....99	
23. Have you ever had a child who died in the first year of his/her life? (CIRCLE RESPONSE) [CHDEATH]	Yes……..…...……...1 No…….....0	0→Q25
24. How many children have you had who died in the first year of life? (WRITE ANSWER IN SPACE) [NUMCHDEATH]	[_____] <12months deaths **OR** Don't Know……....99	
25. How many living sons and daughters do you have? (WRITE ANSWER IN SPACE)	[_____] sons [NUMBOYS] **AND** [_____] daughters [NUMGRLS]	

Section IV – General Attitudes Towards Maternal Care	
Interview Read: *"Now I would like to ask you some questions about people who can provide care for mothers and babies in your community."*	
QUESTION	**ANSWER**
28. In your community, whose job is it to provide care for women while they are pregnant? (DO NOT READ LIST) (MULTIPLE ANSWERS	Physician……...1[GA_ANCJ_PHYS] Health Officer / Clinical Officer.……...2[GA_ANCJ_HOCO] Nurse ……..……...….3[GA_ANCJ_NURSE] Midwife……..……...……..…4[GA_ANCJ_MIDW] Trained Traditional Birth Attendant……..5[GA_ANCJ_TTBA] Untrained Traditional Birth Attendant……..6[GA_ANCJ_UTBA]

POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_ANCJ]	Health Extension Worker……..7[GA_ANCJ_HEW] Voluntary Community Health Worker……..8[GA_ANCJ_VCHW] Family/Friend/Other Non-Trained……9[GA_ANCJ_OTH] Don't Know……..……10[GA_ANCJ_DK] Respondent……11[GA_ANCJ_ME]
29. Whom do you trust to do provide women care while they are pregnant? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_ANCT]	Physician…….1[GA_ANCT_PHYS] Health Officer / Clinical Officer……....2[GA_ANCT_HOCO] Nurse……..…3[GA_ANCT_NURSE] Midwife……...……...…4[GA_ANCT_MIDW] Trained Traditional Birth Attendant…….....5[GA_ANCT_TTBA] Untrained Traditional Birth Attendant……..…6[GA_ANCT_UTBA] Health Extension Worker……..……..…...7[GA_ANCT_HEW] Voluntary Community Health Worker.....8[GA_ANCT_VCHW] Family/Friend/Other Non-Trained……..9[GA_ANCT_OTH] Don't Know…….…..…10[GA_ANCT_DK] Respondent…….…11[GA_ANCT_ME]
30. Who has the knowledge and skills to do provide women care while they are pregnant? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_ANCK]	Physician…….…1[GA_ANCK_PHYS] Health Officer / Clinical Officer…….....2[GA_ANCK_HOCO] Nurse …….....…3[GA_ANCK_NURSE] Midwife…….……..……..…4[GA_ANCK_MIDW] Trained Traditional Birth Attendant……...5[GA_ANCK_TTBA] Untrained Traditional Birth Attendant…….....6[GA_ANCK_UTBA] Health Extension Worker…….....7[GA_ANCK_HEW] Voluntary Community Health Worker.....8[GA_ANCK_VCHW] Family/Friend/Other Non-Trained……..…9[GA_ANCK_OTH] Don't Know……..……10[GA_ANCK_DK] Respondent……11[GA_ANCK_ME]
31. In your community, whose job is it to provide care for women while they are in labor? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_INTRAJ]	Physician……..……..….1[GA_INTRAJ_PHYS] Health Officer / Clinical Officer……..2[GA_INTRAJ_HOCO] Nurse ……..……...3[GA_INTRAJ_NURSE] Midwife……..…4[GA_INTRAJ_MIDW] Trained Traditional Birth Attendant…….…..5[GA_INTRAJ_TTBA] Untrained Traditional Birth Attendant…….....6[GA_INTRAJ_UTBA] Health Extension Worker……..…..…….……..7[GA_INTRAJ_HEW] Voluntary Community Health Worker…..…...8[GA_INTRAJ_VCHW] Family/Friend/Other Non-Trained……..…9[GA_INTRAJ_OTH] Don't Know……...…10[GA_INTRAJ_DK]

