Addis Ababa University

School of Graduate Studies

Determinants of Utilization of Maternal Health Care Services in Denba Goffa Woreda

By

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List of Acronyms

ANC	Antenatal Care
CI	Confidence Interval
CSA	Central Statistical Authority
EDHS	Ethiopian Demographic and Health Survey
DGWOA	Denba Goffa Woreda Office of Administration
DGWOH	Denba Goffa Woreda Office of Health
H&L	Hosmer and Lamshow
HDC	Home Delivery Care
HEW	Health Extension Workers
HI	Health Institution
IDC	Institutional Delivery Care
MCHS	Maternal and Child Health Care Service
MHCS	Maternal Health Care Service
MMR	Maternal Mortality Rate
MOH	Ministry of Health
NGO	Non-Governmental Organization
OR	Odds Ratio
PADC	Professionally Assisted Delivery Care
PNC	Postnatal Care
ROH	Regional office of health/SNNPR
SLI	Standard of Living Index
SNNPR	Southern Nation, Nationality and Peoples Region
SOH	Sawla town office of Health
SPSS	Statistical Package for Social Science
SSA	Sub-Saharan Africa
TBA	Traditional Birth Attendant
TT	Tetanus Toxic
TTBA	Trained Traditional Birth Attendant
UNICEF	United Nations Children Fund
VIF	Variance of Inflation Factor
WHO	World Health Organization

Abstract

The maternal health care service that utilized by the mothers during their pregnancy, at delivery, and after delivery is important for the survival and well being of both the mother and the child. Having this in mind, this study was made to examine the level of maternal health care service utilization and its determinants in Denba Goffa woreda.

Primary data source were used as a data input and cross-sectional study method was employed to undertake the study. The study focused on the most recent birth to currently married women that took place during the previous three year preceding the survey. Logistic regression model was used to estimate the effects of covariate on the utilization of maternal health care service vis-à-vis, antenatal, assisted delivery care and postnatal care.

The study indicate that the coverage of at least one ANC visit found to be 84% but considering the WHO recommended four or mire number of visit, the result falls to only 49% of married women in reproductive age group. And the study also documented the first ANC visit occurrence to be at late stage of pregnancy for almost 80% of women of the study area.

The study also revealed the coverage of PADC and PNC to be 51% and 60.3% respectively. More over, according to the result of this study only 26.3% of women gave their last birth in the health institution but the remaining 73.7% found to be home deliveries.

The study shows that determinants of the use of maternal health care service are not the same for the three indicators of maternal health care. Antenatal care service use found to be strongly influenced by household income, access to media, distance, husbands financial support, and information about the use of ANC service in the study area but residence, distance, waiting time and women attitude towards place of delivery found to be the significant predictors of PADC.

In addition to these a large difference was found in the utilization of PNC service by place of residence, family size, waiting time, and women attitude toward the service.

*Result of this study indicate the success of the health extension policy and intervention in which the health extension workers played a great role in the provision of out reach maternal health care service in the woreda and in turn to improve MHC coverage but much greater efforts on the part of stake holders required, if modern maternity health care services to reach all women of the study area so as to achieve the MDG.5 target set for the year 201*5.

UNIT ONE

1. INTRODUCTION

1.1 Background of the Study

There is evidence that access of maternal health care (MHC) can reduce maternal mortality, reproductive morbidity, and improve pregnancy related outcome. Several studies have found that, care during pregnancy, delivery, and after birth can positively improve the health of both the mother and the infant. For instance analysis of demographic and health survey (DHS) data of Marco of Mexico documented that better reproductive outcomes are strongly related with high level of maternal health care (MDHS, 1998). It is believed that a skilled attendant at every delivery can lead to a marked reduction of maternal mortality (L. De Berns et al, 2003; AM: Kblinky et al, 1999).

Globally the world health organization/WHO/ estimated that 580,000 women of reproductive age die from complication arising from pregnancy each year and high proportion of this death is seen in sub-Saharan Africa. The maternal mortality ratio of the region is one of the highest in the world reaching 686/100,000 live birth (World Bank, 1994a).

Different studies that identified the causes for this high level of maternal mortality and morbidity have repeatedly underlined the need for maternity care and availability of professionally skilled attendant during pregnancy and delivery (Fauveau et al. 1988, Fortney et al. 1985).

In Ethiopia, according to Ethiopian Demographic and Health survey (EDHS, 2005) data, the maternal mortality ratio was 673/100,000 live birth. This is among the highest in the world. Different studies explain that one of the important causes for the poor health out come among women is the absence of utilization of modern maternity care service by the majority of women in the country.

Several studies have clearly shown the low level of maternity care service utilization in Ethiopia (Belay, 1997; CSA, 1993; Mekonnen, 1998; Mengistu and James, 1996; Mengistu et al. 1990). Ethiopian Demographic and Health survey (EDHS 2005) have found that the coverage of antenatal (ANC) and professionally assisted delivery care (PADC) among women of reproductive age was only 25% and 10% respectively.

The target of the fifth Millennium Development Goal (MDG-5) is reduction of 75% maternal mortality between 1990 and 2015 (UN report 2006). The reality on the ground of this time indicates that this target is unlikely to be met in many countries, particularly in sub-Saharan

Africa (OM.Cambell and W.Graham, 2001; M.Koblinky et al., 2006).

The official MDG-5 target of MMR 143/100,000 live birth by 2015 can only be achieved by over coming the problem of gender and socio-economic inequalities, cultural influence that hinder access to utilization of reproductive health care service for the majority of developing countries (UN report 2006, Bangladesh DHS 2005).

It is widely declared that increased gender equality is a prerequisite for achieving improvement in maternal health. The program of action adopted at the 1994, International conference for population and Development (ICPD) described that improvement of women's status increases their decision making capacity at all level in all sphere of life, especially in the area of reproductive health (UN ICPD, 1994).

Although it seems reasonable to assume that greater equality with in the household heads to higher use of maternal health care service; this variable has not been explored in Ethiopia. Little is known about how intra- household relation constrains or facilitate access to health care.

In this study the researcher will examine the influence of different indicators of women household position on the receipt of skilled antenatal, delivery and postnatal care in Goffa Woreda (SNNPR). More over, the area is characterized by complete absence of research made on the determinants of women's utilization of maternal health care services. This paper aims to fill these gaps.

1.2. Statement of the Problem

Pregnancy and child birth are natural and continuous process in which many women are at risk for developing complication during pregnancy and child birth. These complications are the leading causes of disability and death among women of reproductive age (15-49 years) in developing countries (A. Dana et al, 2003; WHO, 1991). Globally nearly 600,000 women die from pregnancy related causes every year. Over 90% of these deaths occur in sub-Saharan Africa (SSA) (G. Overbosh et al, 2002). Moreover, short and long term illness related to delivery is the common problem for over 300 million women of the region.

The contribution of direct obstric causes (hemorrhage, obstructed labor, hypertensive disorder, unsafe abortion, and infection) reaches for 80% of deaths of mothers, with increased fetal loss, prenatal mortality, and poor survival of small children (A. Dana et al, 2003; WHO, 1991; G. Overbosch, et al, 2002; Fantahun M, 1992; B: Servat, 1998; Talia, 2004).

Several studies across the world revealed that low utility of maternal health care service to be one of the important causes for this high level of maternal mortality and morbidity in developing countries (G. Overbosch, 2002; B. Servak, 1998; UNICEF, 1998).

In Ethiopia, according to Ethiopia demographic and health survey (EDHS, 2005), the maternal mortality ratio was 673/100,000 live birth. This is one of among the highest in the world.

