

# Maternal Health Care Seeking Behaviour in Ethiopia: Findings from EDHS 2005

Ethiopian Society of Population Studies

**In-depth Analysis of the Ethiopian Demographic  
and Health Survey 2005**

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## Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
CSA	Central Statistical Authority
DC	Delivery Care
DHS	Demographic and Health Survey
EDHS	Ethiopian Demographic and Health Survey
FGD	Focus Group Discussion
HIV	Human Immunodeficiency Virus
HHD	Household Decision
MCH	Maternal and Child Health
PNC	Postnatal Care
SPSS	Statistical Package for Social Science
TBA	Traditional Birth Attendant
UNICEF	United Nations Children's Fund
VIF	Variation Inflation Factor
WHO	World Health Organization

## Abstract

The purpose of this study is to highlight the pattern of maternal health care seeking behaviour in Ethiopia. The basic data used for analysis were derived from the 2005 Ethiopian Demographic and Health Survey. Overall, the extent of maternal health care seeking behaviour in Ethiopia is extremely low (antenatal care – 27.7 percent, delivery care – 5.3 percent and postnatal care 5.8 percent ) but with marked variations across women’s demographic and socio-economic characteristics. A mother’s age at birth, birth order, place of residence, region, women’s education and work status, wealth quintile, religion and household decision-making autonomy were used as predictor variables of maternal health care seeking behaviour.

Both bivariate and multivariate analyses demonstrate the difference in the utilization of health care services and women’s demographic and socio - economic characteristics. Except mothers’ age at birth, work status and religion, all variables entered into the model appeared to be acceptable at 5 percent level of significance. Socio-economic variables such as education, region, residence, wealth index and household decision were implicated most strongly in women’s utilization of health care services, as seen in the strong positive relationship between utilization of health care services and women’s education as well as household decision autonomy.

On the basis of the empirical findings, to improve the utilization of maternity care services, it is suggested that comprehensive efforts have to be made to create awareness about the benefits of health care seeking behaviour. Besides, this research calls for continued investment in female education and enhancing women’s household decision making, which are indispensable for improving utilization of maternity care services. Further coordinated efforts should be made, on the part of the government and other concerned bodies at all levels, to get better utilization of health care services.

## 1. Introduction

This section discusses the general background and the objectives of the study and organization of the report.

### 1.1 Background

The child bearing functions of women, especially in developing countries, have been granted as a normal or routine process. Yet these valued and precious parts of life are among the most hazardous experiences that women often engage in without being aware of the risks or dangers that they are in.

Women's access to health care is a complex one - as it is both the outcome of women's status in the society, including society's response to their health needs, and a determinant of women's health and productivity and, ultimately, of their status (Chatterjee, 1990).

To date, the importance of maternal health care services in reducing maternal mortality and morbidity has received a significant recognition. Implementing and assuring utilization of effective maternity care for women in the developing world is not an easy task. In Ethiopia, as in other developing countries, most childbearing women are poor and live under harsh conditions. For them, while adequate care during pregnancy and delivery is essential, health care service utilization is extremely low. Data show that antenatal coverage in Ethiopia is only 27.7 percent. Delivery and postnatal care services are only 5.3 percent and 5.8 percent, respectively. This low utilization of health care services may give some indication of service coverage in the country. As a result, each year large number of women in the child bearing ages (15-49 years) die from complications associated with pregnancy and childbirth. Studies have indicated that about 17,000 women of reproductive age die from complications associated with pregnancy and childbirth (UNICEF, 1993). The maternal mortality ratios estimated at 871 per 100,000 live births (CSA and ORC Marco, 2001) and 673 per 100,000 live births (CSA and ORC Marco, 2006) are of the magnitude observed in Europe about a century ago and they are at least fifty times higher than the present rates in developed countries.

Despite low utilization of health care services, there is considerable variation across different demographic and socio-economic variables. The explanation of this diversity may be complex. Utilization of maternal health care services is affected by a multitude of factors. An attempt is also made in this study to understand the factors that determine women's utilization of health care services.

## 1.2 Study Objectives

The general objective of this study is to explore the influences of underlying factors on women's health seeking behaviour. In line with this general objective, the study attempted to:

- (a) Examine demographic and socio- economic differentials of health seeking behaviour of women;
- (b) Scrutinize demographic and socio-economic determinants of women's health seeking behaviour; and
- (c) Suggest strategies for improving health seeking behaviour of women.

## 1.3 Organization of the Report

This paper is organized into five sections, including this introductory section. Section two presents a review of literature based on empirical evidences from the developing world. In section three, sources of data, definition of variables and methods of data analysis are treated. Section four presents the major findings of the study. The final section is devoted to summary and recommendations.

## 2. Literature Review

Utilization of health care services is affected by a multitude of factors. Several studies have attempted to identify and measure the effects of factors that contribute to differentiation in the utilization of health care services (Sugathan et al., 2001). Review of literature across the globe suggests that these factors can be identified as cultural beliefs, socio-demographic status, women's autonomy, economic conditions, physical and financial accessibility, and health services issue (Shaikh and Juanita, 2004).

A number of factors have also been identified as the major causes of poor utilization of primary health care services: age of mothers, family size, parity, educational status, work status, etc. (Leslie and Gupta, 1989; Adekunle et al., 1990; Pol and Thomas, 1992).

Use of maternal health care services is expected to be associated with demographic and socioeconomic factors. One important demographic variable that affects the utilization of health seeking behaviour is mothers' age at the time of birth. Studies show that lower utilization of maternity care services is observed among mothers who are over 35 years of age (Leslie and Gupta, 1989; CSA, 1993; Mengistu and James, 1996; Bell et al., 2003).