	Respondent……..…11[GA_INTRAJ_ME]
32. Whom do you trust to do provide women care while they are in labor? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_INTRAT]	Physician…….1[GA_INTRAT_PHYS] Health Officer / Clinical Officer…….2[GA_INTRAT_HOCO] Nurse ……..…3[GA_INTRAT_NURSE] Midwife……..…4[GA_INTRAT_MIDW] Trained Traditional Birth Attendant…..…...5[GA_INTRAT_TTBA] Untrained Traditional Birth Attendant…….....6[GA_INTRAT_UTBA] Health Extension Worker……...……..7[GA_INTRAT_HEW] Voluntary Community Health Worker…….....8[GA_INTRAT_VCHW] Family/Friend/Other Non-Trained……9[GA_INTRAT_OTH] Don't Know……..…10[GA_INTRAT_DK] Respondent…….……11[GA_INTRAT_ME]
33. Who has the knowledge and skills to do provide women care while they are in labor? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_INTRAK]	Physician…….…1[GA_INTRAK_PHYS] Health Officer / Clinical Officer……..2[GA_INTRAK_HOCO] Nurse ……..…3[GA_INTRAK_NURSE] Midwife……4[GA_INTRAK_MIDW] Trained Traditional Birth Attendant……...5[GA_INTRAK_TTBA] Untrained Traditional Birth Attendant…….....6[GA_INTRAK_UTBA] Health Extension Worker……..…..7[GA_INTRAK_HEW] Voluntary Community Health Worker……8[GA_INTRAK_VCHW] Family/Friend/Other Non-Trained……..…9[GA_INTRAK_OTH] Don't Know……..…10[GA_INTRAK_DK] Respondent……..……11[GA_INTRAT_ME]
34. In your community, whose job is it to provide care for women after they have given birth? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_POSTJ]	Physician……..….1[GA_POSTJ_PHYS] Health Officer / Clinical Officer……..….2[GA_POSTJ_HOCO] Nurse ……...3[GA_POSTJ_NURSE] Midwife……...…4[GA_POSTJ_MIDW] Trained Traditional Birth Attendant……..5[GA_POSTJ_TTBA] Untrained Traditional Birth Attendant……6[GA_POSTJ_UTBA] Health Extension Worker……..…..7[GA_POSTJ_HEW] Voluntary Community Health Worker……..8[GA_POSTJ_VCHW] Family/Friend/Other Non-Trained……...…9[GA_POSTJ_OTH] Don't Know……..…10[GA_POSTJ_DK] Respondent……...……11[GA_POSTJ_ME]

35. Whom do you trust to do provide women care after they have given birth? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_POSTT]	Physician……..….1[GA_POSTT_PHYS] Health Officer / Clinical Officer……..…..2[GA_POSTT_HOCO] Nurse ……..…3[GA_POSTT_NURSE] Midwife……..…4[GA_POSTT_MIDW] Trained Traditional Birth Attendant…….5[GA_POSTT_TTBA] Untrained Traditional Birth Attendant……...6[GA_POSTT_UTBA] Health Extension Worker……..…...…..7[GA_POSTT_HEW] Voluntary Community Health Worker……..8[GA_POSTT_VCHW] Family/Friend/Other Non-Trained……...…9[GA_POSTT_OTH] Don't Know……10[GA_POSTT_DK] Respondent……...……11[GA_POSTT_ME]
36. Who has the knowledge and skills to do provide women care after they have given birth? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_POSTK]	Physician…….1[GA_POSTK_PHYS] Health Officer /Clinical Officer……..…..2[GA_POSTK_HOCO] Nurse ……..…3[GA_POSTK_NURSE] Midwife…….……...…4[GA_POSTK_MIDW] Trained Traditional Birth Attendant……...5[GA_POSTK_TTBA] Untrained Traditional Birth Attendant……6[GA_POSTK_UTBA] Health Extension Worker……....7[GA_POSTK_HEW] Voluntary Community Health Worker……..8[GA_POSTK_VCHW] Family/Friend/Other Non-Trained……9[GA_POSTK_OTH] Don't Know……..…10[GA_POSTK_DK] Respondent……11[GA_POSTK_ME]
37. In your community, whose job is it to provide care for a newborn baby? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_NEWJ]	Physician…….1[GA_NEWJ_PHYS] Health Officer /Clinical Officer…….....2[GA_NEWJ_HOCO] Nurse ……....3[GA_NEWJ_NURSE] Midwife……..…4[GA_NEWJ_MIDW] Trained TBA……..…....5[GA_NEWJ_TTBA] Untrained TBA……..…...6[GA_NEWJ_UTBA] HEW…….……..…..7[GA_NEWJ_HEW] vCHW……..…….8[GA_NEWJ_VCHW] Family/Friend/Other Non-Trained……9[GA_NEWJ_OTH] Don't Know…….……10[GA_POSTJ_DK] Respondent……11[GA_NEWJ_ME]
38. Whom do you trust to do provide care for a newborn baby? (DO NOT READ LIST)	Physician……..….1[GA_NEWT_PHYS] Health Officer / Clinical Officer……..2[GA_NEWT_HOCO] Nurse ……..…3[GA_NEWT_NURSE] Midwife……..…4[GA_NEWT_MIDW]

(MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_NEWT]	Trained TBA……..……....5[GA_NEWT_TTBA] Untrained TBA……...6[GA_NEWT_UTBA] HEW……..……..7[GA_NEWT_HEW] vCHW…….8[GA_NEWT_VCHW] Family/Friend/Other Non-Trained……..9[GA_NEWT_OTH] Don't Know……10[GA_NEWT_DK] Respondent……..……11[GA_NEWT_ME]
39. Who has the knowledge and skills to do provide care for a newborn baby? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL RESPONSES GIVEN) [GA_NEWK]	Physician…….……1[GA_NEWK_PHYS] Health Officer /Clinical Officer……...2[GA_NEWK_HOCO] Nurse ……..…3[GA_NEWK_NURSE] Midwife……..……..…4[GA_NEWK_MIDW] Trained TBA……...5[GA_NEWK_TTBA] Untrained TBA……...6[GA_NEWK_UTBA] Health Extension Worker……..…..7[GA_NEWK_HEW] vCHW……..8[GA_NEWK_VCHW] Family/Friend/Other Non-Trained……..…9[GA_NEWK_OTH] Don't Know……..……10[GA_NEWK_DK] Respondent……11[GA_NEWK_ME]

Section V – Knowledge of Front-Line Healthcare Workers		
Interview Read: *"Now I would like to ask you some questions about people who can provide health care in your community."*		
QUESTION	**ANSWER**	**SKIP**
40. Do you know of someone in your community, other than untrained neighbors or untrained family, who could provide you with care while you are pregnant, and/or help you deliver a baby? (CIRCLE RESPONSE) [KNOWHELP]	Yes……..…...……...1 No…….....0	
41. Have you heard of Health Extension Workers? (CIRCLE RESPONSE) [HEW_HEARD]	Yes……..…...……...1 No…….....0	0→Q48

42. Have you ever used the services of a Health Extension Worker? (CIRCLE RESPONSE) [HEW_USED]	Yes……..…..……...1 No…….....0	
43. Do you know who any of the Health Extension Workers are in your *kebele*? (CIRCLE RESPONSE) [HEW_KNOW]	Yes……..…..……...1 No…….....0	
44. Do you know how to reach the Health Extension Worker if you need help? (CIRCLE RESPONSE) [HEW_REACH]	Yes……..…..……...1 No…….....0	
45. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Health Extension Worker to provide you care while you pregnant? (CIRCLE RESPONSE) [HEW_ANTE]		
(least) 1 2 3 4 5 (most)		
46. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Health Extension Worker to provide you care while you are giving birth? (CIRCLE RESPONSE) [HEW_INTRA]		
(least) 1 2 3 4 5 (most)		
47. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Health Extension Worker to provide you care after you have given birth? (CIRCLE RESPONSE) [HEW_POST]		
(least) 1 2 3 4 5 (most)		
48. Have you heard of Voluntary Community Health Workers? (CIRCLE RESPONSE) [VCHW_HEARD]	Yes……..…..……...1 No…….....0	0→Q55
49. Have you ever used the services of a Voluntary Community Health Worker? (CIRCLE RESPONSE) [VCHW_USED]	Yes……..…..……...1 No…….....0	
50. Do you know who any of the Voluntary Community Health Workers are in your *kebele*? (CIRCLE RESPONSE) [VCHW_KNOW]	Yes……..…..……...1 No…….....0	