As different studies documented that the coverage of MHC service is very low in Ethiopia. Only about 27%, 6% and 3% of women receive professionally assisted antenatal, delivery, and postnatal care service respectively in the five years preceding the survey (EDHS, 2005). The service coverage is also low at SNNPR level. ANC, DC, and PNC were found to be 30%, 10% and 3% respectively (EDHS, 2005). These levels of service coverage were considered as low even by Sub-Saharan African standard. This low coverage of MHC service was identified as one of the important causes for the above high maternal mortality in the country.

The region (Southern Nation Nationality Peoples Region) of the study woreda is also one of the parts of the country to share this high maternal mortality rate that prevails over the country. This problem calls for a strong campaign against one of the important causes of the high maternal mortality and morbidity. Therefore, the purpose of this study is to assess the current status of ANC, PADC, and PNC service use and factors that influence the utilization of the service in Denba Goffa Woreda.

Although gender inequality and the role of the husband are often cited as barriers to improve maternal health in Ethiopia little attention has been given to understand how these factors may affect the receipt of health cares. In addition to the other factors, the influence of these variables requires further investigation. Moreover, the absence of studies made on this MHC issues in the study area have been one of the important problem that limited the knowledge of concerned body of the area to improve maternal health care service of the Woreda. Therefore, this paper aimed to fill these gaps using data obtained from primary data sources.

1.3 Significance of the Study

The study is believed to contribute

1. Increasing awareness of health professionals and all other concerned bodies of the government about the possible causes of the less utilization of reproductive health care among women in the woreda.
2. For planning and evaluation of maternal health care service provision in the study area.

3. Improving the level of maternal health care service utilization in the study area.
4. For the improving of women's position with in the household.
5. Minimizing maternal mortality rate and ratio in the woreda.
6. Serving as a springboard for those who are interested to extend it for further study on similar problem of the area.

1.4. Objectives of the Study

1.4.1. General objective

The general objective of the study is to assess the level of utilization of maternal health care service and its determinants in the Woreda.

1.4.2 Specific objectives

1. To assess the level of utilization of antenatal, delivery and postnatal care services in the Woreda.
2. To assess socio-economic and demographic determinants of utilization of maternal care (antenatal, delivery and postnatal cares) service in the area.
3. To assess the effects of women's position with in the household in the utilization of maternal health care.
4. To assess the role of the husband in the utilization of maternal health cares service.
5. To assess the effects of women's knowledge and attitude in the utilization of maternal health care service.

1.5. Research Questions

1. What is the level of utilization of maternal care(antenatal, delivery and postnatal care) service in the Woreda.
2. What are the socio-economic and demographic factors influencing utilization of maternal health care services in the Woreda?
3. What is the effect of Women's position within the household on the utilization of maternal health care service?
4. What is the effect of the role of the husband on the utilization of maternal health care service?
5. What is the effect of women's knowledge and attitude on the utilization of maternal health care service?

1.6. Description of variables used in analysis of health care seeking behavior

1.6.1 Dependent Variables

Three dependent variables were used to investigate their relationship with women's household position, socio-economic and demographic factors, the role of the husband, and women knowledge and attitude and the use of maternal health care for the most recent recorded birth occurring to respondents in the Woreda. Dependent variables are:

1. Antenatal care during pregnancy as measured by the frequency.
2. Professionally assisted delivery care.
3. Postnatal care.

Antenatal care seeking behavior is measures by whether the mother visited medical facility at least four times (recommended number of visit) during pregnancy of her last child. The researcher also used a binary variable to model delivery care, reflecting whether the last child was born assisted by health professionals versus not. To model postnatal care, the researcher used a binary variable reflecting whether the women had post partum visit schedule at least once in 45 days after birth.

1.6.2 Key Explanatory variables (Independent variables)

The explanatory variables that were used in this study are socio-economic, demographic, woman's household status, the role of the husband and the availability and accessibility of the service. The variables in each group are described as follows.

1. Socio-economic:- Residence, women's education, women's occupation, religion, access to mass media, husband's education, husband's occupation, living standard and household income.
2. Demographic factors: - age of women, age at first marriage, children ever born, number of surviving children, family type, and family size.
3. Living standard: - sources of drinking water, types of houses, source of light, fuel for cooking, toilet facility, and ownership of items. These measures living standard of women using indexed values showed in annex B. The women who have cumulative value of below 9 are grouped in low living standard. But for those between 10 to19 grouped in medium living standard and those whose value is above 19 grouped under high living standard (C.Ramanujam and N.Dhanabaghyam, 2007).

4. Availability and accessibility: - Distance, travel time, weighting for the service,

5 .Women's knowledge and attitude of the service:

6. Women's autonomy indicators: - the degree of women's authority will be assessed in four different areas of decision making power with in the house hold.

    1. Decision on purchasing daily item.
    2. Decision on purchasing large item
    3. Decision on visiting relatives
    4. Decision in women's movement for personal matters.

Decision about the two different kinds of purchases (i.e. large and daily ones) are meant to tap in to economic decision-making in the household, while allowing for variation in participation according to the relative amount of money to be expended and according to whether the decisions are routine or not. Participations in decisions about visit to families, relatives or friends are expected to enhance women's ability to seek and gain knowledge which may influence their own health and well being. Women whose movement is restricted and where their interactions with relatives or friends in closely monitored by husbands and in-laws are expected to be less knowledgeable about health utilization than other women who have more freedom of movement.

