COUPLES'CHARACTERISTICS AND WOMEN'S AUTONOMY IN DETERMINING INSTITUTIONAL DELIVERY IN ETHIOPIA

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Abstract

Background: Low level of health care utilization is the main reason for the high maternal mortality rate in developing countries. However, there is no robust study that examined the factors that contribute to the low utilization of health care in institutional delivery from couples' perspectives. Hence, the aim of this study was to identify individual level contributing factors to the low use of institutional delivery.

Method: Cross-sectional data was derived from the 2011 Ethiopian Demographic and Health Survey (EDHS) on couples (N=3956) who delivered five years' before the survey period. Descriptive and binary logistic regression analysis was employed to identify the association between couples characteristics and women's autonomy on access to institutional delivery.

Results: Women's educational level, employment status, HIV test, couples' place of residence, and couples' number of living children were found to be significant determinants of institutional delivery. Their respective adjusted odds ratio are, secondary level education (AOR=2.13), having a job (AOR 1.33), HIV test (AOR 1.65), couples' place of residence (AOR 9.14), and couples' number of living children (AOR 4.22). Although, women's autonomy was not associated with institutional delivery economic and movement freedom found to be a significant factor on access to institutional delivery.

Conclusions: Intervening on those significant determining factors of institutional delivery could improve the health care utilization of women in developing countries like Ethiopia. Further study is also needed on some of the identified factors; previous child deaths, HIV test and how women empowerment affects women's health care use.

Key words: institutional delivery, couples, Ethiopia

Acknowledgment

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Acronomys

ANC	Antenatal Care
AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio
CSA	Central Statistics Agency
DHS	Demographic Health Survey
EDHS	Ethiopian Demographic Health Survey
GDP	Gross Domestic Product
FMOH	Federal Ministry of Health
HIV	Human Immunodeficiency Virus
HSDP	Health Sector Development Plan
ICPD	International Conference on Population Development
PNC	Postnatal Care
SD	Standard Deviation
SNNP	South Nations and Nationality People
UN	United Nations
UNFPA	United Nation Population Fund Agency
WHO	World Health Organization

Chapter One

1. Introduction

1.1 Background

Globally, 289,000 maternal death occurred in year 2013, it declined by 45% from 1990 to 2013. Of which, sub-Saharan Africa (62%) and South Asia (24%) accounts for 248,000 (78%) maternal death (WHO, 2014). The United Nations (UN) set the Millennium Development Goals (MDGs) to reduce maternal mortality ratio by three-quarters by the end of 2015. The proportion of deliveries attended by skilled health personnel is the indicator set to evaluate the progress among others. The recent report of United Nation (UN) shows that in developing nations, the proportion of skilled delivery attendance increased from 55 % in 1990 to 66% in 2011. On the other hand, the same report indicated that 46 million live births occurred without adequate care in 2011 (UN, 2013). Although the proportion of the skilled delivery rose from 55% in 1990 to 65% in 2010, there was a wide variation within the regions. In sub–Saharan African, the percentage rose from 42% to 45 % while in south Asia the percentage of skilled delivery rose from 30% to 49% in the same time period from 1990 to 2010 (UN,2012).

According to Hogan et al. (2010), Ethiopia is among the six nations of the world which contribute to 50% of all maternal deaths in the world. The 2011 Ethiopian Demographic Health Survey (EDHS) report showed that the maternal mortality ratio is 676 per 100,000 live births, whereas the proportion of births attended by health personnel is only 10% (CSA and ICF International, 2012). Empirical evidence indicated that most maternal deaths can be averted if the preventive measures are taken at the time of delivery. Inadequate medical care at the time of delivery contributes significantly to maternal deaths as it has a strong association with maternal deaths (WHO, 1999). A strategy on reducing maternal mortality is complex due to contextual variation of determinants. In line with this, facility based delivery at a primary level institution backed by access to the referral level facility is taken as a priority strategy for reducing maternal mortality (Campbell & Graham, 2006). Skilled attendants can perform deliveries either at home, in health centers or in hospitals, but it is claimed that the most efficient strategy for low income countries is to avail the service in health centers with referral capacity. In most countries, skilled attendance is practiced at the facility level (Campbell & Graham, 2006).

According to WHO 2010 report, aspects of women's position in the society is one of the major determinants for the success or failure of women's health care access (WHO, 2010). Maternal Mortality (MM) is not only the issue of women; it is an indication of the disparity and inequity between men and women. It is also a sign of women's place in a society and their access to health service and economic opportunities (WHO, 2010). The Demographic Health Survey (DHS) report of the south Asian and African countries shows that socio-cultural factors such as lack of health care seeking behavior and objections from husband and family were among the barriers to the utilization of health service for delivery (Tey & Lai, 2013).

According to a 2006 UN report, improvement of women's autonomy is one of the key factors to increase women's health care seeking behavior (UN, 2006). Autonomy is defined as women's capability to decide on their health care, which is a very important factor in determining access to the health facility delivery. In fact, it is a multidimensional concept, which varies with the context. A number of studies examined women's autonomy and their

utilization of reproductive health service, but most of them are from Asia and south Asia in particular (Sleem & Bobak, 2005; Shaikh, David,& Juanita,2008). The finding of those studies showed that greater autonomy increases the utilization of delivery care services. Actually, very few studies were done so far on sub-Saharan Africa on women's autonomy and maternal health care particularly on identifying their association with institutional deliveries. The researchers have shown that women's autonomy at the household level, including freedom of movement, is important to their use of reproductive health services (Woldemicael, 2010; Wado, 2013).

In addition to research gap in sub-Saharan Africa on women's autonomy, the complexity of the measure itself also the other problem. In the first place, all the available studies were from Asian countries. Secondly, the utilization of the delivery care service varied to measure women autonomy in their study. This is due to the multidimensional nature of women's autonomy as it defined in a number of ways and makes comparison of the measurement difference difficult. Similarly in the Ethiopian case there are a few studies in the area with a recent study defined women's autonomy only based on women's health care decision (Tarkegn et al, 2014). In general, there is a research gap in the country to identify the association adequately between women autonomy and institutional deliveries.

In developing countries, a few studies were conducted on assessing the effect of involving men in reproductive health. A study conducted in western Kenya on man's perspectives on antenatal and delivery care service utilization showed that cultural norms; considering pregnancy as a female role only was revealed in the study area (Kwambai et al., 2013). Another study on male participation on reproductive health service in India showed that higher level education and paid employment status associated with men's involvement in reproductive health services (Shahjahan et al., 2013). On the other hand, the international conferences on population (ICPD), and the 1995 Fourth World Conference on Women showed an increase in the participation of men (UN, 1995). After the Cairo and Beijing conferences a significant increase in interest of men's participation in family planning and reproductive health matters was seen. However, the studies didn't show clearly how and when men should be involved during pregnancy and childbirth.

Further evidence found from Uganda indicated that men didn't know what to do, even though they wanted to help their wife at the time of pregnancy and childbirth. The involvement of men in reproductive health issues enhances reproductive health needs of not only women's but also men's (Kabagenyi et al., 2014).A few studies and international conference reports have shown that participation of men in reproductive health programs is perceived to be essential in sub-Saharan African where the men play a dominant role in family decision-making processes. The failure of involving men's in the study of reproductive health program arena is also an indication of the data reliability found from women's. Additionally, it is an indication of pregnancy and childbirth is still only women issues and doesn't involve men. (Kaye et al., 2014). However, the fertility decision is a complex process because understanding the need of men's is one of the difficult issues. Some of the recent studies including both men and women, shows that the issue of family planning and fertility still remain in women's only (Kabagenyi et al., 2014).

Agreement between the couples on reproductive issue is a key element in the social context of reproductive health, and often it is influenced by spousal relationship (Nyakato & Rwabukwali, 2013). Often couples disagree about the desirability of pregnancy, use of contraceptive and place of delivery. These disagreements occur in a situation where absence of women participation in the decision making process. The women often implement the

decisions made by husbands. Empirical studies found in Tanzania showed that couple's agreement on the importance of health facility deliveries increases the likelihood of women's health facility attendance (Danforth et al., 2009). Although institutional deliveries were the essential factors for maternal and child health improvement, little is known about the factors in developing countries and particularly in Ethiopia. According to pervious evidence; to understand the determinate factors of institutional deliveries, in addition to the factors related to demographic characteristics of the women's, analyzing women's autonomy within the context are crucial(Woldemicael, 2010).

The issue of women access to institutional delivery now a day is not only a problem of women's, it's an issue of couples or partners and societies at large. Analyzing the characteristics of both men and women together with personal health service use is important to understand the utilization of institutional delivery in-depth. Access to maternal health service, more specifically skilled delivery care is affected by; due to low coverage of health facilities, poor quality of care, lack of decision-making power of women with in the family remain are still challenges in many sub-Saharan African countries (Friberg et al., 2010). In Ethiopia, the utilization of maternal health service is low, and the proportion varies with difference in education level of women, place of residence, household wealth and autonomy (Tarekegn et al., 2014).