Parity, the number of children ever born, is strongly associated with health seeking behaviour. Studies show that primiparous women are consistently more likely to deliver with the assistance of a health professional than any other parity group. High parity women are the least likely to seek maternity care services (Abbas and Walker, 1986; Mengistu and James, 1996; Celik and Hotchkiss, 2000; Bell et al., 2003) due to greater confidence and cumulative experience (Kwast and Liff, 1988). On the other hand, nulliparous women seek early maternity care services (Kalizer and Kidd, 1981).

The service and social environments are typically very different in urban and rural areas. Strong urban-rural differentials in utilization of maternity care services are therefore expected (CSA, 1993; Bell et al., 2003). With regard to work status, one study made in four Indian states found that working mothers are less likely to deliver in a medical institution than non-working mothers (Sugathan et al., 2001). Another local study, however, found that mothers' work status does not significantly relate to utilization of maternal health care services (Mekonnen and Asnakech, 2002).

Economic status has recently been described by using DHS data to classify women into quintile group according to household wealth. Wealth is measured by means of an asset score that is based on principal component analysis on more than 40 asset variables: durable consumer goods, housing facilities and housing materials

(Gwatkm et al., 2000). Hence, economic status is to be found as an important indicator of access to health care services. Utilization of maternity care services is expected to be substantially higher among mothers in the upper quintiles of the wealth index (Kwast and Liff, 1988; Mengistu and James, 1996; Bell, et al., 2003).

Men play a paramount role in determining health care needs of women. Since men are decision makers and in control of all the resources, they decide when and where women should seek health care (Rani, 2003). Thus, the low status of women prevents them from recognizing and voicing their concerns about health needs (WHO, 1998).

The issue of women's education has been discussed at length in the context of health care seeking behaviour, and it would be reasonable to assume that it would have a positive effect on their own health. Studies show that maternal health education is consistently and strongly associated with all types of health behaviour and we expect use of maternal health care services to be higher among more educated mothers. Put differently, educated mothers are more likely to seek health care services than less educated women (Cadwell, 1979; Schultz, 1980; Smucker et al., 1980; Kwast and Liff, 1988; Leslie and Gupta, 1989; Elo, 1992; Belay, 1997; Ramesh and Govindasamy, 1997; Celik and Hotchkiss, 2000; Bell et al., 2003).

### 3. Data and Methods

#### Data

The data used in this study came from the 2005 Ethiopian Demographic and Health Survey. The EDHS collected data on reproductive health issues from women aged 15-49 years. The data are nationally and regionally representative and internationally comparable. The population base was non-pregnant and non-lactating women aged 15-49 years at the time of the survey. The reference period refers to the time of the survey. Whereas the numerators used in the analysis were percent distribution of women who attend and/or seek maternity care services, the denominator includes number of interviewed women aged 15-49 years at the time of the survey who gave birth in the five years preceding the date of the interview. Efforts were also made to supplement the EDHS with qualitative data.

#### Measurement of maternal health care services

##### Dependent variables:

Three dependent variables were created from questions included in the maternal health component of the DHS questionnaire on antenatal care by health professionals, delivery care at health institutions and delivery assistance for all live births that occurred within five years of the survey. In all these cases, the dependent variable is coded '1' if the woman obtained services either from health professionals or health institutions.

##### Independent variables:

The variables included as predictors are age, children ever born, residence, region, women's education, work status, household wealth index and household decision-making autonomy. The reference category for each explanatory variable is the category with large number of observations (see appendix 1 for details).

#### Analysis

In analyzing data, both bivariate and multivariate analyses were employed. In the bivariate analysis, cross tabs and the chi-square test were applied to examine the association between each of the independent variables and maternal health care seeking behaviour. The chi-square test in the bivariate analysis does not consider confounding effects. Therefore, the multivariate statistical method used in the analysis is logistics regression, with percentage of women who attend and/or seek maternity care services as the response variable. The method is used to analyze the net effect of each of the independent variables on women's health care seeking behaviour, while controlling for the other independent variables. The nine predictor variables are divided into two groups: demographic and socio-economic variables. Demographic variables include age of mothers

and children ever born. Socio-economic factors include residence, region, women's education, work status, household wealth index, religion and household decision-making autonomy. The results of multivariate analyses are presented in the form of odds ratio.

The details of the multivariate statistical technique used for the analysis of data and the need to use the technique and basic model are briefly provided below. Although the formulae and algorithms are not described, appropriate references have been cited for them. Logistic regression (logit regression) is used when the response or dependent variable is dichotomous (i.e. 0 or 1). The predictor variables may be quantitative, categorical or a combination of the two. Suppose, the probability of the occurrence of event Y, [P (Y=1)] depends on a set of explanatory variables X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, ..., X<sub>k</sub>. The basic form of the logistic function is:

$$p = \frac{e^{z}}{1 + e^{z}} \quad \text{where } z = b_0 + b_1X_1 + b_2X_2 + \dots + b_kX_k$$

Where z is a linear function of a set of predictor variables, X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, ..., X<sub>k</sub> given by

$$Z = b_0 + b_1X_1 + b_2X_2 + \dots + b_kX_k$$

and b<sub>0</sub>, b<sub>1</sub>, b<sub>2</sub>, ..., b<sub>k</sub> are regression coefficients.

Logit of P is derived by taking natural logarithm, that is,  $\log \left[ \frac{p}{1-p} \right] = Z$

The quantity  $\left[ \frac{p}{1-p} \right]$  is called the odds and hence  $\log \left[ \frac{p}{1-p} \right]$ , the log odds (For details,

see Retherford and Choe, 1993). The coefficients b<sub>0</sub>, b<sub>1</sub>, b<sub>2</sub>, ..., b<sub>k</sub> are similar to regression coefficients and are called logit regression coefficients. These coefficients are used to compute odds ratios (reported in results), which give the ratio of an event occurring (Y=1). In the case of a dichotomous independent variable, the odds ratio can be interpreted as the increased odds of a positive outcome on the dependent variable for the affirmative category (X=1) over the negative one (X=0). An odds ratio of more than one indicates a positive association between the independent and dependent variables and an odds ratio of less than one indicates negative association. Due to the dichotomous nature of the dependent variable, the technique of logit regression has been used for the analyses. The logistic regression technique can be used not only to identify the risk factor but also to predict the probability of success.