7. The role of the husband: advice, financial support, permission, companion and his attitude.

1.7. Conceptual Frame Work

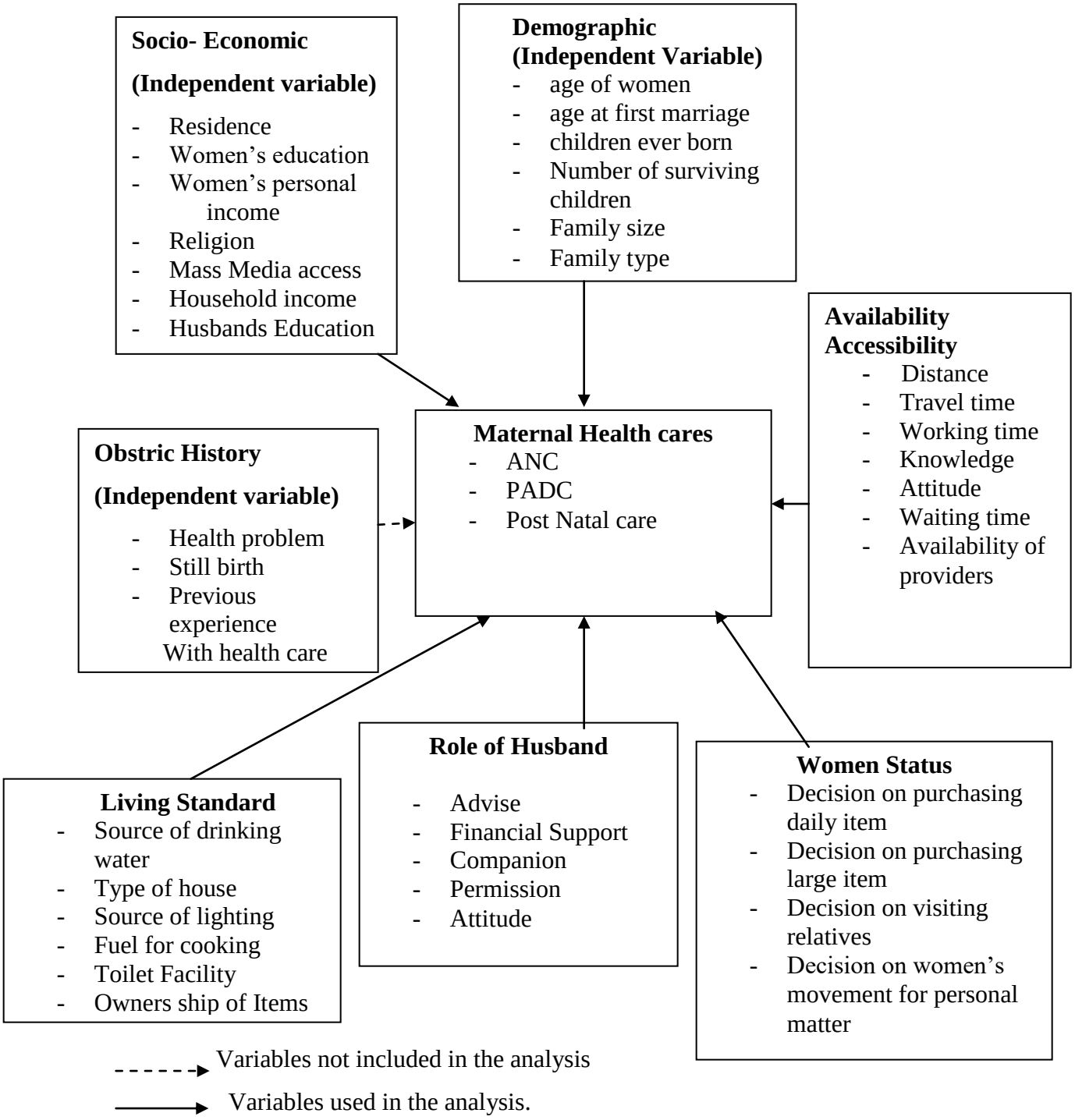


Fig 1.1 Conceptual Frame Work

1.8. Operational definition

Pregnant women in the first trimester:- a women who is in the first, second and third month's pregnancy.

Pregnant woman in the second trimester:- a woman who is in the forth, fifth and sixth month's of pregnancy.

Pregnant woman in the third trimester:- a woman who is in the seventh, eighth and ninth months of pregnancy.

Antenatal care attendance: - pregnant woman who had attended antenatal care clinic during the recent pregnancy by Health Extension Workers.

Antenatal care non-attendance:- a pregnant woman who had not attended antenatal care clinic at least four during the recent pregnancy .

Professionally skilled attendant: health personnel with midwife skill (Doctors, midwives, nurses, and health extension workers).

Professionally assisted delivery care users; a woman who gave birth assisted by by Health Extension Workers.and professionally skilled birth attendants during the last delivery.

Professionally assisted delivery care non-users:- a woman who gave birth with out the assistance of Health Extension Workers. and skilled birth attendants.

Postnatal care attendance: - a woman who attended the health care in forty-five days after delivery for the last birth by Health Extension Workers .and skilled birth attendants..

Postnatal care non-attendance:- a woman who has not attended health care in forty five days after delivery for the last birth by Health Extension Workers. .and skilled birth attendants.

Traditional birth attendant: - birth attendant who initially acquired the ability by delivering baby herself.

Trained traditional birth attendant: - those TBA's who have undergone subsequent training and are integrated in the formal health system.

1.9. Limitation of the study

The study tried to asses the effects of several factor s on the women use of maternal health care services. However it has not seen the effect of obstetric history of women and the cultural factor that limit the use of MHC in the study area. This study made based on the quantitative data but qualitative data sources were not employed on the assessment of the effects of the different variables on the women's use of maternal health care services

CHAPTER TWO

2. REVIEW OF RELATED LITRATURE

2.1 Determinants of Utilization of Maternal Health Care Service

2.1.1. Diffrent models related to maternal and child health care service

Maternal care service utilization is believed to reduce maternal mortality and morbidity directly through detection and treatment of pregnancy related illness or indirectly through detection of women at increased risk of complication of delivery and insuring that they delivered in a suitable equipped facility (Guilleremo and et al. 1992). However maternity care utilization coverage is very low in developing countries like Ethiopia and little is known about the factors that influence the use of this service in the rural areas of the country.

Different literatures and theoretical models suggested the important factors that can affect the maternity care utilization in different part of the world. For instance studies in Bangladesh identified the following reasons for non-use of maternity care.

1. MCH centers are seen as places to which one goes only if one has a problem.
2. Home is the best place of delivery.
3. Delivery at MCH center is a matter of shame and clinical environment is not congenial
4. Health women and health child should not be taken to health center.
5. Long distance and lack of money
6. Long waiting time for service
7. In adequate supply of medical care
8. Un concerned attitude and rude behavior of the health workers
9. Lack of money for services
10. Unfavorable attitude of husbands and or relatives. (S.Rahman, 1981).

Another literature which is documented by Perez Wood, 1990 revealed the following determining factors categorizing in to three.

1. Characteristics of prenatal care service
2. Characteristics of pregnant women's social net work
3. Characteristics of pregnant women

1. Characteristics of prenatal care service
    1. Individual and psychological care service available

2. Communication pattern
3. Affordable at reasonable cost
4. Geographic accessibility
5. Education and information available
6. Care provided by nurse mid wives and nurses
7. Care provided by multi-disciplinary team
8. Availability of published media

2. The pregnant women social net work include
    1. Availability of psychological support
    2. Social norms support need for use
    3. Family support for use of services
3. Characters tics of pregnant women include.
    1. Psychological (satisfied with current health services, feeling of self confidence, positive attitude about care, hopeful about the future etc).
    2. Social (previous satisfactory experience with high risk pregnancy or health care service, culture, high social class, higher level of education, marital status, availability of formal and informal network, age etc.)
    3. Cognitive: - higher level of cognitive development

In addition to the above literatures, a recent review of maternal health care (S. Thaddeus and D. Maine, 1990) classified the factors affecting the use of maternal health care service as follows:

1. Systematic factors (Factors related to health services (system/provider/). These include access, availability, cost of services, continuity/interpretation of care, provider attitude/integration etc.
2. Personal characteristics (Factors related to use of services). These include the socio-demographic, social support, and attitudinal factors, knowledge and experience with event or system, perceived quality of care etc.
3. Geographic actors. Urban/rural distribution, access, transportation etc.

Several studies have been carried out to identify and understand the use of maternal health care service, especially in developing countries where the services are under utilized.

Factors affecting the utilization of maternal health care service are not the same through out the world. Generally it is influenced by policies, availability and quality of service, demographic and socio-economic factors and most importantly the health seeking behavior of the women as several studies revealed (H. Bashour and A. Abdulsalam, 2008).

2.1.2. Socio- Economic and Demographic Determinants

Literatures suggest that in developing countries the use of modern MCH service can be influenced by a number of soci-economic and demographic characteristics of women (WHO, 1996). In this case good examples are women education, information about the service, residence, household income, age of women, parity & family size have been repeatedly indicated as determinants of MCH use (Mekonnen, 1997; Melkamu, 2005; RH, Anderson, 1995).

Women of older age, higher parity together with ignorance and greater responsibility with in the household have been suggested as explanatory factors for their tendency to use the service less frequently. (Talia H, 2004; Bimal Kanti Paul,2002). Female education and residence were also found to be the strong predictors of MCH service use in different countries of the world (Dana A et al, 2003; UNICEF, 1998; M. Collin et al, 2007; Addai, 2000; T.Elo, 1992; Yared and Asnkech, 2002). These studies documented the positive relation ship between MCH use and educational attainment. They also showed that rural women are less likely to use MCH service than the urban.

In addition to the above socio- economic factors different demographic factors are also identified as the strong predictors of MCH use. These are family size, parity, age, birth order, family type and material status, (Nyamango, 2002; Thorson & et al, 2000). These studies confirmed that as family size increase the tendency to use MCH decrease. Age also negatively related with MHC use.