Ethiopia is a country where maternal health care program doesn't involve men most of the time and currently the role of husbands is unclear in case of pregnancy and child care at all. On the other hand, most of the time husband is involved in deciding the place of delivery, particularly in the rural part of the country (Berhane, 2006). According to 2011 DHS report of Ethiopia, women's who gave birth before five years proceeding to the survey, the reasons given by mothers for not deliver their birth at health facility where: health facility delivery service was not necessary (61%) and health facility delivery service was not customary (30%) (CSA & ICF International, 2011). However, the existing studies focus on socio-demographic and economic association, rarely on the association between couples' relation and institutional delivery utilization. It is found for positive maternal health behaviors women need good relation with their spouses (Corroon et al., 2014). So far little is done on how couples relation has influence on maternal health in Ethiopia. To this end, considering the identified factors related to couples characteristics and institutional deliveries are a good strategy to improve the low utilization rate of institutional deliveries.

1.1.1 Ethiopian Health System
Ethiopia follows three tire's pyramidal structure of healthcare delivery. Figure1 below presents the health care system structure. Primary level consists of health posts, health centers and primary hospitals. Secondary level consists of general hospitals; and tertiary level consists of specialized hospitals. This kind of health system is believed to be effective health care structure to increase the health service coverage in resource limited countries (Koblinsky et al., 2006). In most sub-Saharan African, a physician to patient ratio is less than 5 physicians per 100,000 people. The problem is even worse in rural setting (WHO, 2006). The ratio is even worse in Ethiopian case, where the number of physicians and nurse to population ratio is 3 physicians and 21 nurses for every 100,000 people (Kinf et al., 2009). However, recently the government of Ethiopia has been implementing task shifting policy, to narrow the gap on health personnel shortage of the country (Emmanuel et al., 2010). Further effort by the government is in progress. However, women's deliver at home is still the dominant delivery practice in Ethiopia. Nine women out of ten give birth at home (CSA & ICF International, 2011).

Figure 1: Ethiopian Health Care System
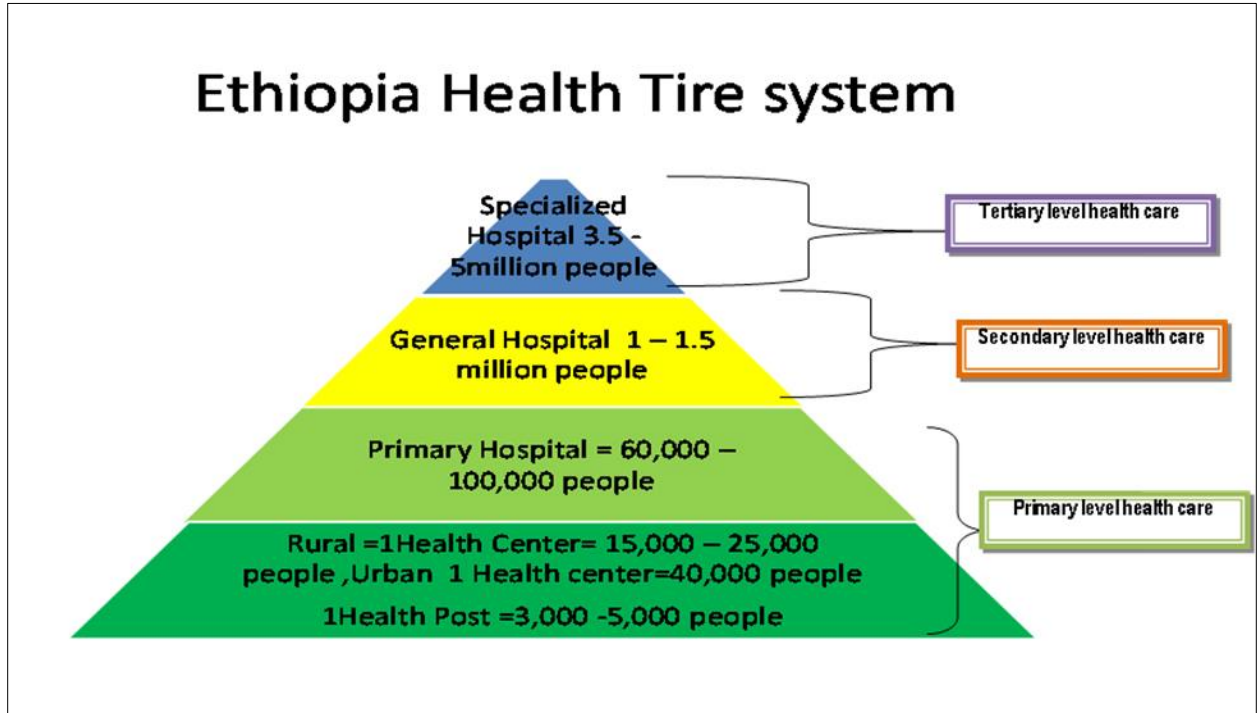
Source : Ethiopian Ministry of Health,2010

In Ethiopia, the number of health facilities is growing from time to time, and the expenditure on health is increasing markedly. A significant effort has been made by the government to alleviate the shortage of trained health workers by increasing students' enrolment in colleges and universities. Besides, the Ministry of Health (MOH) is reaching the rural women through the Health Extension Program. The health extension program is done through deploying over 34,000 health extension workers in each district of the country for the last ten years, which is a part of the twenty years health sector development plan (HSDP) of increasing the health service coverage of the country (FMOH, 2003). Though the government is trying to improve the situation, skilled delivery attendant rate at the facility level is still remaining low in Ethiopia.

Health care provision in Africa is supported by private sector. According to WHO estimates, 60% of health care expenditure is financed by private entities. In Ethiopia, in line with the government policy of task shifting, several organizations are working by providing technical assistance to health extension workers (WHO, 2008). Although, the government has been a major source of funding for the health sector, the role of private for profit sector now a day is increasing in the provision of health service. In developing countries trend, low budget allocation to the government health service showed an inefficiency in the utilization of modern health services (Bennet, 1992). Although it is hard to find well documented literatures on the role of private for profit sector, it is observed that there are few which deliver the service. Thus, it reduces the burden on government health facilities by giving service for those who can afford their high price.

1.2   Objective and Relevance of the Study
The main objective of this study is to examine the influence of couples' characteristics and women's autonomy on the use of institutional delivery. Within the couples characteristics are important to explain individual level factors that determine women's access to institutional

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delivery in Ethiopia. So far, most of studies from Ethiopia on access to institutional delivery focused on socio-demographic and economic factors, and there is research gap on understanding women's autonomy and access to health facility delivery from couple's perspective.

Skilled attendance measurement has two components: skilled attendants at birth and enabling environment. Enabling environment, in turn, includes adequate supplies, equipment, infrastructure an efficient and effective systems of communication and referral based on WHO definition (WHO, 1999). Measuring enabling environment is not defined clearly and varies depending on the context. This makes difficult to measure. Knowing the association of the factors that hinder access to a woman institutional delivery is important a design strategy to increase utilization of institutional delivery in the society.

1.3   Research Questions
1.3.1   Main Research Question

•   What is the effect of couples' characteristics and women's autonomy on the use of institutional delivery?

1.3.2   Specific Research Questions

•   Does use of women health service (ANC, HIV test) have an association with attending institutional delivery?

•   What is the effect of couples' socio-demographic characteristics on attending institutional deliveries?

•   To what extent women's autonomy have influence on accessing institutional deliveries?

1.4 Structure of the Thesis
This study has five chapters. The first chapter describes the background of the problem with the study objective and research questions. Chapter two discusses literature and conceptual frame work and theory used in this study. Chapter three is about data and study design including the operational definition and measurement scale of the study variables. The results of the study with interpretation of the figures and discussion explained in chapter four. The last part of the paper talks about major finding together with recommendation and limitation of the study.

Chapter Two
2. Theoretical Framework and Conceptual Model

2.1. Literature Review
Several socio-demographic and economic factors have been linked with women's access to health services, particularly institutional delivery. According to 31 developing countries of demographic and health survey data, women who at least completed primary education and highest wealth quintile have a high likelihood of attending skilled delivery (Ahmed et al., 2010). Recent studies conducted to assess the factors affecting the utilization of institutional delivery services in Ethiopia's "Sekele district" found out that among the variables included in the analysis, maternal education and wealth of the mother have strong impact on the utilization of institutional delivery service (Almeyhue et al., 2012).

From another population based study on the determinants of institutional delivery in rural Jhang Pakistan, found that institutional delivery varied significantly by parity, mothers' education, household wealth and mass media exposure. Among these significantly associated factors, wealth and education of mothers remain a stronger factor for rural residence than urban (Sohail & Thomas, 2011). Though the wealth of the household is important to utilize maternal health service, specifically institutional delivery, but the quality of care has a larger impact on the decision of pregnant women to use delivery care at health facilities. Pregnant women may not attain the delivery care service if they had a bad experience or poor custom at the time of prenatal at the health facility.

Living in urban areas and low number of living children were found among the factors that predict women access to health facilities delivery in Kenya (Kitui et al., 2013). Evidence which is found from Ethiopia also showed place of residence, is a determinant factor for a woman to attend health facility delivery (Almeyhue et al., 2012; Tarekegn et al., 2014). Based on a comparative analysis of maternal health service among younger and older women in twenty one sub-Saharan Africa Magadi et al. (2007), older mothers have a tendency to utilize more health facility care than younger mothers. Older women are more confident and influential in household decision-making than younger women, and older women may be told by health workers to deliver in health facility since older age is a biological risk factor.