51. Do you know how to reach a Voluntary Community Health Worker if you need help? (CIRCLE RESPONSE) [VCHW_REACH]	Yes……..…..……...1 No…….....0	
52. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Voluntary Community Health Worker to provide you care while you are pregnant? (CIRCLE RESPONSE) [VCHW_ANTE]		
(least) 1 2 3 4 5 (most)		
53. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Voluntary Community Health Worker to provide you care while you are giving birth? (CIRCLE RESPONSE) [VCHW_INTRA]		
(least) 1 2 3 4 5 (most)		
54. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Voluntary Community Health Worker to provide you care after you have given birth (CIRCLE RESPONSE) [VCHW_POST]		
(least) 1 2 3 4 5 (most)		
55. Have you heard of Traditional Birth Attendants? (CIRCLE RESPONSE) [TBA_HEARD]	Yes……..…..……...1 No…….....0	0→Q62
56. Have you ever used the services of a Traditional Birth Attendant? (CIRCLE RESPONSE) [TBA_USED]	Yes……..…..……...1 No…….....0	
57. Do you know who any of the Traditional Birth Attendants are in your *kebele*? (CIRCLE RESPONSE) [TBA_KNOW]	Yes……..…..……...1 No…….....0	
58. Do you know how to reach a Traditional Birth Attendant if you need help? (CIRCLE RESPONSE) [TBA_REACH]	Yes……..…..……...1 No…….....0	
59. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Traditional Birth Attendant to provide you care while you are pregnant? (CIRCLE RESPONSE) [TBA_ANTE]		

(least)	1	2	3	4	5 (most)

60. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Traditional Birth Attendant to provide you care while you are giving birth?

(CIRCLE RESPONSE)

[TBA_INTRA]

(least)	1	2	3	4	5 (most)

61. On a scale of 1 to 5, with "1" being the least and "5" being the most, how much do you trust a Traditional Birth Attendant to provide you care after you have given birth?

(CIRCLE RESPONSE)

[TBA_POST]

(least)	1	2	3	4	5 (most)

Section VI – Prenatal Care, Danger Signs, Delivery Care, Postnatal Care

Interview Read: *"Now, I would like to ask you some questions about the last time you were pregnant and the last time that you gave birth."*

QUESTION	ANSWER	SKIP
62. When you were pregnant last, did you see anyone for antenatal care? (CIRCLE RESPONSE) [ANC_ANY]	Yes……..…...……...1 No…….....0	→Q69
63. How far along in your most recent pregnancy were you when you first accessed antenatal care? (WRITE ANSWER IN SPACE) (WRITE EITHER WEEKS OR MONTHS) [ANC_WHEN]	[____] weeks **OR** [___] months **OR** Don't Know……....99	
64. During your most recent pregnancy, how many times did you access antenatal care? (WRITE ANSWER IN SPACE) [ANC_NUM]	[ ] times **OR** Don't Know……....99	

65. During your most recent pregnancy, who provided antenatal care to you? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL THAT APPLY)	Physician……1[ANC_PHYS] Health Officer / Clinical Officer……...2[ANC_HOCO] Nurse ……...…3[ANC_NURSE] Midwife……..…4[ANC_MIDW] Trained Traditional Birth Attendant……...5[ANC_TTBA] Untrained Traditional Birth Attendant……...6[ANC_UTBA] Health Extension Worker…….……..7[ANC_HEW] Voluntary Community Health Worker…….8[ANC_VCHW] Family/Friend/ Other Non-Trained……9[ANC_OTH]	
68. Can you tell me what are all of the problems that can happen during pregnancy, labor, and after delivery that require immediate attention from a trained health care worker or health facility? (DO **NOT** READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL ANSWERS SAID BY RESPONDENT)	High fever……..1[DS_FEV] Severe headache / Blurred vision ……...2[DS_HEAD] Swelling of hands and face …...3[DS_SWEL] Retained placenta ……4[DS_RP] Convulsions/fit/Eclampsia ……...5[DS_ECL] Any amount of vaginal bleeding……...6[DS_BLE] Foul smelling discharge ……..…..7[DS_DIS] Labor >12 hours…….….8[DS_LONG] Malpresentation (if any part of the baby other than the head is seen in the birth passage, like buttocks, hand, foot or cord)…..…9[DS_MAL] Other ……...10[DS_OTH] (**Specify**:_____) (**Specify**:_____) Don't know ……...11[DS_DK]	
69. Was the last baby you had born alive? (CIRCLE RESPONSE) [BORNALIVE]	Yes……..…...……...1 No…….....0	0→Q73
71. Is (name) still alive? (CIRCLE RESPONSE) [STILLALIVE]	Yes……..…...……...1 No…….....0	1→Q72A 0→Q72B