Utilization of reproductive health care service is also determined by Women exposure to mass media. Studies made in India shown that women with medium to high degree of exposure to mass media were more likely to have received ANC than those who have no or low degree of exposure (K. Navance than and Dharmaligam, 2000).

Women living standard and Family income is also the other important factor that determine the use of MCH. Studies have shown that utilization of MCH service increases substaintially with

increasing income and living standard (Guilleromo C et al, 1992 Abbas H., 1986; Habib so and Vaugan P.J., 1986; Yuster EA; 1995).

2.1.3 Accessibility and Availability of health service

Accessibility of the health service has been identified to be one of influencing factors of the utilization of MHC service in developing countries (Melkamu, 2005). Studies made in Jordan and Iraq indicated that higher distance of places of residence from the service center significantly affects the use of MCH service. These studies shown that the proportion of non-users are higher for longer distance from the service center (Abbas H., 1986; Habib, SO and Vaugan P.J., 1986). The effect of distance is also found to be stronger in Pakistan (Islam and Tahir, 2002; Mumtaz and Salway, 2005), Tanzania (Mpembeni et al, 2007) and in different countries of the world (UNICEF, 1996).

Satisfaction or dissatisfaction with the service received (eg. Effectiveness of the treatment, remedies prescribed, staff attitude, long waiting time, hospital procedure,reliability of the supplies and efficiency) found to affect decision to seek care in developed and developing countries (Kloose H. et al, 1987; WHO, 1996; Nnadi EE. And Kaba H.F,1987). Several studies found the negative relationship between waiting time and MCH service use (Hailom, 2008; Stekelburg et al, 2004).

2.1.4 Knowledge of the Women and attitude in relation to cultural perspective

One of the important factors in the use of MCH service especially in Africa found to be the cultural background of the women (Leslie and Gupta, 1989; Petlto, 1987; Addai, 2000). Suggestion on the use of MCH service from the cultural perspective explain that medical need is determined not only by the presence of physical disease but also by cultural perception of illness(Addai, 2000). Thus several studies documented modern MCH service use to be strongly influenced by women perception, knowledge,attitude and religious belief that prevail in the area (Adetunji, 1991).

2.1.5 The Role of the Husband

Because of women's lack of control over their own life, decisions about women's use of MCH service are made by husbands or other member of the family (WHO, 1990; Abbas H. 1986). For

instance in Pakistan & other developing counties 2/3 of women delivered at home because of the husband's refusal to use the PADC in hospitals (WHO, 1990; Bachman et al, 1997; Kwast BE, 1992). Many women of developing countries require their husband permission to visit health facilities. This tradition severely limited women's use of the service even in the nearest health centers (Bachman et al, 1997; Bihata J., 1986; Nancy P, 1999).

2.1.6 Women Autonomy With in the House hold

Recently, women's autonomy and its association with reproductive health behavior have emerged as the major issue and target of investigation and intervention around the world. Women's role has been a priority area of sustainable development and in reproductive health since the Cairo ICPD in 1994(UN, 1994). Following this conference, a number of recent studies examined women's autonomy and its relationship with reproductive health and health out comes(Kishor 2000,2005; Bloom et al. 2001; IUSSP 1997). For Instance in India where women's status is generally lower, high rate of fertility, greater infant and child mortality and high ratio of female to male infant mortality were observed (Dyson and Moore 1983). Since that time a number of researches conducted in Asia and else where have provided further evidences for the positive correlation of women's status and the reproductive health of women (Murthi, Guio and Dreze, 1995). Most of these studies have focused on fertility: lower family size or desired fertility was observed among women with higher level of autonomy in Bangladesh (Balk, 1994) and in different region of India (Jejubhoy 1991).

These findings were associated women's status largely with pattern of family planning use- Higher rate of contraceptive prevalence was seen among women with greater inter personal control in Bangladesh(Khan 1997; Schuler and Hashemi 1994), India (Dharmlingam and Morgan 1996) and Nepal(Morgan and Nivaula 1995). Lower rate of child mortality were observed among independent women in house hold structure in Mali (Castle 1993) and Jordan (Miles Doan and Bisharat 1990), and Indians among women's with more decision making power (Das Gupta 1990).

In most Medical and prevention issues related to women's health, the central issue is intra house hold gender power relation ship and not simply the lack of health service, Medical technology or land information (Fee and Krieper, 1994 in Lin, 1998). In fact Individual status and social structure have important role in determining decisions (Matsummeva and Gubhaju, 2001). In

most developing countries ill women has to get their husbands approval before they leave their home for medical treatment. Even after they arrive at the health facility, there are different medical procedures that demand the husbands will and signature (Lin, 1998).

Hindin (2005) showed that women's with lower autonomy in house hold decision making were at an increased risk of having chronic energy deficit in Zambia, and Malawi. Becker (1997) also examined the relationship between women's role in the household decision making and the extent of prenatal care and contraceptive use and found a strong association with prenatal care.

2.1.7. Determinants of Maternal Health Care Use in Ethiopia

In Ethiopia, Studies related with the factors affecting the utilization of maternity care service are few in number. These limited studies made focusing predominantly on urban areas and have revealed some important determinants of maternal health care service utilization in the country. Kwast and Liff(1988) in their study on maternal mortality in Addis Ababa, indicated that women who did not receive maternity care were poor, illiterate and unmarried with limited knowledge of maternity care service. The study also shows that the risk of non-attendance was higher for women who were pregnant in their early age (10-18). A sample survey made by CSA (1993) at national level, utility of maternity care was found to vary by age, residence, and other socio-demographic factors, More over F.Misganaw et al (1990), in their study in AddisAbaba indicated lack of time, absence of illness and lack of knowledge to be the major reasons for non-attendance of ANC in Addis Ababa. The other study by Mengistu and James in 1996, found that maternal age, parity, lack of time, marital status and women's economic status to be significant predictors of utilization of maternity care in Arsi-Zone Oromya region.

A study in Southern Nation Nationalities peoples region (SNNP) in Yirgalem town and in different areas of the region indicated that women's education, inadequate household income and unwanted pregnancy were important predictors of ANC utilization (T.Belay, 1997). A large scale community and Family survey made in SNNPR documented that the socio-economic factors include parity, age, and education appeared to influence the use of maternity care service in the urban areas of the region where as conversely distance and travel time were identified as an important factors in the rural part of the region (Y.Mekonnen, 1998)

Much less research has focused on the relation ship between Women's status and the role of husbands and use of health service in Ethiopia and in the study area. But a study which is made

by Gebremariam W/Michael (2007) has found the positive relation ship of women's autonomy and maternal health care in Ethiopia and Eritrea. This finding indicated that the levels of women's decision making autonomy were generally low and this adversely affected maternity care utilization in both countries.

There is no study made to know the major determinants of utilization maternal health care service in Denba Goffa Woreda in the area where there is high frequency of death of mothers and other pregnancy related negative out comes. So this study is expected to provide basic informations about the important barriers for the utilization of the service in the Woreda serving as a document for further studies that claims to solve the wider problems of the mother of the Woreda..

CHAPTER THREE

3. METHODOLOGY

3.1 The Study Area

Denba Goffa woreda is one of the Woreda in GamoGoffa zone in Southern Nation Nationality Peoples Region (SNNPR). This Woreda is located to the SouthWest of 550 km from Addis Ababa. It is one of the areas which are part of the Omo drainage system around the southern tip of the country Ethiopia.

The total population of the Woreda is 104,528 (CSA, 2008). Of this 56205 were males and the rest 52,323 were females. The region is characterized by inadequate health facilities because of shortage of infrastructure and bad topography. Although government effort made to improve the health facility of the Woreda, it is very yet to achieve the standard level. The following are important ratios that indicate the inadequate service provision in the Woreda.