However, the decisions which are made by women were also influenced by distance of health facilities at the time of labor. The emergency nature of the delivery makes things difficult to transport the pregnant women to health facilities and lack of transport system, particularly in rural areas. Though the obstetric risk factor of women depends on the general reproductive health of the mothers and the number of children they had in their lifetime. Maternal age also has an impact on increasing the risk (WHO, 2005). Women's obstetric history, having previous child death and pregnancy termination may also lead them to pregnancy complication. Giving a birth by itself is a risk, especially for women who experience obstetric complication, and they are encouraged to deliver at health facilities (Lamina, 2011).

Ethiopia is among four countries in which the most inequitable services are observed in skilled birth attendant in antenatal care (ANC) follow- up published in the 2012 Lancet (Barros et al., 2012). There is a high disparity among richest and poorest who have enjoyed at least one time visit to the health facility. Based on the study results found in Kenya Rhoune et al. (2003), timing of the first antenatal care is an important entry point for skilled delivery care. Although the ANC follow- up by itself is not a factor for delivery care utilization, early initiation of the ANC is a factor to come to the health facility at the time of delivery. One can argue that ANC follow-up is not a factor for the utilization of health facility delivery unless

the accessibility of the service is maintained. A study from Nepal found that through community workers visits the women, the ANC and postnatal care (PNC) utilization increased. However, its impact on skilled birth attendance at the health facility was not significant (Sharma et al., 2007). This shows that the quality of ANC follow-up is a factor for mothers' early decision to have skilled attendance at the time of delivery.

In developing countries, women are not necessarily autonomous agents to make decisions to deliver in a health facility. They are influenced by their partners and household members (Simkhada et al., 2008). On the other hand, (Say & Raine, 2007) identified that women's autonomy has been an important factor in determining their access to reproductive health care. Usually the lower the level of women's autonomy indicate the low utilization of maternal health care services. Autonomy is measured in different dimensions; the higher the autonomy of women associated with lower involvement of husband during pregnancy and ANC visit (Thapa & Niehof, 2013). Moreover, the cultural and social belief has impact on man's involvement in maternal health service utilization.

In Tanzania majority of women in patriarchal societies where men was the household head were associated with home delivery. (Mrisho et al., 2007). However, given that heads of households most of the time are men, there is a significant difference between education level and attending health facility delivery. As the evidence showed in Uganda, head of the household with secondary and above education level were found more likely to seek skilled birth attendance (Vallières et al., 2013). Although the concept of reproductive health care includes both men and women, most of the time, there is a tendency to ignore the involvement of men in the utilization of maternal health service program. Men in Africa are the major decision makers in family issues, more specifically in reproductive health matters (Berhane, 2006). Hence, enrolling men in different components of reproductive health service could lead women to skilled delivery care.

According to evidence from Bangladesh, the husband only decisions compared to jointly decisions in couples were found negatively associated with skilled delivery care. In addition, it is found that household decision making depend on from whom the data were collected i.e. wife or husband (Story & Burgard, 2012). Household decision making and skilled delivery care was studied in Tanzania. Thus, the finding showed that agreement of both partners on the importance of health facilities delivery had an association with the utilization of skilled delivery care. In addition, the evidence argued that both partners should be involved in decision making in order to increase institutional delivery (Danforth et al., 2009). However, the couples' agreement within marriage may be influenced by smoking and drinking habit of both husband and wife. In case of Ethiopia, women's smoking habit is almost insignificant and 6% men had the habit of smoking cigarettes. Relatively high proportion of women (35%) and men (45%) of the population had a habit of drinking alcohol (CSA & ICF International, 2011).

This study aims at analyzing whether the couples' characteristics and women's autonomy have influence on pregnant women to access institutional delivery or not. Other personal health behaviors such as the ANC, previous child death experience and pregnancy termination as well as HIV status can contribute to late decision of pregnant women to attend health facility delivery. Different studies were conducted in the country found that the effects of education and wealth on the utilization of health facility care during delivery were varied across regions. Empirical evidence from Lawn et al. (2006), showed in developing countries, skilled attendants at delivery in the health facility have double value in achieving both

maternal and child health. At the same time, there is an inverse of relationship between skilled attendance at birth and occurrence of maternal death (Kinney et al., 2010).
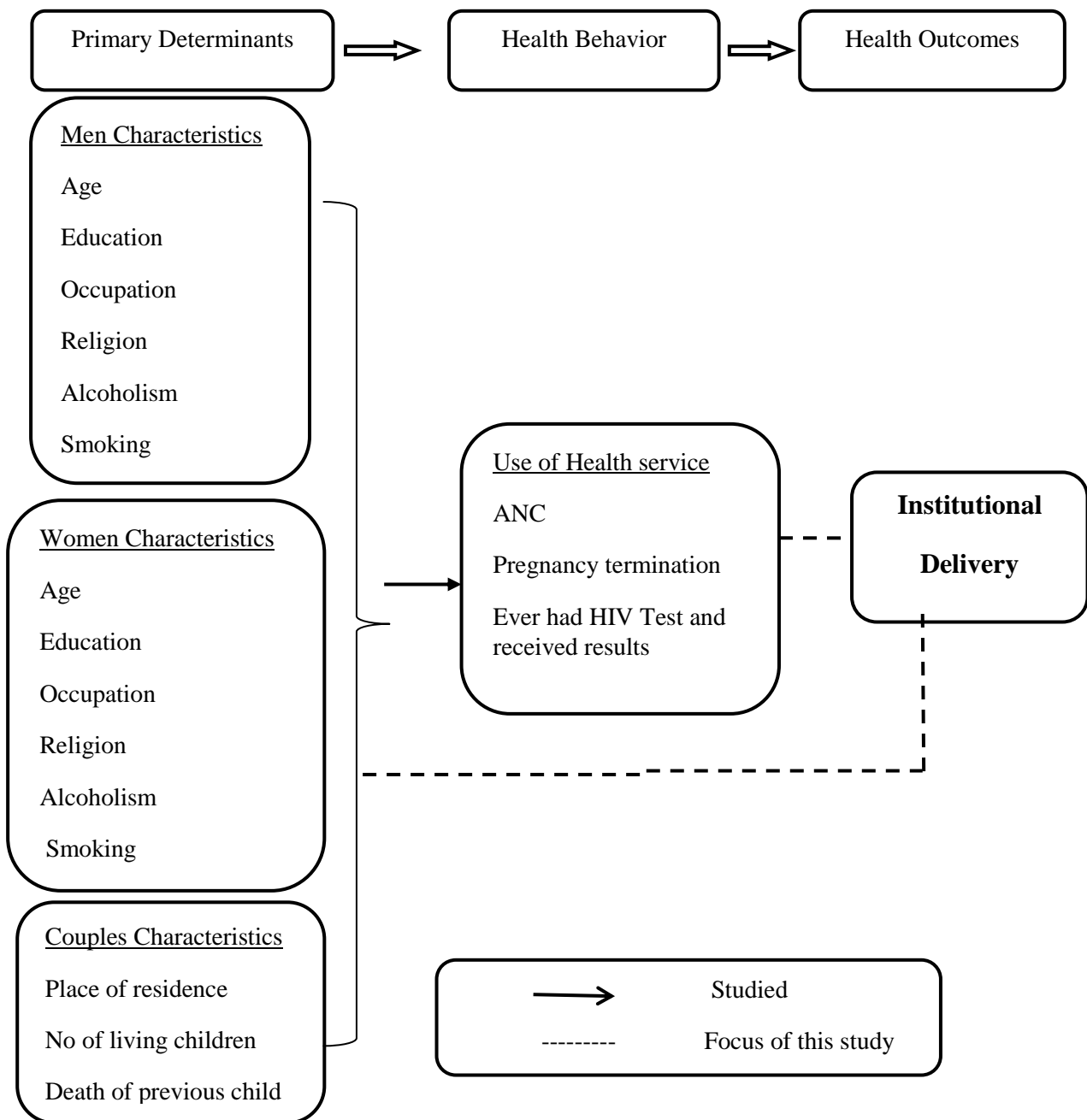
2.2   Theory/Theoretical Framework

Most maternal health studies have tried to understand the factors that hinder maternal health service utilization using three delays model. This model is developed by (Thaddeus & Maine, 1994). According to this model, pregnant women do not attend health facility delivery due to delay at three steps; 1) delay in decision making- socio-economic and demographic factors as well as cultural norms and beliefs may delay individuals' ability to make a decision on seeking health care facilities. 2) Delay in arrival to the health facility-even though there is a need of health care service, reaching health facility is difficult due to lack of transport and poor road conditions and lack of money. 3) Delay in the provision of medical care –health care service delays also occur in the health facilities, in the absence of medical equipment and professional manpower.

Access to institutional delivery is influenced by the women's delay, at the individual level. This delay at individual level is affected by the delay in seeking care of women, household/family and by societal norms and culture. Though access to institutional delivery practice is influenced by different factors at individual levels, in this study the focus is on understanding how couples' characteristics and women's autonomy have an effect on institutional delivery practice. To analyze the individual level factors, Andersen's Phase-3 Model of Health Services Utilization Andersen (1995) is used to develop the conceptual framework of the study.