## 4. Results and Discussions

This section presents findings of maternal health care seeking behaviours. The results in the following sections are based on the data collected from the EDHS 2005.

### 4.1 Differentials of Maternal Health Care Seeking Behaviour: Bivariate and Multivariate Analyses

Various factors influence utilization of health care services among women of reproductive ages. The effect of one variable on utilization of health care services is likely to be confounded with the effects of other variables. To this end, diagnostic analysis using variation inflation factors (VIF) shows that there was no striking multicollinearity (condition index<sup>1</sup> = [3.18 to 11.64]) among the explanatory variables. More than 73 percent of the original observations were correctly classified and the logistic regression model fitted the theoretical predictions (cut off point = 0.500) at the significance level of less than 0.05.

Similarly, the Hosmer and Lemeshow Goodness-of-fit test was also carried out. This test divides subjects into deciles based on predicted probabilities and computes a chi-square from observed and expected frequencies. The computed p-value = 0.032 from the chi-square distribution with 8 degrees of freedom indicates that the logistic model is a good fit<sup>2</sup> (Bryman and Cramer, 2001).

#### 4.1.1 Antenatal Care

Table 1 shows the percentage distribution of women who had a live birth in the five years preceding the survey by the type of antenatal care provider for the most recent birth. The table indicates only 27.7 percent of Ethiopian women receive antenatal care from a medical professional. Examination of differentials and determinants of antenatal care in table 2 shows that most of the background variables are related with antenatal care. However, there are significant variations within the variable. Mothers' age at birth is found to be lower for older women (22.7 percent) than young women (27.3 percent). The proportion of women seeking antenatal care for the first

<sup>1</sup> Condition indexes greater than 15 indicate some possible problem and an index greater than 30 suggests a serious problem with collinearity. Here the condition index varies from 3.18 to 11.64 (Bryman and Cramer, 2001).

<sup>2</sup> If the Hosmer and Lemeshow Goodness-of-Fit test statistic is 0.05 or less, we reject the null hypothesis which states that there is no difference between the observed and predicted values of the dependent variable; if it is greater, we fail to reject the null hypothesis implying that the model's estimates fit the data at an acceptable level. This does not mean that the model explains much of the variance in the dependent variable, only that it does so to a significant degree.

birth is relatively higher (34.4 percent) than subsequent birth orders. Rural women (23.7 percent) are less likely than their urban counterparts (69.0 percent) to get antenatal care from health professionals and more likely to get no care at all. There are marked regional variations in antenatal care coverage, with 93 percent of women in Somali Region not getting any antenatal care at all as compared to women in Addis Ababa (88.4 percent) and Dire Dawa (52 percent) who get the service. The proportion of women receiving antenatal care from a health professional is also higher for Tigray and Gambella regions (35.2 percent and 34.8 percent, respectively).

Antenatal care coverage is also associated with women's education, wealth, household decision autonomy and religion. Women with secondary education and above are more likely, than those with no education (87.6 percent and 21.6 percent, respectively), to receive antenatal care from health professionals. The proportion of women who get no antenatal care declines steadily as their educational level increases. Women with the lowest wealth quintile and household decision autonomy are less likely to see medical professionals for their most recent birth than women in higher wealth quintile and household autonomy. Religion is also found to be a significant indicator of antenatal care services in Ethiopia. Orthodox women are more likely to see health professionals for antenatal care than any other religious category.

**Table 1 Percent distribution of women with maternal health care seeking behaviour, by background characteristics**

ANC by Health Professionals			
	Number	Percent	p- value
<b>Covanate</b>			
Mother's age at birth			
15-19	991	27.3	
20 - 34 ®	4 918	29.1	0.000
35-49	1 388	22.7	
Birth order			
1	1 190	34.4	
2-3®	2 087	31.1	0.000
4-5	1 692	25.8	
6+	2 336	22.4	
Residence			
Rural®	6 669	69.0	0.000
Urban	633	23.7	
Region			
Tigray	480	35.2	
Afar	68	14.7	
Amhara	1855	26.5	
Oromia ®	2719	24.8	
Somali	287	7.3	0.000
Benishangul Gumuz	68	25.0	
SNNPR	1632	30.3	
Gambella	23	34.8	
Harari	15	40.0	
Addis Ababa	129	88.4	
Dire Dawa	25	52.0	
Education			
No education ®	5 756	21.8	
Primary	1 353	44.1	0.000
Secondary +	193	87.6	
Work status			
Not working ®	5108	26.0	0.000
Currently working	1855	32.5	
Wealth index			
Poorest	1 521	12.7	
Poorer	1 551	18.6	
Middle ®	1 587	25.2	0.000
Richer	1 449	30.6	
Richest	1 195	58.1	
HHD autonomy			
Low	2 526	22.6	
Medium ®	3 479	29.3	0.000
High	736	35.5	

Religion			
Orthodox ®	3 262	31.5	
Muslim	2 377	22.4	0.000
Protestant	1 408	28.9	
Others	259	21.2	
Total (N)	7 302	27.7	

® The category with the largest sample size is usually selected as a reference category.

#### 4.1.2 Delivery and Postnatal Care

The objective of providing safe delivery care is to protect the life and health of the mother and her child. An important component of efforts to reduce the health risk to mothers and children is to increase the proportion of babies delivered under the supervision of health professionals. Proper medical attention under hygienic conditions during delivery can reduce the risk of complications and infections that may cause death or serious illness either to the mother, baby or both.