	Ratio to population	Standard level (WHO&MOH)
- Doctor- population ratio	1:264,000	1:10,000
- Health officer	1: 131,000	1:10,000
- Nurse – population ratio	1:2,300	1:5000
- Health extension workers- population ratio	1:1,500	1:2,500

The doctors and health officers are serving in the hospital giving services for all seven woredas which surrounds Denba Goffa. Because the service radius of the hospital include all these seven woredas.

The total numbers of the health centers that provide medical service to the people of the worda are

	No.	Ratio to population	Standard level (WHO&MOH)
Hospital	1	1: 500,000	1:250,000
Health center	1	1:100,000	1:25,000
Health post	38	1:2,200	1:2,500

The hospital and the Health center are found only in the town Sawla which is far from the majority of the rural population. The rural peoples get medical services only in the health posts with lower skilled health extension workers. This inadequate quality of the health service has a negative impact on the health condition of the people of the Denba Goffa Woreda.

3.2 Study Population

The target population for the study is those women in reproductive age (15-49) who have given at least one birth in the past 3 years.

3.3. Inclusion and Exclusion Criteria for the Study Population

Inclusion Criteria

- ➔ All women of married age (15-49 years)
- ➔ Married women who have given birth in the previous 3 years
- ➔ Permanent residence of the study area

Exclusion Criteria

- ➔All unmarried women age (15-49 years)
- ➔Women age (15-49) who have not given birth in the previous three years.
- ➔Women who are not permanently residing in the study area

3.4. Sampling design

In order to select the study samples, the purposive, stratified and systematic sampling techniques were used.

3.5. Sample size determination

The sample size was determined by using the formula for single population based on the following assumption (Julie, 2004).

$$n = \frac{p(1-p)\,(Z\,\alpha/_2)^2}{E^2}$$

Where n= is the size of the sample

Z= is the standard normal value corresponding to the desired level of confidence (CI- 95%)

E= Error of precision (E=5%)

P= is the estimated proportion of an attribute that is present in the population.

Assumptions

1. The prevalence of antenatal, delivery and postnatal care in the region

SNNP are 30%, 10%, and 3% respectively (EDHS, 2005).

. To obtain the maximum sample size, P was taken as 30% = P= 0.3

2. Margin of error E. 5% was accepted

3. A confidence interval of 95% is assumed

($Z \alpha /_{2=} 1.96$).

There fore

$$n = \frac{(1.96)^2\ 0.3(1-0.3)}{(0.05)^2} = \frac{3.84 \times 0.21}{0.0025}$$

$$= 322.56$$

For the non-response error 10% (323) of contingency added to the sample size 323. Then the total sample size will be 350

3.6. Sampling Procedure of the Study

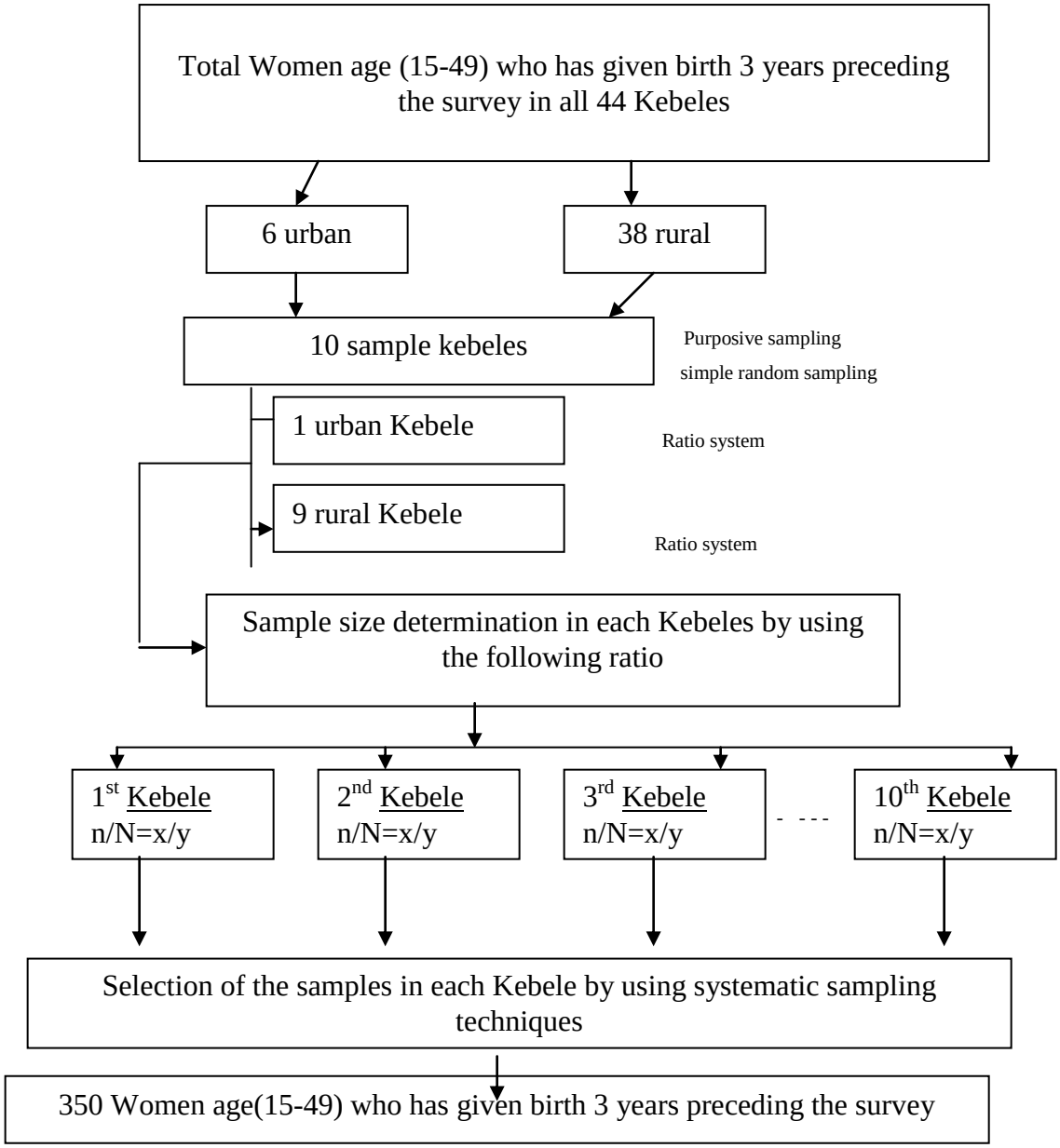


Fig 3.1.Sampling Procedure of the Study

Where n= the total number of samples

N= the total number of women age (15-49) who has given birth in the selected 10 Kebele

X= the number of samples in selected each Kebele.

Y= the total number of women age (15-49) who has given birth in each Kebele

3.7. Sources and Method of Data Collection

3.7.1. Sources of data

The primary data sources were used as data input for the study. Only quantitative data were collected using appropriate data collection tools.

3.7.2. Methods of Data Collection

The quantitative data were collected with interview using semi structural questionnaire.

3.8. Study Design

A cross sectional study design was employed to undertake this investigation.

3.9. Measuring Instrument

3.9.1. Questioner Development

After reviewing of relevant literatures, variables that could address the objective of the study were gathered from previous similar studies and other materials. After extensive revision, the final version of the English questionnaire was developed. An individual who has a very good ability of both English and Amahric translated the final Amharic version of the questionnaire back to English to check with the first for any inconsistency or distortion in the meaning of words and in the content of the instrument.