Andersen's health service utilization model works under three determinant categories. 1) Predisposing Characteristics: an individual is more or less likely to utilize health care service based on demographic, social structure and believes of health service benefits. Individual who believes on usefulness of health service treatment are more likely to utilize the service. Hence, once women's believe the use of skilled delivery attendance importance, they will more likely to utilize the services. 2) Enabling characteristics: community and family resources comprise location of residence. Availability of health facilities and professional human power are accessible in resourceful location of residence. An individual utilization of health care service is influenced by the lack of availability of transport and nearby health facility. This problem is more exaggerated for pregnant women, in case of labor. 3) Need based characteristics: include perceived needs for the health services

This shows that there is still individual behavior for delay towards health facility delivery. Thus, working on individual level factors will lead to communicate the problem well, which could facilitate early decision of women. Due to lack of consistency in the factors and the difference in the contexts and the involvement of stakeholders, maternal health problems are complex by its nature and difficult to predict how it occurs. Thus, in this study, personal health behaviors were analyzed by using couples' characteristics and women's autonomy to mitigate individual behavior. Here, the couple's characteristics and women's autonomy in decision making were assessed to determine health facility delivery.

Figure 2:   Conceptual Model Adapted from Andersen's Phase-3 Model of Health Services Utilization

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┌─────────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│  Primary Determinants   │ ═══> │   Health Behavior   │ ═══> │   Health Outcomes   │
└─────────────────────────┘      └─────────────────────┘      └─────────────────────┘
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Men Characteristics

Age

Education

Occupation

Religion

Alcoholism

Smoking

Women Characteristics

Age

Education

Occupation

Religion

Alcoholism

Smoking

Couples Characteristics

Place of residence

No of living children

Death of previous child

Use of Health service

ANC

Pregnancy termination

Ever had HIV Test and received results

Institutional Delivery

→   Studied

---------   Focus of this study

Source: Andersen's (1995) Phase-3 Model of Health Services Utilization

2.3 Hypothesis:

1. Couples'characteristics and women's autonomy are expected to have positive effect on utilization of institutional delivery.

2. The use of health services is expected to have a significant effect on access to institutional delivery

Chapter Three

3 Data and Methods

3.1Research Design
The study followed explanatory research design. Cross-sectional research methodology was used which is an important method to see the population characteristics at one time and to make comparisons.

3.2 Description of the Study Area
Ethiopia is one of sub-Saharan African countries which is located in Eastern part of Africa. Ethiopia has 1.1 million sq. kilometer size with the population of 73.8 million according to the latest census (CSA, 2007). Based on the recent WHO estimates, the size of the population reached 91.7 million (WHO, 2012). The country comprises nine regions and two administration cities. The size and the distribution of the population vary from region to region depending on the development of the regions. Out of the total population, 84 % of the populations are living in the rural part of the country. Agriculture is the main economic source 43% of GDP of the country (CSA, 2007). According to 2007 census, the country has an average of 2.6 % annual growth rate with 4.6 TFR.   80% of the populations live in three regions, namely: Amhara, Oromia, and SNNP regional states. Life expectancy at birth m/f was 62/65 years (WHO, 2012).

3.3 Sampling Methods
The sample was taken by EDHS, 2011 from all enumeration areas where developed during 2007 Ethiopian census. Stratified and two-stage cluster sampling design was used during the survey. The sample included 624 enumeration areas. The first stages of sampling comprised 187 urban and 437 rural areas. In the second stages of sampling a representative samples of 17,817 household were selected. Of which, 17,018 were employed during data collection and 16,702 were successfully interviewed, response rate of 98 per cent. 17,385 eligible women were identified for the individual interview; responses were collected from 16,515, yielding a response rate of 95 percent. Similarly, eligible men were identified for interview. A total of 15,908 men were selected; 14,110 men responded to the interviews with the response rate of 89 percent. The response rates for both questionnaires were higher in rural areas than in urban areas (CSA & ICF International, 2011).

3.4 Data Type and Source
The data type is secondary data, which is based on 2011 Demographic and Health survey data conducted by the Central Statistics Agency (CSA) of Ethiopia. The raw data set was obtained from Measure DHS. The survey was conducted over a five-month period from 27 December 2010 to 3 June 2011. The data were collected using three types of questioners (the Household Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire) which were adapted from model survey instruments of measure DHS project (CSA & ICF International, 2011). For the purpose this study the sample was limited to6745 married couples, in which both partners interviewed at the same time but separately. 3596 couples had a child five years before time of the survey   and the use of institutional delivery was asked only for those respondents.

3.5 Data Quality
2011 Ethiopian Demographic Health Survey is a third national population based survey, and its sample was designed to provide population and health indicators at the national and regional levels. Although, survey by itself has a limitation, 2011 DHS data has shown quality

data compared to the last two surveys. During the data collection the survey used GPS which can show the geographical area of the studied area.

3.6 Operationalize Variable's

3.6.1. Dependent Variable: For this study binary variable was created based on women's report on whether their recent birth attended at health institution or not. It was coded as 1 if the delivery was in health institution and 0 otherwise. In this study, a health institution includes health centers, hospitals, general hospitals and referral hospitals. The measure of skilled delivery care is based on world health organization recommendation that deliveries should be assisted by someone with skills of midwifery, nurses or doctors (WHO, 2005).

3.6.2. Independent Variables: They are categorized in four ways; men, women and couples characteristics and health service use. Under men characteristics, age, education, religion, working status, ever had HIV test and habit of alcoholism and smoking cigarette are used for this study. In women characteristics, age, education, religion, working status, alcoholism and smoking cigarette, women's autonomy, ANC, ever had HIV test and receive result, previous pregnancy termination are included. As a shard characteristics for both men and women participants of the study includes, place of residence, number of living children and previous child death experience.

At the same time, in this study four dimensions of women autonomy measuring used. This four dimensions of women autonomy measuring were used during 2011 EDHS data collection. The three decision making process in the household response were categorized in to three groups, wife, jointly and husband/partner alone. Wife beating justified in various circumstances; all circumstance merged together and coded as yes and no based on the mentioned circumstances.

Use of health service is defined in this study as women who had ANC, termination pregnancy (stillbirth and abortion) and ever had HIV test and receive results for both men and women.

Table 1: Description of Dependent and Independent Variables and Measurement Scale with Coding

Outcome variable	Description	Measurement Scale and Coding
Place of delivery	Where was place of delivery	Dichotomous 0=Home and 1=Institution
Explanatory Variable **Use of health service**		
Receiving ANC	Antenatal checkups for the mother of most recent child	Dichotomous 0= No and 1=Yes
Termination of Pregnancy	Ever had a terminated pregnancy	Dichotomous 0= No and 1=Yes
HIV Test	Ever had HIV test	Dichotomous 0= No and 1=Yes
HIV Result Receive	Received HIV Result	Dichotomous 0= No and 1=Yes
Individual Characteristics		
Age (Men & Women)	Age of women's and Men	Continuous (count data) Unit increase: year
Religion	Respondents religion	Ordinal 1=Muslim,2= Orthodox,3= Protestant,4= Other
Education	Education level of Men &Women's	Ordinal 0= No Education, 1=Primary and 2=Secondary and above
Work status	Current working status of the Men &Women	Dichotomous 0= No and 1=Yes
Drinking alcohol	Ever drink an alcohol for both Men & Women	Dichotomous 0= No and 1=Yes
Smoking Cigarette	Ever smokes cigarette for both Men & Women	Dichotomous 0= No and 1=Yes
Shared Characteristics among couples		
Place of Residence	Current place of residence	Dichotomous 1=Urban and 2=Rural
Previous Child Death	Sons or daughters who have died	Dichotomous 0= No and 1=Yes
No of living children	Total Number of living children Women's had	Ordinal 0= No Children, 1=one ,2=Two,3=Three,4= Four and 5 = Five and more
Women Autonomy		
Decision on health care	Person who usually decides on respondent's health care	Ordinal 1=Wife and husband/partner 2=Wife alone3=Husband/partner alone
Purchase household	Person who usually decides on large household purchases	Ordinal 1=Wife and husband/partner 2=Wife alone 3=Husband/partner alone
Visit to family	Person who usually decides on visits to family or relatives	Ordinal 1=Wife and husband/partner 2=Wife alone 3=Husband/partner alone
Wife beating justified	Wife beating justified with circumstances	Dichotomous 0= No and 1=Yes

3.7 Analytic Strategy

Descriptive statistics was used to describe the couple characters, autonomy and access by frequency, proportion, means using cross-tabulation. Bi-varite analysis was used to identify the association and multivariate binary logistic regression also applied to identify determinate factors. All the results which are found from logistic regression presented in one table. The crude odds ratio (COR) and adjusted odds ratio (AOR) together with 95% CI (Confidence Interval). To check the model fit with the data, the classification accuracy, Hosmer and Lemeshow Test was checked. Moreover, the collinearity of the independent variables was checked by calculating variance inflation factors (VIF). All statistical analyses were

conducted using SPSS Version 20.0 and the criterion for statistical significance was p -value<0.05.