Adequate utilization of postnatal care can also help reduce mortality and morbidity among mothers and their babies. Postnatal care is important for mothers for treatment of complications arising from delivery, especially for births that occurred at home. For non-institutional births particularly, postnatal care enables detection of complications that may threaten the survival of the mother. In Ethiopia, where the largest proportions of births take place at home, postnatal care by health professionals is extremely low and uncommon.

Delivery and postnatal care are still far from commonplace among pregnant women in Ethiopia. The 2005 EDHS data show that most deliveries still occur at home and are assisted by medically unskilled birth attendants. Among all live births in the five years preceding the survey, almost 95 percent took place outside a health facility. Only one out of twenty births occurred at a health facility. As is the case in antenatal care services, there existed marked variation both in utilization of delivery and postnatal care services as a function of women's background characteristics. The data show that younger women are more likely than older women to seek both delivery and postnatal care services; most of the time they seek the services for the first birth than other higher birth orders (see table 2). The proportion of births delivered at health facilities in urban areas is by far higher than rural areas (42.6 percent and 2.4 percent, respectively). The comparable percentages for postnatal care are 35.5 percent and 3.5 percent. Urban children are more likely to be born at health institution than rural children. Births at home are substantially higher among women who live in Tigray, Afar, Amhara, Oromia, Benishangul Gumuz and SNNP regions. On the other hand, relatively large proportions of women give birth in health institutions in Gambella (16.1 percent), Harari (31.8 percent), Addis Ababa (78.4 percent) and Dire Dawa (26.3 percent).

The bivariate effect of women's education is found to be an important predictor of utilization of delivery and postnatal care services. As one may expect, the proportion of women, with at least secondary education and above seeking both delivery and postnatal cares is higher than their counterparts with some or no education. The data show that 67.8 percent and 59.1 percent of women with higher educational category seek delivery and postnatal care services, respectively. Women with some education had received both delivery and postnatal cares at health facility accounting for about 11.5 percent. The comparable percentages for women with no education are 2.2 percent and 3.1 percent, respectively. With regard to work status, working women were more likely to seek maternity care services than women who are not working.

There are evidences that indicate the poor remain least likely to use delivery and postnatal care services (Snead and Cockerham, 2002). Examination of differentials of delivery and postnatal care services across wealth indices support the positive association between women's wealth index and utilization of health care services, with women in the highest wealth category tending to more likely seek health care services than women in the middle and lower wealth categories. By the same token, household decision autonomy had also significant influence on the likelihood of a woman to receive both delivery and postnatal care services. As compared to the reference category (5.4 percent and 5.7 percent for delivery and postnatal care services, respectively), women with high household decision autonomy are more likely to seek delivery (11.3%) and postnatal care (10.9%) services. The influence of religion has also some bearings on utilization of delivery and postnatal care services. As compared to Orthodox women who use the services (7.5 percent and 7.6 percent), Muslim women are less likely to seek delivery (3.0 percent) and postnatal care (3.9 percent) services. On the other hand, Protestant women tend to occupy an intermediate position in using delivery (5.2 percent) and postnatal care (6.1 percent) services.

**Table 2. Percent distribution of women with maternal health care seeking behaviour, by background characteristics**

DC @ Health Institutions PNC by Health Professionals						
	N	%	p-value	N	%	p-value
<b>Covariate</b>						
Mother's age at birth						
15-19	1 716	6.5		1 716	6.5	
20 - 34 ®	7 681	5.4	0.000	7 676	6.0	0.000
35-49	1 740	3.5		1 738	4.1	
Birth order						
1	1 933	13.2		1 927	11.9	
2-3®	3 348	5.9	0.000	3 344	6.4	0.000
4-5	2 461	2.6		2 613	3.7	
6+	3 247	2.2		3 246	3.4	
Residence						
Rural®	10 323	2.4	0.000	10 317	3.5	0.000
Urban	813	42.6		813	35.7	
Region						
Tigray	698	6.0		698	7.3	
Afar	107	3.7		107	5.6	
Amhara	2 621	3.5		2 613	4.5	
Oromia ®	4 396	4.3		4 397	4.8	
Somali	472	5.1	0.000	471	4.2	0.000
Benishangul Gumuz	105	4.8		104	3.8	
SNNPR	2 499	3.7		2 496	5.3	
Gambella	31	16.1		31	12.9	
Harari	22	31.8		22	27.3	
Addis Ababa	153	78.4		153	56.9	
Dire Dawa	37	26.3		38	21.1	
Education						
No education ®	8 864	2.2		8857	3.1	
Primary	2 041	11.5	0.000	2041	11.7	0.000
Secondary +	231	67.5		232	59.1	
Work status						
Not working ®	7 940	4.8	0.000	7 934	5.2	0.000
Currently working	2 666	7.1		2 664	7.8	
Wealth index						
Poorest	2 431	0.6		2 432	1.7	
Poorer	2 351	1.2		2 350	2.1	
Middle ®	2 480	1.9	.000	2 476	3.4	0.000
Richer	2 217	4.1		2 216	4.6	
Richest	1 658	24.7		1 657	22.3	
HHD autonomy						
Low	4 079	2.7		4 075	4.1	
Medium ®	5 325	5.4	0.000	5 321	5.7	0.000

High	1 055	11.3		1 057	10.9	
Religion						
Orthodox ®	4 669	7.5		4 669	7.6	
Muslim	3 858	3.0	0.000	3 853	3.9	0.000
Protestant	2 213	5.2		2 213	6.1	
Others	396	2.0		394	2.5	
Total (N)	11 137	5.3		11 137	5.8	

## 4.2 Determinants of Maternal Health Care Seeking Behaviour, Multivariate Regression Analysis

It was observed from the earlier bivariate analysis that there are differentials between utilization of maternal health care services and demographic and socioeconomic variables. However, since some of these variables are not associated, there is a need to appraise the effect of a single factor when other variables are controlled. Therefore, when evaluating the effects of any one factor on utilization of health care services, a multivariate analysis is necessary to control for the effects of other potentially confounding factors. To this end, logistic regression analysis was carried out to quantify the net effects of these background factors on the dependent variable and the results are presented in table 3.