3.10. Data Collection Process

3.10.1. Hiring of Data Collectors

Twenty interviewers who were health extension workers and ten universal nursing collage students were hired with the following criteria

- ➔ Being interested
- ➔ Known to be honest and willing to face difficulty that may arise during the process of interview
- ➔Know the district well and dwellers of the district

Two supervisors (rural teachers) who are familiar with the population and social administration setting of the kebele were also hired. Their responsibilities were:-

- ➔Coordinate the activity of interviewers
- ➔Timely supply of the necessary material for the interviewers
- ➔Check the questionnaire field each day
- ➔Recheck answers by conducting interviews 5% of these interviewed.

3.10.2. Training Interviewers and Supervisors

Two days training was conducted by the investigator for the interviewers and supervisors on the following points

- ➔Aim of the survey
- ➔Procedures for the survey
- ➔Problems that might arise during the survey
- ➔Going through the questionnaire question by question
- ➔Art of interviewing: - Stating questions, clarity, not giving any leading opinion.
- ➔Practicing administering the questionnaire among interviewers and supervisors with feed back and comments was given to each interviewer

Before the study started, the aim of the research and its possible contribution to the improvement of maternal health care srvice was discussed with the woreda administration office and woreda health team members. Because of this their contribution having positive attitude and promises to help when ever necessary was intense in preceding the data collection smoothly. Letters for collaboration in the study was sent to all kebele offices and to whom it may concern from the woreda administration and woreda health offices and given to interviewers and supervisors.

3.10.3. Pre-test

The pre-test of the questionnaire was carried out in one keble out side of the selected kebeles that has similar socio-demographic characteristics with the people in the selected kebele. After house to house survey was conducted from Feb15-17, 2009, to identify women those who met the inclusion criteria, 30(thirty) study subjects were identified and the questionnaire were administered on Feb 18, 2009.Then after, both the interviewers and the supervisors assessed clarity, understandability and completeness of the questions and others. The interviewers, supervisors and the principal investigator then discussed the result. The fed back that was obtained from the pretest contributed much to the improvement of the questionnaire.

3.10.4. Survey procedure

An initial house-to-house survey was conducted in each of the selected kebels of the woreda from Feb 19-20, 2009, to find and register those women who met the inclusion criteria. Thus, a total participants were identified and based on systematic random sampling the sample women from

each kebele were selected. Questionnaires were then administered to the identified women from February 21-30, 2009. If the identified women were not available, appointment dates and hours was taken by discussion with family members or neighbors. A maximum of two more visits were paid if the identified women were not found at home. In order to insure maximum availability of respondents at home, supervisors and interviewers worked on all days of a week including Saturday and Sunday. Working hours were 9:00 am to 6:30pm with rest for lunch between 1:00-2:00pm.

3.10.5. Monitoring of Data Collection

During the actual data collection, data collectors were assigned for each supervisor. The supervisors checked these activities of each data collectors by waking with them in each kebele and cross checked 5% of the respondents to ensure the reliability of the data collected. Each night the supervisors had checked all the filled questionnaires for completion, clarity and proper response of the respondents and offered the necessary feed back to the data collectors in the next morning before the actual procedure.

Visits were also made by the investigator to some of the interviewer where they were conducting interviews to the identified women. The principal investigator also randomly checked at least 5% of the supervisors work each day for completeness and relevance and gave feed back if necessary.

3.11. Ethical Consideration

The objective of the study was explained to the identified study subjects. They were briefed that any information concerning them would never be passed to any individual or institution with out their agreement. Their names were not recorded. Women were kindly requested to be part of the study but they were also told that it was their right to accept or not. At the end of the interview all women who were not attending MCH service were briefed about the advantage of it and were advised to use it for next pregnancy.

3.12. Data Processing and Analysis

3.12.1. Analysis of the Data

The questionnaires returning from the field was coded and data was entered in to a personal computer. The data was cleaned and checked using frequency and cross tab checks. Analysis was done using statistical package SPSS for windows, version 15. Missing value was allowed in the analysis.

Frequency was calculated for the univariate analysis; three selected dichotomous dependent variables were constructed to indicate major relevant items of maternal care. They are as follows:

- Whether the women received ANC at least four
- Whether the women received professionally skilled delivery care
- Whether the women received postnatal care

Bi-variate analysis was used to describe the relationship between different independent and dependent variables. Further, multivariate analysis was carried out to explore the net effect (relative risk) of all independent variable on the dependent variables by controlling possible intervening variable. To do multivariate analysis, the binary logistic regression model was used. This logistic regression is used when the dependent variable is dichotomous and the independent variable is of any type. Since the dependent variables for these study are the ANC,PADC and PNC which are dichotomous (with two out come), the researcher used binary logistic regression model, and is also suitable for multivariate analysis. It predicts the log of odds of the dependent variable as a linear function of the independent variable. The logistic model for K independent variable (X_1, X_2, X_3 . . . X_K) is given as (Julie, 2004);

Logit $P(X) = \alpha + \Sigma B_i x_i$

Exp (Bi) = odds ratio for person having characteristic i versus not having characteristic i.

B = Regression Coefficient

α = Constant

3.12.2. Model Goodness of fit and Multi co linearity effect

In fitting binary logistic regression model, the first thing to be done is to examine the existence of inter correlation among explanatory variables. The existence of this effect in the model can be checked by using tolerance or variance of inflation factor (VIF). Tolerance is $1\text{-}R^2$ for the regression of independent variable on the other independent variables ignoring the dependent.

The higher the inter correlation of the independent, the more the tolerance will be approach zero. As a rule of thumb, if tolerance is less than 0.02, a problem with multi co linearity effect is indicated. Thus for all models applied in this study tolerance is greater than 0.20 (Schwarz, 2007). Therefore multi co linearity effect does not influence the models as it shown in appendix C-1 for VIF.

Like wise, the VIF which is simply the reciprocal of tolerance also indicate whether or not the explanatory variables are related each other. When VIF value is high, there is high multi co linearity and instability of the beta coefficient. VIF >4 is an arbitrary but common cut off criteria for deciding when a given independent variable displays “too much” multi co linearity. A value above four suggests a multi co linearity problem (Schewarz, 2007).As presented in appendix C-1 the value of VIF in all model were highly less than four. Therefore, there is no multi co linearity effect in the models.

With respect to the goodness fit of the model, there are various ways to assess the extent to which the model fit the data .One way of assessing how the model fit the data is by using the Hosmer and Lamshow model goodness of fit test. Insignificant value of this test shows the goodness of a model. In this study, as shown annex C-2, the value of H&L test were insignificant for all models. Hence the entire model was fitted well with the data.

CHAPTER FOUR

4. RESULTS

Univariate Analysis

4.1. Socio-Economic and Demographic Characteristics of the Respondents

In this study respondents who gave birth at least one in the previous three years preceding the survey were interviewed by using structured questioners in the selected ten Kebeles of the woreda.

As it is indicated in the table 4.1, of the total 350 selected sample women of the target population 26.9% were living in the urban areas and the rest majority women 73% live in the rural areas.

The educational status of these women was categorized in to 4 groups (illiterate, read and write, primary and secondary and above). The majority of the respondents are illiterates comprising 32.3% of them and it is followed by primary school accounting for 30.6% of the respondent. Women who are in secondary and above accounts for about 23% of the total selected samples. With regard to religion, the majority of the total respondents were Christians accounting 96.3% and only 3.7% of them were the Muslims. The major ethnic group in the study area was Goffa accounting for about 90.9% of the respondents and the rest 9.1% were from the different ethnic groups. Regarding the respondents occupation 77.4% were house wives and 7.7% of them were farmers. Civil servants share only 4.9% of the respondent. Concerning respondents' husband occupation, 56% were farmers who have low educational status (62.6% were below the primary school level). And only 12% of the respondent's husband was civil servant. The rest 14% depend on private trade.