3.8 Ethical Consideration

Demographic health survey data are reliable data as they are granted by the Central Statistical Agency (CSA). This data is used to analyze population level indicators; individual level data cannot be accessed. The data represents the population characteristic at the national level. This survey was done in Ethiopia through the support of the measure DHS project, and it requires formal procedures and approval of the topic to access the DHS raw dataset.

Chapter 4

4. Result and Discussion

4.1 Respondents Socio-demographic Characteristics
A total of 6,745 couples were involved in the study and their demographic and socioeconomic characteristics and reproductive experience data were collected. Women aged15-49 years and who gave birth before five years of the survey were eligible for the study. A total sample of 3,596 respondents was used for the analysis. Nearly, half of the couples had a child before the survey period. Respondents' results were presented in the following sections for men and women and shared characteristics separately. Under the table of women characteristics, individual characteristics, women autonomy and use of health services were used to classify the categories. For both men and couples characteristics tabular representation was used for individual and utilization of health services in order to classify the individual responses.

4.1.1 Women Characteristics
Among the respondents included in this study, 32% of women were under age category of 25-29 years. The mean age of women respondents were 28 years ($\pm$6) standard deviation (SD).The educational level of women was enquired during the survey, and it was found that 69% of women didn't have any formal education at all. In addition, secondary and above education level of the respondents was low. Employment characteristics of the respondents' also showed that only 21% of women had jobs at the time of the survey. Among the women included in the study, 44% were Muslim while 32 % orthodox religion followers. On the other hand, the percentage of women who had the habit of smoking cigarette was very little while those who had ever drunk alcohol were 35% of the respondents.

Table 2: Description of socio-demographic, individual and health related characteristics of women who gave birth in five years preceding the survey (N=3596), EDHS, 2011.

Main characteristics	Total N (%)	Institutional delivery N (%)	P-value
Individual Characteristics			
Women Age by 5 Years Category			0.00
15-19	203(6)	24(12)	
20-24	791(22)	152(19)	
25-29	1142(32)	187(16)	
30-34	718(20)	105(15)	
35+	742(20)	67(22)	
Mean($\pm$) SD Age Years	28(6)		
Women Highest educational level			0.00
No education	2474(69)	194(8)	
Primary	947(26)	210(22)	
Secondary and above	175(5)	131(75)	
Religion			0.00
Muslim	1633(44)	207(13)	
Orthodox	1165(32)	248(21)	
Protestant	705(20)	75(11)	
Other	91(3)	5(6)	
Currently working			0.00
No	2548(71)	317(12)	
Yes	1044(29)	217(21)	
Smokes cigarettes			0.71
No	3581(99)	534(15)	
Yes	15(1)	1(7)	
Ever took an alcoholic drink			0.04
No	2342(65)	328(14)	
Yes	1252(35)	207(17)	
Women autonomy			
decides on respondent's health care			0.00
Wife and husband/partner	2140(59)	320(15)	
Wife alone	458(13)	123(27)	
Husband/partner alone	998(28)	92(9)	
decides on large household purchases			0.00
Wife and husband/partner	2121(59)	338(16)	
Wife alone	151(4)	40(26)	
Husband/partner alone	1324(37)	157(12)	
decides on visits to family or relatives			0.00
Wife and husband/partner	2056(57)	312(15)	
Wife alone	606(17)	128(21)	
Husband/partner alone	934(26)	95(10)	
Wife beating justified			0.00
No	895(25)	261(29)	
Yes	2611(73)	262(10)	
I don't know	90(2)		
Use of health service			
Ever been tested for HIV			0.00
No	2252(63)	125(6)	

Table 2 continued

Use of health service	Total N (%)	Institutional delivery N (%)	P-value
Yes	1336(37)	410(31)	
Received result from last HIV test			0.00
No	113(9)	13(12)	
Yes	1220(91)	396(33)	
System missing	2263		
Antenatal check-ups			0.00
No	1527(43)	46(3)	
Yes	2069(57)	489(24)	
Ever had a terminated pregnancy			0.70
No	3235(90)	479(15)	
Yes	361(10)	56(16)	
Where was recent birth attendance			
Home	3061(85)		
Institution	535(15)		
Total	3596(100%)		

The participation of women in the major household decision making activities was assessed and only 13% of women were reported to participate in the decisions related to their health care, whereas 59% of women reported that they participated in the decisions together with their husband or partner. As it's presented in the above table 2, 28% of women's health care decisions are made by their husbands or partners alone. In the purchase of large household, only 4% of women decide alone and 59% women had a chance to participate together with their husbands or partners. 26 % of the women can get permission with their husband to visit her families or relatives and 17% women can visit families and relatives by their own decisions only. Out of women respondent, 73% of them accepted wife beating as the right action if they had circumstances like burning food, refuse sex, without telling to her husband visiting friends or families, neglect children or arguing with her husband.

57 % of the women respondents had attended antenatal care (ANC) while the remaining women replied that they had never experienced ANC visit during their pregnancy. The women respondents were also asked whether they have ever experienced terminating their pregnancy. According to their response 10% of them had the experience of terminating their pregnancy. Among the participants 37% of women had HIV test and 91% them also received their HIV test results. More importantly five years' time before the survey, only 15% of pregnant women attended institutional deliveries for their most recent birth.

4.1.2. Men Characteristics
Similarly, men's characteristics are presented below in table 3.Among the respondents' more than half (52%) were35 and more years old, and 22% men were in the age category 30-34 years. The mean age of men respondents were 35 years ($\pm$8) standard deviation (SD). 47% of men hadn't had any formal education and 44% of men respondents had attended primary school at the time of survey. There were slight differences among men and women religion. 45% of men respondents were Muslim and 33% are orthodox. The other finding was current working status of men, and it is found 84% of men had job during the survey period. 15% men smoke cigarette and 46% had habit of drinking alcohol. In this study, 60% of men never had HIV test. Out of men who did HIV test, 90 % of them received their HIV test result.

Table 3: Description of socio-demographic, individual and health related characteristics of men (N=3596), EDHS, 2011

Main Characteristics	Total N (%)	Institutional delivery N (%)	P-value
Individual Characteristics			
Men Age by 5 Years Category			0.00
15-19	11(0.3)	1(9)	
20-24	211(6)	26(12)	
25-29	736(21)	123(17)	
30-34	796(22)	150(19)	
35+	1842(52)	337(67)	
Mean($\pm$) SD Age Years	35(8)		
Men's Highest educational level			0.00
No education	1688(47)	112(7)	
Primary	1567(44)	239(15)	
Secondary and above	341(9)	184(54)	
Religion			0.00
Muslim	1632(45)	209(13)	
Orthodox	1202(33)	252(21)	
Protestant	628(18)	65(10)	
Other	133(4)	9(7)	
Currently working			0.61
No	577(16)	90(16)	
Yes	3013(84)	445(15)	
Smokes cigarettes			0.64
No	3061(85)	452(15)	
Yes	533(15)	83(16)	
Ever took an alcoholic drink			0.00
No	1951(54)	252(13)	
Yes	1643(46)	283(17)	
Use of health service			
Ever been tested for HIV			0.00
No	2170(60)	186(9)	
Yes	1426(40)	349(25)	
Received HIV test result			0.00
No	137(10)	128(7)	
Yes	1288(90)	340(26)	
System Missing	2170		

4.1.3 Shared Characteristics among Couples

Couples characteristics which are common characteristics for both men and women participants in the survey also analyzed in separate table 4. It is found that 85% of the couples who participated in the survey live in rural area.30% of couples had five and more number of living children. In this study, 32% of couples had previous child death experience. Moreover, the study found that out of the couples, only 5% of them had religious difference.

Table 4: Description of shard socio-demographic and health related characteristics of men
& women who were couples and gave birth in five years preceding the survey
(N=3596),EDHS, 2011

Couples Characteristics	Total N (%)	Institutional delivery N (%)	P-value
Place of Residence			0.00
Urban	550(15)	347(63)	
Rural	3046(85)	188(6)	
No of living children			0.00
No children	28(0.8)	5(18)	
One	629(18)	197(31)	
Two	720(20)	130(18)	
Three	607(17)	79(13)	
Four	518(14)	48(9)	
5 and more	1094(30)	76(7)	
Previous Child death			0.00
No	2433(68)	457(19)	
Yes	1163(32)	78(7)	
Couples Religion Difference			0.98
No	3402(95)	506(15)	
Yes	194(5)	29(15)	
Total	3596(100%)		

In all the above three tables, the cross-tabulation results were presented together with significant values. In women characteristics, only smoking cigarette and the experience of pregnancy termination were found insignificant. The rest of the women characteristics had significant association with access to institutional delivery. Among listed men characteristics, current working status, smoking cigarette and religion difference were found insignificant.

Women's place of delivery and their age distribution are also presented below in figure 3: High proportion of institutional delivery was observed in the age group 20-24 years old.