73. Where did you deliver (name)? (DO NOT READ LIST) (ONLY ONE RESPONSE) (CIRCLE RESPONSE) [DEL_WHERE]	Own home……...1 Other's home……...2 Government Hospital/Clinic……3 Government Health Center…….4 Government Health Post…….5 Other Public…….6 NGO Health Facility……...7 Private Hospital/Clinic……8 Other Private……9 Other.…….88 (**Specify:** _____) (**Specify:** _____)	
74. Did anyone provide you with care while you were laboring to delivering (name)? (CIRCLE RESPONSE) [DEL_ANY]	Yes……..…...……...1 No…….....0	0→Q78
75. Who provided you with care while you were laboring to deliver (name)? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL THAT APPLY)	Mother……1[DEL_MOM] Mother-In-Law……..2[DEL_MIL] Sister……..……3[DEL_SIS] Other Family……..4[DEL_FAM] (**Specify:**_____) Neighbors / Friends…….....…5[DEL_FRND] Untrained TBA……6[DEL_UTBA] Trained TBA……7[DEL_TTBA] HEW……..8[DEL_HEW] vCHW……..……9[DEL_VCHW] Midwife……..…10[DEL_MIDW] Nurse……..…..11[DEL_NURSE] Physician……...……12[DEL_PHYS] Health Officer / Clinical Officer…….13[DEL_HOCO] Other ……...14[DEL_OTH] (**Specify:**_____)	
78. After (name) was born, did anyone check your health within 48 hours of birth? (CIRCLE RESPONSE) [POST_ANY]	Yes……..…...……...1 No…….....0	0→Q83
79. How long was the time period between (name)'s birth and your receiving a health check?	immediately……..0 **OR**	

(ONLY ONE ANSWER) (CIRCLE RESPONSE **OR** WRITE ANSWER IN SPACE) [POST_TIME]	[____] hours **OR** [____] days	
80. Who checked your health after you delivered (name)? (DO NOT READ LIST) (MULTIPLE ANSWERS POSSIBLE) (CIRCLE ALL THAT APPLY)	Mother……..…1[POST_MOM] Mother-In-Law……..2[POST_MIL] Sister……..……..….3[POST_SIS] Other Family……...……..4[POST_FAM] (**Specify:**_____) Neighbors / Friends…...…5[POST_FRND] Untrained TBA……...6[POST_UTBA] Trained TBA……...…7[POST_TTBA] HEW……..……..8[POST_HEW] vCHW……..……..…..…9[POST_VCHW] Midwife…….....…10[POST_MIDW] Nurse……..……..…..11[POST_NURSE] Physician……..……12[POST_PHYS] Health Officer / Clinical Officer……...….13[POST_HOCO] Other ……...14[POST_OTH] (**Specify:**_____) Myself…….....15[POST_SELF]	

Section VII – Breastfeeding		
Interview Read: *"Now, I would like to ask you some questions about breastfeeding."*		
QUESTION	**ANSWER**	**SKIP**
88. Did you ever breastfeed (name)? (CIRCLE RESPONSE) [BF_EVER]	Yes……..…...……...1 No…….....0	0→Q98
92. After (name) was born, did you give him/her only breastmilk? (CIRCLE RESPONSE) [EBF_EVER]	Yes……..…...……...1 No…….....0	

93. Are you currently breastfeeding (name)? (CIRCLE RESPONSE) [BF_CURRENT]	Yes……..…..……...1 No…….....0	Y→Q98
94. Are you currently giving nothing but breastmilk to (name)? (CIRCLE RESPONSE) [EBF_CURRENT]	Yes……..…..……...1 No…….....0	Y→Q98

Section IX – The HBLSS Package & Practices During Previous Pregnancy + Birth

Interviewer Say: *"I am now going to describe some things that people sometimes do around the time of childbirth, and then ask you who usually does these things in your community, who should do these things in your community, and, if when you were pregnant with (name), these things happened."*

Interview Instructions: When a respondent gives an answer, write this numerical code in the appropriate blank. For example, if a respondent answer "A midwife," write a "4" in the blank space.