### 4.2.1 Antenatal Care

Multivariate analyses were used to estimate the utilization of antenatal health care services as a function of women's background characteristics. Multivariate analysis is the simultaneous statistical consideration of relationships among many measured properties of a given system (Gould, 1996).

The results of multivariate analysis at national level suggest the importance of birth order, residence, women's education, wealth index and household autonomy as the principal determinants of health care seeking behaviour. Among the variables entered into the model, birth order of the child, place of residence, region, women's education, wealth quintile and household autonomy were found to be the foremost predictors of antenatal care services in Ethiopia (see table 2). The results also show that women are more likely to seek maternal health care services for the first birth than higher order births. The probability of seeking antenatal care services for the first birth is more likely to be higher than other higher order birth orders. The odds of receiving antenatal care is 1.34 times higher for the first births than second and third birth orders. The results of this study are consistent with most of the literature in the area (Fernandez, 1984; Wong et al., 1987; Elo, 1992). Further explanations obtained from qualitative data indicated that women visit health institutions for antenatal care for their first birth than consecutive birth orders. Women who give birth to their first child without any complication do not want to visit health centres for antenatal care.

Urban women are more likely to receive antenatal care services during pregnancy than rural women. The probability of receiving antenatal care for urban women is 2.74 times higher than rural women. Key informant interviews and results of focus group discussions from almost all regions also suggest low utilization of antenatal care in rural areas. Strong traditional beliefs, low awareness of the people towards use of modern health services and inaccessibility of health services are cited as major factors contributing for low utilization of antenatal care services in rural areas.

Regional variations also exist in utilization of antenatal care services in Ethiopia. Women in Afar and Somali regions are less likely to seek antenatal health care services during pregnancy than the reference category, Oromia Region in this case. In some communities like the Afar, husbands are not willing to send their wives to be assisted by male health practitioners. The nomadic way of life and the strong traditional practice of using traditional birth attendants are identified as the responsible factors for low utilization of antenatal care in Afar and Somali regions.

Conversely, women in Addis Ababa, Tigray, Gambella, Dire Dawa, SNNP and Benishangul Gumuz regions are more likely to seek antenatal care services than the reference region, though the magnitude varies. For example, the probability of seeking antenatal care for women in Addis Ababa, Tigray, Gambella and Dire Dawa is 3.98, 1.93, 1.77 and 1.55 times higher than women in Oromia Regional State, respectively. This may partly be attributed to the ease of access to health facilities in these regions as compared to Afar and Somali regions.

One can also find geographical polarization in utilization of antenatal care services in Ethiopia. The two peripheral regions, Gambella and Somali, are almost equidistant from the centre in opposite directions; yet they show a striking difference in antenatal care service utilization. The odds of seeking antenatal care services for Gambella women is at least six times higher than for women in Somali Region. The qualitative data generated from key informants and focus group discussion participants of Gambella show that because of family health education and influence from mass media, the trend of coming to health centres has been improving. However, this is not the case for the Somali where traditional beliefs have still strong influence on utilization of antenatal care services. Low awareness of the community about the benefits of modern health care services was also indicated as a factor for low utilization of antenatal care services by Somali women.

There is also a strong association between women's education and the use of antenatal care services. Women with at least primary education are 1.92 times more likely to receive ANC services than women with no education. Likewise, the odds of receiving antenatal care for women with secondary and higher education was 5.41 times higher than women with no schooling. Irrespective of the geographical setting, age and ethnic composition of

the population, female education was indicated as an important factor in affecting utilization of antenatal care services. Key informants as well as focus group discussion participants from almost all regions underlined the importance of female education as it makes women aware of the benefits of health care services.

Another important predictor of women's antenatal care service utilization is wealth quintile. Women from the highest wealth index are two times more likely to receive health care services than those in the middle category. Conversely, the probability of receiving antenatal care services for a woman from the lowest wealth index relative to the middle category is reduced by 50 percent. Further qualitative data generated from key informants and focus group discussion participants were also in line with this finding. They mentioned distance, inaccessibility of health institutions and poverty as factors responsible for low utilization of antenatal care services. Even if women are interested in checkups, there are costs for transportation and related services. Hence, only those who can afford to pay for such expenses usually visit health facilities for antenatal care.

Household decision autonomy has also a positive effect on the utilization of antenatal care services. Women who have had low household autonomy are less likely to seek antenatal care services than women who have had medium household decision autonomy. In line with this finding, qualitative data collected from key informants and focus group discussion participants also support the importance of household decision-making autonomy in visiting health facilities for antenatal care services. In some regions, like Afar and Somali, women have low household decision autonomy and they are less likely to visit health institutions for antenatal care. In other regions like Tigray and Gambella, women tend to visit health facilities for antenatal care as they have support from their husbands.

The effect of mothers' age at birth, work status and religion on utilization of antenatal health care services was not statistically significant. However, the findings from the qualitative data came up with contrasting results with regard to the role of mothers' age at birth. Young mothers are more likely to make decisions on seeking health care services than older mothers. Older women deeply believe that safe motherhood is in the hands of St. Mary. Hence, they fail to attend antenatal care services, unless they feel sick.