Figure 3: Place of delivery by age distribution
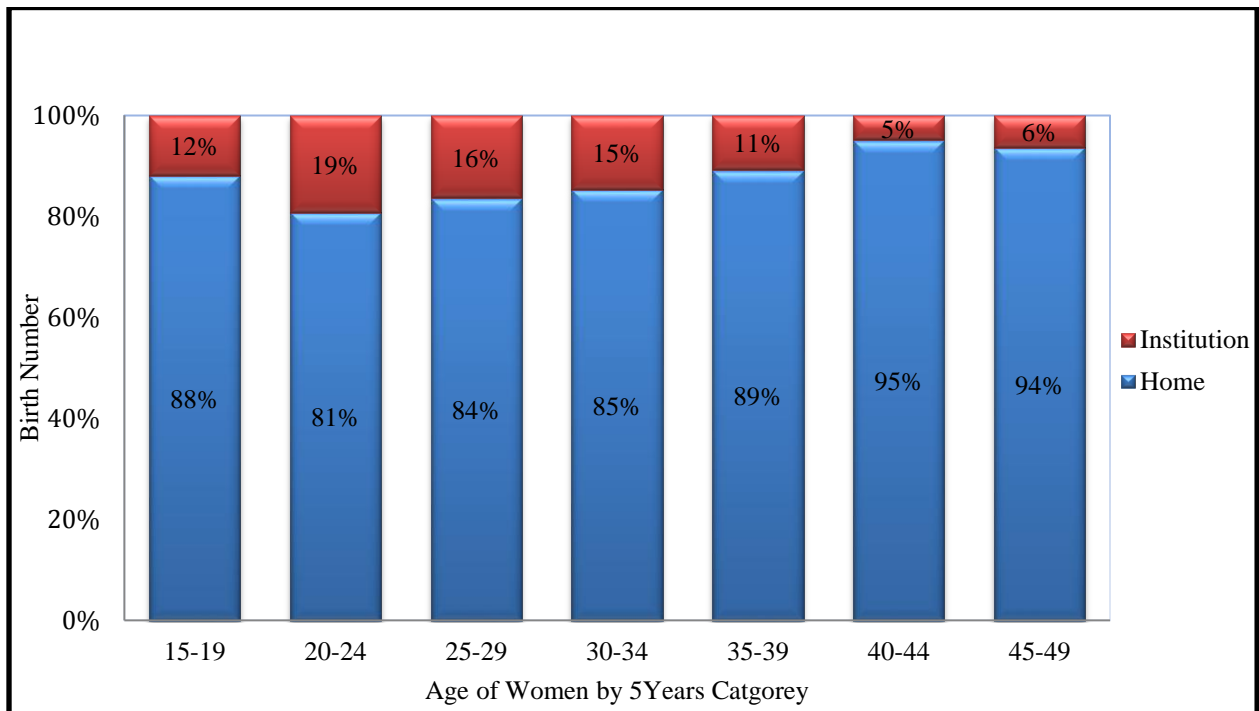
During the survey, women participation on decision making of the house hold was studied using four indicators: their involvement on decision of their health care, purchasing large household and visiting her families or relatives. The response was categorized as wife alone, Husband/partner alone wife and husband/partner. In addition their attitude towards wife beating by husband with certain situations of circumstance assessed. Figure 4 below showed that wife alone category had high proportion to access institutional delivery than jointly and husband or partner alone decision. Similarly, women who did not agree with wife beating in any circumstance had high proportion of attending institutional delivery.

Figure 4: Place of delivery by women participation in the household
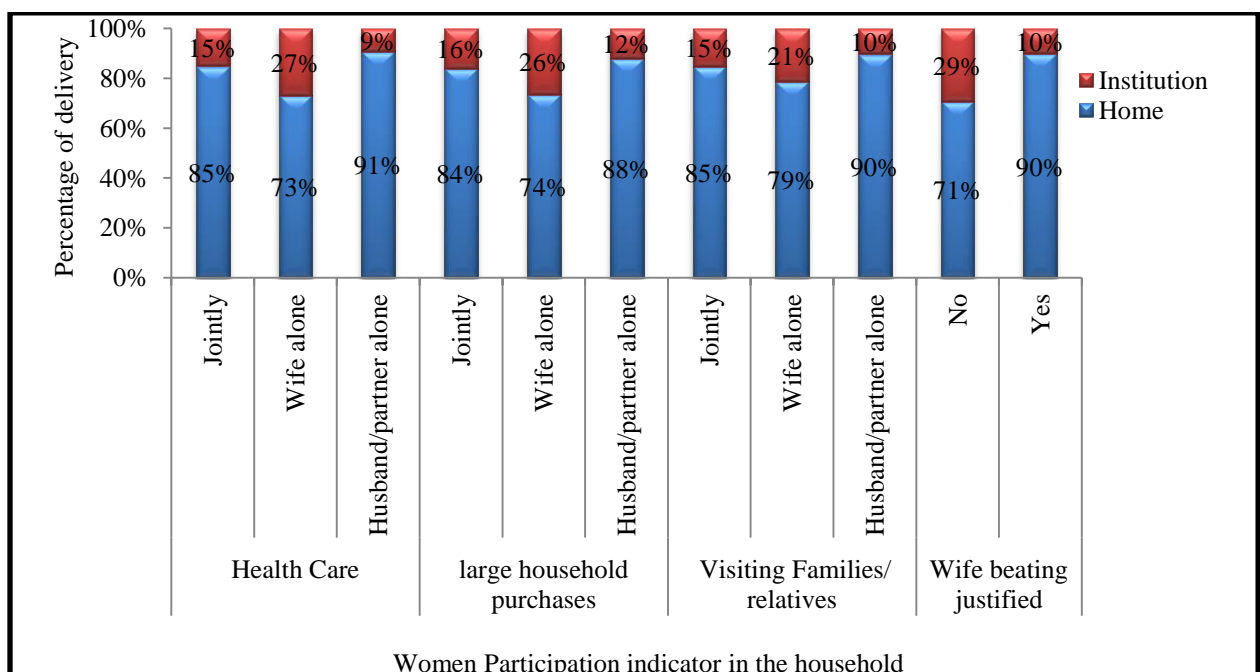
4.2 Association of socio-demographic and health related characteristics with institutional delivery

The univariat logistic regression analyses showed that the characteristics of women and men, age, education , place of residence, religions, women autonomy indicators, use of ANC and HIV test, experience of child death, total number of living children and drinking alcohol were significantly associated with institutional delivery. However, smoking, having pregnancy termination and current working status of men were not associated.

The multivariate logistic regression analysis showed that out of all factors associated with the outcome, place of residence, women's education, women's current working status, participation on decision of large household purchase, visiting families and relatives, wife beating (if justified with certain situations), women's HIV test, ANC, number of living children and child death experience were identified as determinant factors.

The analysis, as presented in table 4 below, were used both bi-variate and multivariate regression results together. All men's, women's and couples' characteristics were used at a time by selecting the reference category as appropriate to explain the results.

Table 5: Respondents Characteristics Association with Outcome (COR&AOR, 95%CI),EDHS, 2011

Respondent Characteristics	CrudeOdds Ratio (95%CI)	P-value	AdjusedOdds Ratio(95%CI)	P-value
Women Age by 5 Years Category *		0,00		0,71
15-19 @	1,00		1,00	
20-24	1.77(1.12,2.81)		1.61(0.87,2.95)	
25-29	1.46(0.93,2.30)		1.60(0.83,3.09)	
30-34	1.28(0.79,2.05)		1.81(0.87,3.77)	
35-39	0.90(0.54,1.50)		1.48(0.66,3.32)	
40-44	0.38(0.17,0.84)		1.21(0.41,3.57)	
45-49	0.51(0.15,1.78)		1.83(0.39,8.63)	
WomenHighesteducational level **		0,00		0,02
No education @	1,00		1,00	
Primary	3.35(2.71,4.14)		1.21(0.90,1.64)	
Secondaryandabove	34.99(24.13,50.74)		2.13(1.23,3.71)	
WomenReligion *		0,00		0,75
Muslim @	1,00		1,00	
Orthodox	1.86(1.52,2.28)		0.92(0.29,2.86)	
Protestant	0.82(0.62,1.09)		0.80(0.24,2.68)	
Other	0.40(0.16,0.99)		0.47(0.10,2.10)	
Currentlyworking **		0,00		0,04
No @	1,00		1,00	
Yes	1.85(1.53,2.23)		1.33(1.01,1.74)	
Person who usually decides on respondent's health care *		0,00		0,11
Wifeandhusband/partner @	1,00		1,00	
Wifealone	2.09(1.65,2.65)		1.42(0.98,2.05)	
Husband/partner alone	0.58(0.45,0.74)		0.93(0.64,1.35)	
Person who usually decides on large household purchases **		0,00		0,04
Wifeandhusband/partner @	1,00		1,00	
Wifealone	1.90(1.30,2.78)		0.87(0.49,1.53)	
Husband/partner alone	0.71(0.58,0.87)		1.46(1.06,2.01)	
Person who usually decides on visits to family or relatives **		0,00		0,02
Wifeandhusband/partner @	1,00		1,00	
Wifealone	1.49(1.19,1.88)		1.24(0.87,1.75)	
Husband/partner alone	0.63(0.49,0.81)		1.07(0.75,1.53)	
Wifebeatingjustified **		0,00		0,04
No	3.69(3.04,4.48)		1.32(1.01,1.75)	
Yes @	1,00		1,00	
Women Ever been tested for HIV **		0,00		0,00
No @	1,00		1,00	
Yes	7.53(6.08,9.34)		1.65(1.22,2.22)	
Antenatal check-ups **		0,00		0,00
No	0.10(0.07,0.14)		0.25(0.18,0.36)	
Yes @	1,00		1,00	
Women Ever took an alcoholic drink *		0,04		0,34
No @	1,00		1,00	