Concerning access to media, 40.6% of the respondent had no access to media but the rest 59.4% had the opportunity to attend either TV/Radio/ Newspaper. Living standard of the women in the study area is also assessed. Almost 70.3% of women in this study were found to be in low living standard and the rest 29.7% falls in the medium living standard. No women of the samples found to live in the high living standard. The household income distribution of the respondents is highly concentrated under birr below 300. It accounts for 45.1% of the respondents and 31.1% of the women's household income was between 301 and 600 birr. Only 8.9% of the respondent's household income is above one thousand Ethiopia birr.

Concerning the demographic distribution of the respondents age at birth ,age at marriage, parity, family size, family type were also assessed. Variation in age proportion is seen in this study. The largest proportion was found in age 25-34 (54.6%) and 26.3% are of age 15-24. The remaining 19.1% were age 35 and above. Women in the study area had higher number of children. Almost 30% of the respondents' number of children ever born is 5 and above and it is 3-4 for 36.3% of the respondents but 1-2 shares 34.6%. Family size of the women in the study area tends to be larger for most respondents. 68.3% of women had above 5 family size and 31.7% had below 5. According to birth order grouped for the last birth, it is 5^{th} and above for the 28.9%, 3-4^{th} for the 35.7% and it is the 1^{st} – 2^{nd} birth order for the remaining 35.4% of the respondents. With regard to the type of family, 79.1% of women had nucleated type and the rest 20.9% had extended type of family.

Table. 4.1. Socio-economic and demographic back ground of the female respondents

Variables	Frequency	Percent
Residence		
Urban	94	26.86
Rural	256	73.14
Total	350	100
Women education		
Illiterate	113	32.28
Read and Write	49	14
Primary	107	30.57
Secondary and above	81	23.14
Total	350	100.00
Religion		
Christian	337	337
Islam	337	3.71
Total	350	100
Ethnicity		
Goffa	318	90.85
Others	32	9.14
Total	350	100
Women Occupation		
House Wife	271	77.42
Farmer	27	7.714
Civil Servant	17	4.85
Others	35	10
Total	350	100
Husbands Education		
Illiterate	63	18
Read and Write	65	18.57
Primary	91	26
Secondary and Above	131	37.42
Total	350	100

Variables	Frequency	Percent
Husbands occupation		
farmer	197	56.28
civil servant	42	12
private trade	49	14
daily laborer	42	12
other	20	5.71
Total	350	100
Access to media		
No Exposure	142	40.57
TV/Radio/Newspaper	208	59.42
Total	350	100
Household income		
<301	158	45.14
301-600	109	31.14
601-1000	52	14.85
1001+	31	8.85
Total	350	100
Living standard		
Low	246	70.28
Medium	104	29.72
High	0	0.00
Total	350	100
Age at last birth		
<21	54	15.42
21-29	187	53.42
30+	54	31.14
Total	350	100
Age at first marriage		
<19	226	64.57
19_30	124	35.42
Total	350	100
Children ever born		
1-2	121	34.57
3-4	127	36.28
5+	102	29.14
Total	350	100
Number of surviving children		
1-2	133	38
3-4	134	38.28
5+	83	23.71
Total	350	100
Birth order of the last birth		
1-2	124	35.42
3-4	125	35.71
5+	101	28.85
Total	350	100
Family size		
<5	111	31.71
5-7	184	52.57
8+	55	15.71
Total	350	100
type of family		
Nucleated	277	79.14
Extended	73	20.85
Total	350	100

Source: Own survey, 2009

4.2.-Utilization of ANC Service in Goffa Woreda

4.2.1. Level of Utility

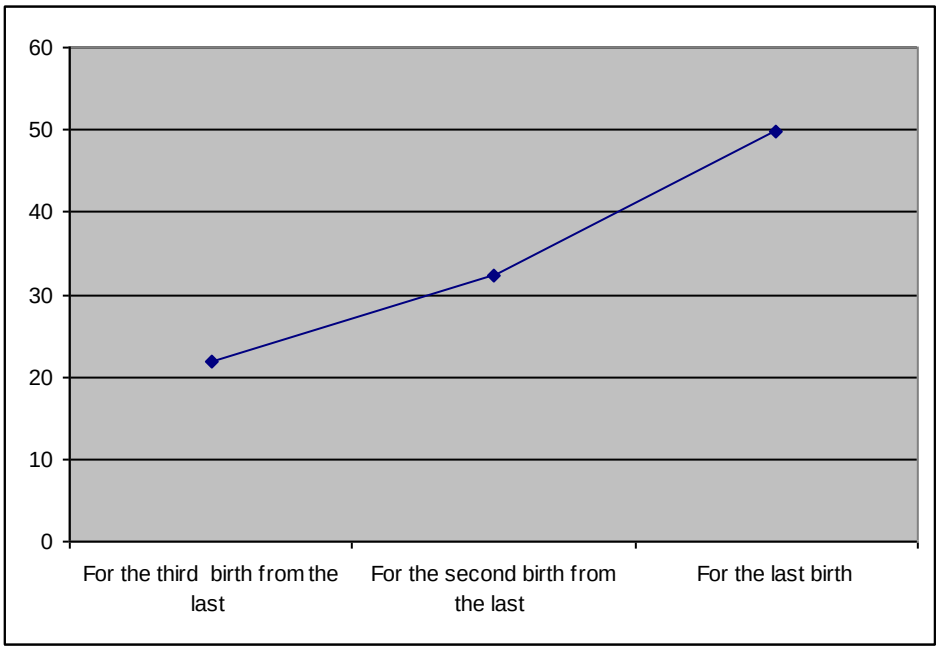
As table.4.2 present the result of the level of ANC service utilization of the woreda, 84% of women who had at lest one birth in the last three years preceding the survey attended ANC at least once in the health institutions. But considering the WHO recommended cut point for the number of visit (4 and above), the ANC service utilization is found to be only 49.1%.

Table 4.2.The number of antenatal visit in last pregnancy

	Frequency	Percent	Valid Percent
0	56	16	16
2-3	122	34.9	34.9
4 and above	172	49.1	49.1
Total	350	100	100

Source: Own survey, 2009

Fig 4.1.a Trends of ANC use for the recommended number of visit (4+) by birth



Source: Own survey, 2009

As can be understood from the above figure the use of ANC service has an increasing trend in the woreda. This increasing trend seems almost faster for the recent births.

4.2.2. Timing and Number of ANC Visit

As different studies documented that for better and efficiency of ANC, at least four ANC along with early first visit are recommended. Thus the number and timing of ANC visit can be a factor in its effectiveness.Table4.3.shows the percentage distribution of women by duration of pregnancy when the first visit is occurred. Among the women who received ANC, the majority of the women (62.6%) made their first visit in their 2nd trimester and 15.6% of them even made their first visits in their third trimester. But only 21.8% of them received ANC in their right time (first trimester).

Table.4.3. Timing of ANC use

	Frequency	Percent	Valid Percent
1st trimester	64	18.3	21.8
2nd trimester	184	52.6	62.6
3rd trimester	46	13.1	15.6
Total	294	84	100

Source: Own survey, 2009

4.2.3. Reason for non- use of ANC

The non-use of ANC service of the study population samples was asked reason for their non-attendance of the service. As it is shown in the table 4.4.1 the survey found the important reasons to be respondents healthy for 71.4% of women, too busy (14.3%), have no idea (5.4%)
and financial constraints and husband's disproval share (5.4%).