#### 4.2.2 Delivery and Postnatal Care

Logistic regression was used to explore the relative importance of each background variable on utilization of delivery and postnatal care services. Multivariate analysis showed that the use of delivery care services tends to be shaped mainly by birth order of the child, place of residence, region, women's education, wealth index, religion and household decision autonomy. However, mothers' age at birth, religion and household decision autonomy were not found to be statistically significant.

Results of logistic regression model were used to assess the impact of women's background variables on delivery and postnatal care services. Mothers' age at the time of delivery is believed to be an important determinant of health seeking behaviour. Young mothers (under age 35) usually tend to visit health institutions for delivery care and postnatal care services than older mothers (Leslie and Gupta, 1989; Mengistu and James, 1996). Although the quantitative data extracted from the Ethiopian Demographic and Health Survey of 2005 failed to show statistically significant relationship between mothers' age at birth and delivery and postnatal care, the qualitative data generated through key informants and focus group discussions showed the importance of mothers' age at birth.

The qualitative data also indicated that young mothers prefer to give birth at health institutions with the help of birth attendants. Conversely, older women strongly believe that safe motherhood is in the hands of St. Mary and thus prefer to deliver at home with the support of traditional birth attendants. The situation is severe for postnatal care. Among those who gave birth at health institutions with the help of birth attendants only few visit health institutions for antenatal care services, not for their own health but for child immunization. In some cultures like in Afar, mothers are not culturally allowed to go out of their home for at least forty days after birth. They should not be exposed to open air, according to their culture.

The data also show that women are more likely to seek delivery care for their first birth than any other subsequent birth orders. Taking the second and third birth orders as a reference category, the net odds of seeking delivery care for the first births is 2.41 times higher than that of the reference category (see table 3). Women with higher birth orders of four and above are less likely to seek delivery care at a health facility as compared to the reference category. The findings from the qualitative data also show that young women, particularly for their first delivery, tend to give birth at health institutions with the help of health professionals.

Urban women are more likely to receive delivery care services compared to rural women. The net effect of receiving delivery care for urban women is 4.62 times higher than rural women (see table 3). Interviews held with key informants and discussions with focus group participants also indicated low utilization of delivery and

postnatal care services among rural women. Low awareness about the benefits of modern health care services, distance, inaccessibility of services and poverty were mentioned as important factors for low utilization of maternity care services. Since the influence of cultural beliefs is still strong in rural areas, most focus group participants from rural areas fear the presence of many health professionals at the time of delivery. However, when they face complicated labour and when they feel sick, rural women are forced to visit health institutions for maternity care services. Although most women in urban areas give birth in health institutions, there are few urban women still influenced by their mothers or elderly relatives. Hence, they prefer to give birth at home with the help of traditional birth attendants.

Marked regional disparity was also observed in the utilization of delivery and health care services in Ethiopia. The net odds of receiving delivery care services again appear to be higher for Addis Ababa (exp (j3) = 7.7), Gambella (exp (/?) = 5.3), Harari (exp (/?) = 3.6) and Dire Dawa (exp (/?) = 2.4) and this is found to be statistically significant. Similarly, the odds of receiving postnatal care from a medical professional was found to be higher for these regions including Tigray [Addis Ababa (exp (j3) = 2.65), Gambella (exp (j3) = 2.76), Hareri (exp (J3) = 2.32), Dire Dawa (exp (j3) = 1.61) and Tigray (exp (/?) = 1.5)]. Another striking observation in the utilization of postnatal care services is the net odds of the Gambella Regional State. Now Gambella has the highest odds ratio even a little greater than Addis Ababa, where maternity care services are assumed to be at the top and nearly four times higher than Somali. The findings of the qualitative data collected from these two regions also support the results obtained from the quantitative data. In Gambella, because of the influences of family health education and mass media, the habit of coming to health centres for maternity care services has been increasing in recent years, as key informants and focus group discussion participants indicated. However, in the Somali Regional State, the pastoralist way of life of the community, the influence of strong traditional beliefs, low awareness of the people about the benefits of health care services and inaccessibility of such services were found to be important explanations for low utilization of health care services. Relatively high utilization of both delivery and postnatal care services in Addis Ababa, Dire Dawa and Harari regions may partly be attributed to easier access to these services.

As is the case for antenatal care, utilization of delivery and postnatal care services appears to be strongly linked to female schooling. Women with secondary education and above were about 7.1 times more likely to deliver their children at a health facility than women with no education. Likewise, the odds of seeking delivery care at health institutions for women with some primary education are two times (2.09) higher than for women with no education. The probability of seeking postnatal care for women with secondary education and above is 4.2 times higher than women with no education. By the same token, women with some primary education are 1.74 times more likely to give birth at health institutions than women with no education. The qualitative data

generated from key informants and focus group discussion participants also indicated that educated urban women are more likely to give birth at health institutions than uneducated rural women. This is, according to the informants, because educated women have wider exposure to print and electronic media and are aware of the benefits of maternity care services. Educated women also visit health institutions regularly for postnatal care services, for themselves and for their children.

A significant difference was observed in the likelihood of receiving delivery and postnatal services by women's wealth index. Women from the highest wealth index are 3.69 times more likely to receive delivery care services than those in the middle category. Conversely, the probability of receiving maternity care services for a woman from the lowest wealth index relative to the middle category is reduced by 50 percent. The richest women were about 2.66 times more likely to attend postnatal care than women in the middle category and 5.5 times than women in the poorest wealth category. In the same vein, a woman from the highest wealth index is 1.2 times more likely to seek postnatal care than a woman in the lowest wealth index. The poorer and poorest women were about 31 percent and 52 percent less likely to receive postnatal care services. Further explanations obtained from the qualitative data are in line with the quantitative results. Key informants and focus group discussion participants from most regions of the country indicated that poor women usually give birth at home with the help of traditional birth attendants, mainly because of financial constraints. Participants reported that only those who can afford the transportation and maternity related costs can visit health institutions.