Table 4 continued

Respondent Characteristics	CrudeOdds Ratio (95%CI)	P-value	AdjusedOdds Ratio(95%CI)	P-value
Yes	1.22(1.01,1.47)		0.81(0.53,1.24)	
Men Age by 5 Years Category *		0,00		0,28
15-19	2.17(0.20,22.93)		1.32(0.11,16.13)	
20-24	3.05(0.89,10.39)		0.70(0.17,2.88)	
25-29	4.35(1.35,14.06)		0.88(0.23,3.32)	
30-34	5.03(1.56,16.22)		1.37(0.37,5.08)	
35-39	3.55(1.09,11.50)		1.31(0.35,4.83)	
40-44	3.33(1.02,10.87)		1.25(0.34,4.64)	
45-49	3.18(0.96,10.55)		1.73(0.46,6.48)	
50-54	2.02(0.56,7.28)		1.06(0.26,4.32)	
55-59 @	1,00		1,00	
Men'sHighesteducational level *		0,00		0,12
No education @	1,00		1,00	
Primary	2.53(2.00,3.21)		1.07(0.79,1.45)	
Secondaryandabove	16.41(12.38,21.96)		1.55(0.99,2.44)	
Men Religion *		0,00		0,68
Muslim @	1,00		1,00	
Orthodox	1.81(1.48,2.21)		1.36(0.45,4.12)	
Protestant	0.79(0.59,1.06)		1.01(0.29,3.46)	
Other	0.49(0.25,0.99)		1.65(0.44,6.18)	
Men Ever been tested for HIV *		0,00		0,63
No @	1,00		1,00	
Yes	3.46(2.85,4.19)		1.07(0.81,1.41)	
Men Ever took an alcoholic drink *		0,00		0,83
No @	1,00		1,00	
Yes	1.40(1.18,1.69)		0.96(0.66,1.39)	
CouplesPlace of Residence **		0,00		0,00
Urban	25.99(20.69,32.63)		9.14(6.76,12.35)	
Rural @	1,00		1,00	
Couples No of living children **		0,00		0,00
No children	2.91(1.08,7.87)		1.23(0.33,4.58)	
One	6.11(4.58,8.14)		4.22(2.52,7.05)	
Two	2.95(2.19,3.99)		1.49(0.94,2.35)	
Three	2.00(1.44,2.79)		1.45(0.92,2.28)	
Four	1.37(0.94,1.99)		1.08(0.67,1.73)	
5 and more @	1,00		1,00	
CouplesPrevious Child death **		0,00		0,00
No @	1,00		1,00	
Yes	0.31(0.24,0.40)		0.65(0.47,0.89)	

@Reference category, * significant at 0.05 COR & **significant at 0.05 AOR,

The multivariate result showed the significant association of education level of women with access to institutional deliveries. Primary and secondary level educations of women were associated with institutional delivery practice 1.21 (95 CI%:0.90, 1.64) and 2.13(95% CI: 1.23, 3.71) respectively as compared to those who had no education. Women who had job at the time of study was also found as a determinate factors, 1.33(95 CI%: 1.01, 1.74) times higher odds of access to intuitional delivery than those women who had no job.

The odds of wife only decisions on purchasing of household 0.87 (95% CI: 0.49, 1.53) was lower than wife who participated on joint decisions to access institutional delivery. On the other hand, women who didn't have any participation on large purchase of household, 1.46(95% CI: 1.06, 2.01) times higher odds than women who participated on joint decisions to access institutional delivery. Odds of wife only participated in the decision of visiting families and relatives had 1.24(95% CI: 0.87, 1.75) times higher than those women who participated on joint decisions to access institutional delivery. Women who did not agree with wife beating with the situation of circumstance had 1.32(95% CI: 1.01, 1.75) times higher odds than those who agreed.

Analysis was also done to identify the health service utilization of women in terms of ANC practice and experience of child death. The result showed that women who didn't have an ANC during their pregnancy period had 0.25 (95% CI: 0.18, 0.36) times lower odds of institutional delivery than those who attend ANC. In addition, women who had HIV test had 1.65(95% CI: 1.22, 2.22) times higher odds compared to those women who hadn't done HIV test to attend institutional delivery. In the final model, the appropriateness of the fitted model checked, and it was found Nagelkerke R Square 51%. In addition, the classification table showed 91% of the data correctly predicted. Hosmer and Lemeshow Test were also insignificant (p-value) which means the fitted model explains the data very well.

4.3 Discussion

This study identified the factors that determine access to institutional delivery among couples in Ethiopia, using the 2011 Ethiopian demographic and health survey. More importantly, it examined whether the women's health service use and attending the institutional delivery had any significant association or not.

The study result revealed, among the listed shared characteristics within couples' place of residence, total number of living children and previous child death experience were strong determining factor to access institutional delivery. In addition, women autonomy on visiting relatives/families, purchasing large house hold and women who don't agree with wife beating in a situation, all had significant association with attending health facilities delivery. Out of women health service utilization, attending ANC and ever had HIV test, all had significant association with access to institutional delivery. Among selected women socio-demographic characteristics, women who attended secondary and above education and who had job were found strong determinants to access institutional delivery.

A significant association was found on women's education level with institutional delivery. Women who attended primary schools were 1.21 times more likely to give birth in the health facilities than illiterate women. Similarly, women who attended secondary school education and above were 2.13 times more likely to give birth in the health facilities compared to illiterate women. This finding is similar to other research (Agha et al., 2011; Abeje et al., 2014; Feyissa & Genemo, 2014). The women's education level and utilization of institutional delivery care were found determinant factors in Ethiopia case which is similar to other developing countries. Another interesting finding of this study is that in couples, women's education is more important than men's education. However, the educational level of women's was low. According to the 2011 EDHS report, 52% females and 38% males had never attended any formal education.

It is found that women who had job are 1.33 times more likely to access institutional delivery than women who had no job. This finding is similar to other evidences found in Ethiopia (Ethiopia Population Studies Society, 2008; Hagos et al., 2014). The studies found from India

showed the relative importance of financial value to utilize institutional delivery (Kesterton et al., 2010). Nowadays, access to government health facilities is free but during complication time there is additional cost related to referral cases.

From the selected measures of autonomy dimensions, it is found that women who had participated on purchasing of large household and visiting families or relatives were significantly associated with access to institutional delivery. This finding is consistent with previously conducted studies in Ethiopia and Eretria (Woldemicael, 2010). Research conducted by Kamiya (2011), also suggested that women's freedom of economic decisions in the household is closely linked with the utilization of health care in developing countries. Among the four dimensions of women autonomy used in this study, three of them are significantly associated with access to institutional delivery. Those women who had access to financial, they can also have access to health facilities. Getting in contact with families or friends might help women by providing information about nearby health facilities. This could also help women to have contact to women who had experience on institutional delivery. In addition, women who agree on wife beating with certain situations lead women to believe as they are in lower status and accessing institutional delivery can be a problem for them. The 2011 EDHS survey showed that out of three women two of them agree on wife beating with certain circumstances, this indicate how this factor affect access to institutional delivery in the country.

In this study it was also found that women who had HIV test and attending institutional delivery had significant association. This is happened due to the fact that once they had access HIV test they also have access to health facilities in the time of their delivery. But this finding needs further analysis which is beyond this paper. The odds of institutional delivery indicated that women who didn't attend ANC during their pregnancy are decreased by 75% compared to those women who attended ANC. However, attending ANC by itself wasn't found to be the consistently determining factors for utilization of health facility, it was rather the timing of ANC and women's knowledge of pregnancy complication that matters (Rhoune et al., 2003; Sharma et al., 2007). The woman's belief about her pregnancy condition is also a matter for institutional delivery practice. If she feels her pregnancy is safe, she may prefer home delivery as she might think home delivery is comfortable (Abeje et al., 2014).

The result showed that among the couples, the proportion of women who attended institutional deliveries before five years of the survey period was 15%. This result is higher than the national institutional delivery utilization rate of 10% (CSA & ICF International, 2011). This variation may be explained in terms of different sample size in the couple's data set. Living in urban areas had nine times higher likelihood than living in rural areas to access institutional delivery care. The result is consistent with researches which were conducted in this area (Tarekegn et al., 2014; Amano et al., 2012). It implies that the infrastructural development in the urban areas health facilities, accessibility and transport system encourage more women to attend institutional deliveries. Besides, urban women are well educated and have better media access than their rural counterparts.This in turn, improve their knowledge about health service use. However, having a nearby health facility is not the only factor to attract for women's utilization of institutional delivery care. Women's understanding about the importance of health facilities delivery to their health and to the newborn baby is also necessary.