[CODE LOGIC:
HB_ = Belongs to HBLSS Section
HB_X = All questions about X
HB_X_H = Heard of X?
HB_X_U = Usually does X? (a)
HB_X_B = Best to do X? (b)
HB_X_L = Happened last time? (c)
HB_X_W = Who did so? (d)]

OPTIONS:

1) Physician
2) Clinical Officer
3) Nurse
4) Midwife
5) Trained Traditional Birth Attendant
6) Untrained Traditional Birth Attendant
7) Health Extension Worker
8) Voluntary Community Health Worker
9) Respondent Herself/Himself
10) Family/Friend/Neighbor/Other Non-Trained

QUESTION	ANSWER	SKIP
107. Have you heard about pregnant women being counseled to call for assistance when their labor begins? (CIRCLE RESPONSE) [HB_CALL_H]	Yes……..…..……...1 No…….....0	0→ Q107

110. Have you heard about women being given a drug called misoprostol after the baby is born but before the placenta is delivered to help stop their bleeding? (CIRCLE RESPONSE) [HB_MISO_H]	Yes……..…..……...1 No…….....0	0→ Q111
116. Have you heard of women being counseled to begin breastfeeding immediately after giving birth? (CIRCLE RESPONSE) [HB_IBF_H]	Yes……..…..……...1 No…….....0	0→Q117
a) After you delivered (name), were you counseled to begin breastfeeding immediately? (CIRCLE RESPONSE) [HB_IBF_L]	Yes……..…..……...1 No…….....0	0→ Q117
a) Who did so? (WRITE ANSWER CODE IN SPACE) [HB_CORD_W]	CODE: [_____] **OR** Don't Know……....99	
117. Have you heard of the practice of women being checked for problems such as a fever or bleeding after birth? (CIRCLE RESPONSE) [HB_CHECK_H]	Yes……..…..……...1 No…….....0	0→ Q119
119. Have you heard of women being counseled to give only breastmilk to their babies for the first six months of life? (CIRCLE RESPONSE) [HB_EBF_H]	Yes……..…..……...1 No…….....0	0→ Q120
120. Have you heard about postpartum women being counseled to rest for at least 12 days after birth? (CIRCLE RESPONSE) [HB_REST_H]	Yes……..…..……...1 No…….....0	0→Q122
a) Who is to best to counsel postpartum women to rest for at least 12 days after giving birth, in your community? (WRITE ANSWER CODE IN SPACE)	CODE: [_____] **OR** Don't Know……....99	

	[HB_REST_B]		
	b) With your last baby, were you counseled to rest for at least 12 days after birth? (CIRCLE RESPONSE) [HB_REST_L]	Yes……..…...……...1 No…….....0	0→Q122
	c) Who did so? (WRITE ANSWER CODE IN SPACE) [HB_REST_W]	CODE: [_____] **OR** Don't Know……....99	

Annex C. IRB Exemption

Hubert Department of Global Health

Signature form for project that do not require IRB review

This form is to be used for students who have chosen to write a Literature Review, Special Project, or conduct research that does not involve human subject, and will therefore not be required to apply for IRB approval.

Attach a one to two page description of the project including general subject hypothesis to be tested or question(s) to be answered, and lay summary. Be sure to provide enough information so that appropriate determination can be made.

This letter should be bound in your thesis.

I have read the attached information and verify that this project is not considered human research therefore does not need to be submitted to the Emory University Institutional Review Board.

For projects involving animal research, please consult the Emory University Institutional Animal Care and Use Committee webpage at www.emory.edu/IACUC/

Signature of Supervising Faculty Member Date