Household decision autonomy has also an effect on utilization of delivery services. The probability of giving birth at a health institution for women in the lowest household decision-making autonomy is reduced by 21 percent as compared to women in the middle household decision-making autonomy. However, the influence of household decision on postnatal care is not statistically significant. With regard to the influence of religion on utilization of delivery and postnatal care services, a protestant woman was about 1.21 times more likely to deliver her child at health institution than an Orthodox woman. However, the influence of religion on postnatal care is not statistically significant.

**Table 3: Logistic regression estimates of women's background variables on maternal healthcare seeking behaviours, EDHS 2005**

Variable	ANC by Health Professionals Net Odds Ratio [Exp (jB )	DC @ Health Institutions Net Odds Ratio [Exp (j3)	PNC by Health Professionals Net Odds Ratio [Exp (j3 )
Mother's age at birth			
15-19	0.80 [.63, 1.01]	.82 [.60, 1.12]	0.98 [.74, 1.29]
20 - 34 ®	1.00	1.00	1.00
35-49	0.86 [.70, 1.08]	1.22 [.82, 1.81]	0.94 [.67, 1.31]
Birth order			
1	1.34 [1.08, 1.69]**	2.41 [1.82, 3.20]***	1.46 [1.14, 1.87]**
2-3®	1.00	1.00	1.00
4-5	0.96 [.80, 1.15]	0.72 [.53, .97]*	0.81 [.63, 1.06]
6+	0.85 [.69, 1.04]	0.71 [.50, 1.01]*	0.87 [.65, 1.18]
Residence			
Urban	1.00	4.62 [3.45, 6.17] ***	1.00
Rural®	2.74 [2.10, 3.58] ***	1.00	3.72[2.82, 4.91] ***
Region			
Tigray	1.93 [1.46, 2.55]**	1.33 [.80, 2.21]	1.50 [.99, 2.29] *
Afar	0.48 [.31, .74] *	0.64 [.31, 1.32]	1.47 [.86, 2.54]
Amhara	1.07 [.84, 1.37]	0.74 [.47, 1.17]	.83 [.57, 1.23]
Oromia ®	1.00	1.00	1.00
Somali	0.29 [.18, .47] ***	1.30 [.70, 2.41]	0.99 [.56, 1.73]
Beneshangul Gumuz	1.17 [.88, 1.54]	1.21 [.74, 1.97]	0.71 [.44, 1.14]
SNNPR	1.41 [1.12, 1.77]**	0.74 [.49, 1.11]	0.94 [.67, 1.33]
Gambella	1.77 [1.29, 2.43]***	5.25 [3.45, 7.99] ***	2.76 [1.85, 4.09]***
Hareri	0.73 [.52, 1.03]	3.56 [2.33, 5.45] ***	2.32 [1.58, 3.41]***
Addis Ababa	3.98 [2.32, 6.81] ***	7.73 [4.84, 12.37] ***	2.65 [1.80, 3.90]***
Dire Dawa	1.55 [1.08, 2.23]*	2.37 [1.53, 3.67]***	1.61 [1.08, 2.41]**
Education			
No education ®	1.00	1.00	1.00
Primary	1.92 [1.63, 2.27]***	2.09 [1.65, 2.63]***	1.74 [1.40, 2.16]***
Secondary +	5.41 [3.31, 9.84]***	7.05[4.75, 10.45] ***	4.20 [3.02, 5.83] ***
Work status			
Not Working ®	1.00	1.00	1.00
Currently Working	1.12 [.96, 1.31]	1.10 [.87, 1.38]	1.17 [.96, 1.43]
Wealth index			
Poorest	47 [.37, .59] ***	0.49 [.29, .84] **	0.48 [.32, .73] ***
Poorer	0.68 [.55, .84] ***	0.55 [.32, .95] *	0.69 [.46, .1.03]
Middle ®	1.00	1.00	1.00
Richer	1.35 [1.11, 1.65]***	1.90 [1.26, 2.87]**	1.18 [.83, 1.67]
Richest	2.01 [1.59, 2.54]***	3.69 [2.45, 5.55] ***	2.66 [1.89, 3.75] ***
HHD autonomy			
Low	0.76 [.66, .88] ***	0.79 [.61, .1.02]*	1.05 [.85, 1.31]
Medium ®	1.00	1.00	1.00
High	0.94 [.77, 1.15]	1.12 [.87, 1.46]	0.99 [.78, 1.27]
Religion			
Orthodox ®	1.00	1.00	1.00
Muslim	1.15 [.94, 1.39]	0.88 [.67, 1.17]	0.89 [.68, 1.15]
Protestant	0.87 [.70, 1.10]	1.21 [.87, 1.70]*	1.16 [.86, 1.55]
Others	0.74 [.50, 1.12]	1.35 [.68, 2.66]	1.01 [.54, 1.91]
Total	7 302	11 137	11 137

## 5. Summary and Recommendations

### 5.1 Summary

This study employed the 2005 Ethiopian Demographic and Health Survey as the main source of data. The data are nationally representative and permit comparison of maternal health care seeking behaviour across the background variables. By examining the relationship between women's health seeking behaviour on the one hand and demographic and socio-economic characteristics on the other, the study sheds more light on the factors that could affect maternal health care service utilization. The study investigates the differentials of maternal health care seeking behaviour by selected demographic and socio-economic characteristics. Utilization of maternity care services is also examined using multivariate analysis to find out the effects of one particular variable when other variables are kept invariable. An indicator of health care seeking behaviour (the dependent variable) used in this study is percent distribution of women who attend and/or seek maternity care services.