The number of living children is also another determinate factor among the couples for institutional delivery. Those women who did not have any previous delivery experience are 4.22 times more likely to delivery in the health facilities compared to women who already

had the experience. However, in this study, 30% of the respondents had more than five children and only 15% of the women had attended health facility delivery. This finding is consistent with other studies done in Ethiopia (Hailemichael et al., 2013) and EDHS reports. There are evidence that can be linked to women's fear of pregnancy complication during first delivery and once they had the experience they preferred to deliver at home the next births. In this study, it's also found that the odds of institutional delivery utilization of couples who had pervious child death experience decreased by 35% compared to those couples who hadn't faced any pervious child death experience

Chapter 5

5. Conclusion and Recommendation

The major purpose of this study was to examine the influence of couples' characteristics and women's autonomy on the use of institutional delivery. To this end, basic research question was raised such as the effect of couple's characteristics and women autonomy and use of health service on access to institutional delivery. The study used secondary data from 2011 EDHS and analyzed using descriptive and binary logistic regression techniques. Among the selected women characteristics, the study found a strong association between access to institutional delivery and women characteristics of education, working status, HIV test, ANC and their participation on decisions of purchasing large households and visiting families or relatives and wife beating with certain circumstances. The couple's characteristics place of residence, number of living children and previous child death experience, also have found a strong effect on utilization of institutional delivery. In recent time, delivery care utilization has become an issue in Ethiopia since the two consecutive demographic and health survey results which showed very low institutional delivery proportion. At the same time, high maternal mortality still exists in the country. Though there is still low utilization of institutional delivery in Ethiopia, little was done so far on study the situation. Even a few studies which were conducted focus only on the socio-demographic characteristics of women.

As stated in different researches, the involvement of husbands in the utilization of maternal health services is crucial; more specifically for health facility delivery care. Nevertheless, the strategies for men involvement in institutional delivery utilization were not available at all. Studies on the determinant of institutional delivery need also consider the involvement of men as well as couples together. This study identified the determinant factors among couples' utilization of institutional delivery care. Among the selected couples characteristics of men and women and use of health services, except men's current employment status, having pregnancy termination and smoking cigarettes, all had an association with access to institutional delivery.

Policy makers need to consider women's education as a primary strategy for access to health care use. Though living in urban areas can create easy access to health services in a country like Ethiopia where the majority of the population live in the rural areas it might not be a solution for high maternal mortality. One of the solutions is improving educational level of women so that they can understand the importance of attending ANC and make their choice on the issue of fertility. Furthermore, it's important for controlling population growth by limiting the number of children and helping women to have jobs and economically empowered. This study also recommends further investigation on the association between previous child death experience and women who had HIV test with attending institutional delivery.

5.1 Limitation of the Study

Having large survey data set and nationally representative sample is important to analyze the utilization of institutional delivery care and its determinant factors at country level. Socio-cultural factors primarily influence decision-making of women to seek health care. However, socio-cultural factors need to consider this decision making process by involving husband, family/household, and society at large. This study didn't include the social and cultural influence on women's access to institutional delivery in Ethiopia, where almost 90% the delivery takes place at home. It would be good to look into how this social norms and culture relate with women's access to institutional delivery practice on making early decision process.

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Appendix

SPSS Syntax

1. Coding and Descriptive Statistics

DATASET COPY Healthcare.

DATASET ACTIVATE Healthcare.

FILTER OFF.

USE ALL.

SELECT IF ((V743A = 1) | (V743A = 2) | (V743A = 4)).

EXECUTE.

DATASET ACTIVATE DataSet1.

DATASET ACTIVATE Healthcare.

DATASET COPY purcahsehh.

DATASET ACTIVATE purcahsehh.

FILTER OFF.

USE ALL.

SELECT IF ((V743B = 1) | (V743B = 2) | (V743B = 4)).

EXECUTE.

DATASET ACTIVATE Healthcare.

DATASET ACTIVATE purcahsehh.

DATASET COPY Visitfamily.

DATASET ACTIVATE Visitfamily.

FILTER OFF.

USE ALL.

SELECT IF ((V743D = 1) | (V743D = 2) | (V743D = 4)).

EXECUTE.

DATASET ACTIVATE purcahsehh.

DATASET ACTIVATE Visitfamily.

RECODE MV250 (2=0) (1=1).

EXECUTE.

DATASET COPY Finalselectedoutcome.

DATASET ACTIVATE Finalselectedoutcome.

FILTER OFF.

USE ALL.

SELECT IF ((MV250 = 0) | (MV250 = 1)).

EXECUTE.

DATASET ACTIVATE Visitfamily.

DATASET ACTIVATE Finalselectedoutcome.

COMPUTE womenautonomy=V743A + V743B + V743D.

EXECUTE.

RECODE V743A (1=2) (2=1) (4=3).

EXECUTE.

RECODE V743B (1=2) (2=1) (4=3).

EXECUTE.

RECODE V743D (1=2) (2=1) (4=3).

EXECUTE.

RECODE V130 (1=2) (2=4) (3=3) (4=1) (5=4) (96=4) INTO Mergedreligion.

VARIABLE LABELS Mergedreligion 'Mergedreligion'.

EXECUTE.

RECODE V218 (0=0) (1=1) (2=2) (3=3) (4=4) (5 thru Highest=5) INTO
        Newnumberofliving.

VARIABLE LABELS Newnumberofliving 'Newnumberofliving'.

EXECUTE.

COMPUTE Childdeath=V206 + V207.

EXECUTE.

RECODE V106 (0=0) (1=1) (2 thru 3=2).

EXECUTE.

RECODE MV106 (0=0) (1=1) (2 thru 3=2).

EXECUTE.

DATASET ACTIVATE Finaldataset.

FREQUENCIES VARIABLES=MV250 V013 MV013 V025 V106 MV106 Mergedreligion
        Newnumberofliving V228 V843

  MV248 Childdeath V714

 /ORDER=ANALYSIS.

CROSSTABS

 /TABLES=V013 MV013 V025 V106 MV106 Mergedreligion Newnumberofliving V228
        MV248 Childdeath V714

  MV714 BY MV250

 /FORMAT=AVALUE TABLES

 /STATISTICS=CHISQ

 /CELLS=COUNT ROW

 /COUNT ROUND CELL.

CROSSTABS

 /TABLES=V013 V106 Mergedreligion V228 MV248 V714 V463A S1007C V781 V828
        V743A V743B V743D

  CategorizedWB BY MV250

 /FORMAT=AVALUE TABLES

 /STATISTICS=CHISQ

 /CELLS=COUNT ROW

 /COUNT ROUND CELL.

CROSSTABS

 /TABLES=MV013 MV106 Menreligion MV463A SM811C MV781 MV828 BY MV250

 /FORMAT=AVALUE TABLES

 /STATISTICS=CHISQ

 /CELLS=COUNT ROW

 /COUNT ROUND CELL.

CROSSTABS

 /TABLES=MV714 BY MV250

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ

/CELLS=COUNT ROW

/COUNT ROUND CELL.

2. Binary Logistics Regression Syntax

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V013

/CONTRAST (V013)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V025

/CONTRAST (V025)=Indicator

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V106

/CONTRAST (V106)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER MV106

/CONTRAST (MV106)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER Mergedreligion

/CONTRAST (Mergedreligion)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER Newnumberofliving

/CONTRAST (Newnumberofliving)=Indicator

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER MV248

/CONTRAST (MV248)=Indicator

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER Childdeath

/CONTRAST (Childdeath)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V714

/CONTRAST (V714)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V743A

/CONTRAST (V743A)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V743B

/CONTRAST (V743B)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V743D

/CONTRAST (V743D)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER SM811C

/CONTRAST (SM811C)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER MV781

/CONTRAST (MV781)=Indicator(1)

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER MV828

/CONTRAST (MV828)=Indicator

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5)

3. Multivariate Logistic Regression

LOGISTIC REGRESSION VARIABLES MV250

/METHOD=ENTER V013 V025 V106 MV106 Mergedreligion Menreligion
Newnumberofliving MV248 Childdeath

  V714 S1007C SM811C V781 V828 MV781 MV828 V743A V743B V743D newWB

/CONTRAST (V013)=Indicator(1)

/CONTRAST (V025)=Indicator

/CONTRAST (V106)=Indicator(1)

/CONTRAST (MV106)=Indicator(1)

/CONTRAST (Mergedreligion)=Indicator(1)

/CONTRAST (Menreligion)=Indicator(1)

/CONTRAST (Newnumberofliving)=Indicator

/CONTRAST (MV248)=Indicator

/CONTRAST (Childdeath)=Indicator(1)

/CONTRAST (V714)=Indicator(1)

/CONTRAST (S1007C)=Indicator(1)

/CONTRAST (SM811C)=Indicator(1)

/CONTRAST (V781)=Indicator(1)

/CONTRAST (V828)=Indicator

/CONTRAST (MV781)=Indicator(1)

/CONTRAST (MV828)=Indicator

/CONTRAST (V743A)=Indicator(1)

/CONTRAST (V743B)=Indicator(1)

/CONTRAST (V743D)=Indicator(1)

/CONTRAST (newWB)=Indicator

/PRINT=GOODFIT CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).