Overall, the analysis indicates the gross effects of demographic and socio-economic variables on women's health care seeking behaviour, which was found to be a reflection of their demographic and socio-economic characteristics. The study verifies that young (15 - 19) and older (35 - 49) mothers are less likely to seek antenatal care than mothers in the reference category (20-34). The probability of giving birth at health institutions, however, shows a positive linear relationship between mothers' age at birth and delivery care at health institutions. As is the case for antenatal care, postnatal care appears to be lowest for younger and older mothers. Maternity health care services are found to be higher among urban women as well as women with at least secondary education.

There is also an observed regional discrepancy with respect to maternal health seeking behaviour. As compared to the reference category (Oromia Region), women in Tigray, Benishangul Gumuz, Gambella, SNNP, Addis Ababa and Dire Dawa regions are more likely to seek antenatal care services. The probability of giving birth at health institutions is also higher among women in Gambella, Harari, Addis Ababa and Dire Dawa. This also holds true for postnatal care services. One of the most surprising results with respect to utilization of maternal health care is the one observed in Gambella, perhaps one of the disadvantaged and peripheral regions of Ethiopia, where maternal health care is found to be much better than other regions. This will, hopefully, initiate further research in the area of maternal health seeking behaviour in the region.

The study also showed that women in households with the lowest wealth index are less likely to seek maternal health care services than women in households with middle wealth quintile (reference category). The

probability of seeking health care services is higher among women at the household with the highest wealth index. Household decision-making autonomy was also found to be unimportant predictor of women's health seeking behaviour.

The results from both the bivariate and multivariate analyses confirmed the importance of birth order, residence, mothers' education and wealth index in explaining the utilization of health care services. Female education retains a net effect on maternal health service use, independent of other women's background characteristics, households' socioeconomic status and access to health care services. The strong influence of mothers' education on the utilization of health care services is consistent with findings from other studies. However, the study results are inconclusive with respect to the influence of other predisposing and enabling factors, such as women's age, work status and household decision-making autonomy. Multivariate logistic regression estimates do not show any significant impact of these factors on the use of maternal health care services.

## **5.2 Recommendations**

Utilization of maternity care services is of paramount importance. It affects the well-being of the mother as well as her children. This being the case, however, utilization of maternity care services in Ethiopia is extremely low even by the standards of most African countries. Necessary and possible measures need to be taken to improve utilization of maternity care services. Therefore, the following measures are recommended to be taken on the part of the government and other concerned bodies. Women comprise over one-half of humankind. Improving their reproductive health is essential for improving general health. It is the basis for women's empowerment and one of the foundations of social and economic development. Thus, investing in their health is an investment in development today; it is also an investment in future generations.

In order to improve the health of mothers and children maternity care programs have to be implemented in the context of overall socio-economic development. The range of community based services should be broadened to improve utilization of maternal health care services.

Since most women in all regions of Ethiopia fail to give birth at health institutions mainly because of traditional beliefs, efforts have to be made (a) to create awareness regarding the benefits of maternity care services; and (b) to mobilize the general public, the elderly and religious leaders. Existing traditional birth attendants carrying out delivery services in almost all regions are not trained in the provision of maternity care services; they should be trained. Furthermore, strengthening maternity care services at primary health centres and providing all health needs of women (and their children) is crucial to run complete maternity care services.

It is worth mentioning, however, that those who reported infrequent visits of health institutions did so due to lack of information about the benefits of maternity care services. Therefore, these groups of women should get proper information and counselling on the benefits of maternity care services.

The government and other concerned bodies should also make efforts to expand general community based education so that women can have better access to information concerning maternity care. Women themselves should be able to understand that they benefit from maternity care services. They should, thus, be able to take proper measures recognizing that prevention is much better than cure.

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## Appendix 1. Definition of Variables

### Demographic Age

15-19 Woman's age is 15 - 19 at the time of the survey

20-34 Woman's age is 20 - 34 at the time of the survey

35-49 Woman's age is 35 - 49 at the time of the survey

### Children Ever Born

0 Woman who gave no birth at the time of the survey

1 Woman who gave one birth at the time of the survey

2-3 Woman who gave 2-3 births at the time of the survey

4-5 Woman who gave 4-5 births at the time of the survey

6+ Woman who gave at least six births at the time of the survey

### Socio-economic Residence

Rural Woman live in Rural areas

Urban Woman live in Urban areas

### Region

Tigray Woman live in Tigray Regional State

Afar Woman live in Afar Regional State

Amhara Woman live in Amhara Regional State

Oromia Woman live in Oromia Regional State

Somali Woman live in Somali Regional State

Beneshangul Gumuz Woman live in Beneshangul Gumuz Regional State

SNNP Woman live in SNNP Regional State

Gambella Woman live in Gambella Regional State

Hareri Woman live in Hareri Regional State

Dire Dawa City Administration Woman live in Dire Dawa City Administration

Addis Ababa City Administration Woman live in Addis Ababa City Administration

### Education

No education Woman with no formal education

Primary Woman literate with Grades 1-8

Secondary and above Woman literate with at least Grade 9

**Work Status**

Not Working	Woman is currently not working besides her own household work
Working	Woman is currently working besides her own household work

**Wealth Index**

Poorest Women	Woman lives in a household with lowest wealth quintile
Poor Women	Woman lives in a household with low wealth quintile
Middle Women	Woman lives in a household with middle wealth quintile
Rich Women	Woman lives in a household with high wealth quintile
Richest	Woman lives in a household with highest wealth quintile

**Religion**

Orthodox	Woman belongs to the Orthodox religion
Muslim	Woman belongs to the Muslim religion
Protestant	Woman belongs to the Protestant religion
Others	Woman belongs to the Other religions

**HHD Autonomy**

Low	Woman has low household decision autonomy
Medium	Woman has Medium household decision autonom
High	Woman has High household decision autonom