Table 4.4.1Reason for not using ANC (multiple responses were possible)

	Frequency	Percent	Valid Percent
Being to busy	16	4.6	14.3
I was healthy	80	22.4	71.4
Long distance	4	1.2	3.6
Financial constraints	4	1.2	3.6
Husband's disapproval	2	0.6	1.8
I have no idea about it	6	1.8	5.4
Total	112	32	100

Source: Own survey, 2009

As it is indicated in the above table 4.4.1 reason not to use ANC service in the woreda was found I was healthy for the majority of the women. When this reason is seen by birth order, it is found to be a reason for almost all parities.

Table 4.4.2.Reason for not using ANC by birth order

Birth order of the last birth	**Being to busy**	***I was healthy***	**Long distance**	**Financial constraints**	**Husband's disapproval**	**I have no idea about it**	**Being to busy**
1-2	37.50%	***35.00%***	0.00%	50.00%	0.00%	33.30%	33.90%
3-5	37.50%	***30.00%***	50.00%	0.00%	0.00%	33.30%	30.40%
5+	25.00%	***35.00%***	50.00%	50.00%	100.00%	33.30%	35.70%
Total	100	***100***	100	100	100	100	100

Source: Own survey, 2009

4.2.4. Type of ANC Receipt

Although 84% of the respondent received the ANC at least once, they did not get all the required treatment during the antenatal period. For instance 100% of the respondents never seen the position of the womb through ultrasound, 52% of them had never got laboratory examination service, 52.4% of them had never be given multivitamin and minerals, 56.5% had never given anti-malaria, 18.4% had no blood pressure test, 21.8% had no physical examination, 15.6% had no AN card, 8.8% had not given health education about maternity care, and 4.4% of the respondent had not given TT vaccine

Table 4.5.The type of contents by receipt

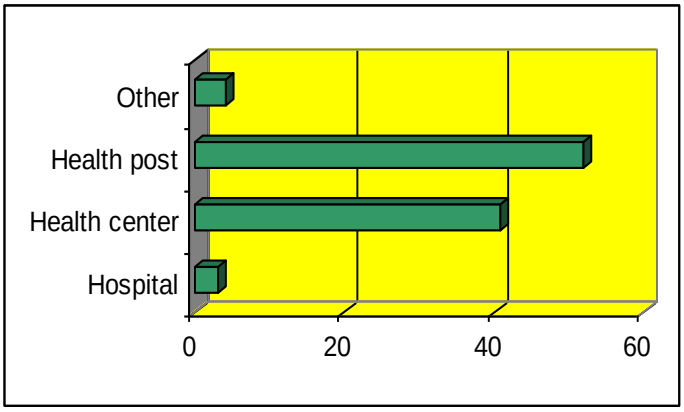
	Yes		No	
Type of content	No.	%	No.	%
TT vaccine service	281	95.6	13	4.4
Ultrasound service	0	0	294	100
Health education service	268	91.2	26	8.8
Blood pressure service	240	81.6	54	18.4
Laboratory examination service	141	48	153	52
Physical examination service	230	78.2	64	21.8
Multivitamin and mineral service	140	47.6	154	52.4
Antenatal card service	248	84.4	46	15.6
Anti malaria service	128	43.5	46	56.5

Source: Own survey, 2009

4.2.5. Places of the service provision

The majority of women (52%) attended the ANC service in the health posts by health extension workers but the rest almost 44% of women received in hospitals or health centers (see fig 4.1.b.).

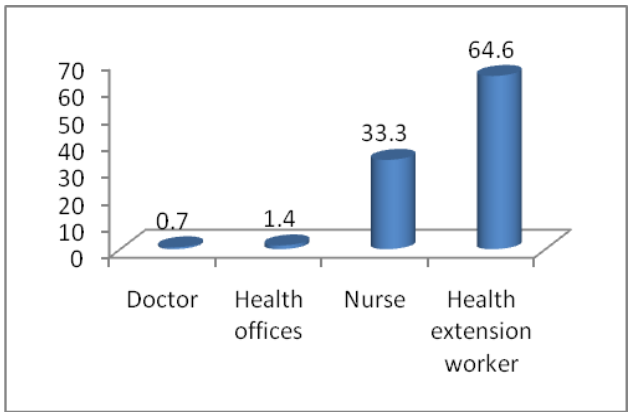
Fig.4.1.b. Places of service provision in percent



Source: Own survey, 2009

As it is shown in fig 4.2 the health extension workers were the important attendant of ANC for the majority of women of the study area.64.6%of women in the woreda receive ANC service from health extension workers and the nurses provide this service for 33.3%of women but only less than 2% of women were provided the service by doctors and health officers.

Fig.4.2.The persons provide ANC



Source: Own survey, 2009

4.3. Determinants of Utilization of ANC service in Denba Goffa Woreda:

Bivariate Analysis

The ANC attendance was cross tabulated with the different independent variables like socio-economic, demographic, women's autonomy and the role of husbands, availability and accessibility, and attitude and knowledge of women on the service. The cross tabulation was made with different dimensions of the above independent variables as it is shown in table 4.6. The Bivariate analysis is made by dichotomizing the ANC visit using the cut point four and above and below it. The chi-square statistics showed the significance of the association between the dependent variable (the use of ANC service or not use) and the independent variables described above at 95% CI.

Thus the following discussion will show the result of the association in each independent variable.

4.3.1. Socio-Economic determinants.

The chi-square test has found that ANC service utilization significantly associated with women's residence, education, ethnicity, occupation, and husband's education, husband's occupation, access to media, household income and women living standard from the socio economic determinants.

Women's utilization of ANC service and residence are significantly associated (χ^2=15.9, P=0.000). Accordingly 57% of women who are living in the rural area are found to be the non-users but it reduced to 33.0% of the urban women.

Women education and ANC service utilization are associated significantly (χ^2=15.6, P<0.01). As table 4.6 showed the proportion, women education has found to be associated almost linearly with use of the service. 57.5% of the women who are illiterates are the non-users and 61.2% of the women who can read and write found to be the non-users of ANC service but these proportions reduced to 52.3% for the women who are at primary level and the lower proportion (32.1%) of women who are secondary and above found to be the non-users of ANC service in he woreda.

Women occupation and ANC service use is also significantly associated (χ^2=12.99, P<0.01). With regard to this, of women who are civil servant only 11.2% are found to be the non-users but the proportion of non-users increase for the farmers (44.4%) and house wives (52%). Of women

who depend on the other sectors 62.9% are the non-users of ANC service.

House hold income and use of ANC service are found to be strongly associated in the study area (χ^2=20.6, P=0.000). Women who have lower house hold income have lower proportion to use ANC service. But the reverse is true for those women whose household income is higher. Of the women whose household income is one thousand and above only 25.8% are the non-users but this proportion increased to 40.4% for those women whose household income is between 601and 1000.And 48.1% of women whose household income below 300 found to be the non-users.

Husbands' education and women's use of ANC service not only significantly associated but also it is linearly related. As the educational level of the husbands decrease, the proportion of the non-users of women increase in the study area (χ^2=13, P<0.01). Of the women whose husband is illiterate ,65.5% are found to be the non-users and the proportion falls to 63.1%, 44% and 42.7% for those women whose husband are at educational level of only reading and writing, primary, and secondary and above respectively.

Husbands occupation and women ANC service use also significantly associated (χ^2=34.72, P=0.000). Accordingly low proportion of women (19%) whose husband is civil servant are the non-users but the proportion increase for the wives of farmer (62.4%), daily laborer (45.2%).

Women access to media is significantly associated with use of ANC service in the study area (χ^2=14.00,P=0.000). 62.7% of women who have no access for any type of media (TV, radio, News paper) are known to be the non-users but this proportion decrease to 42.3% for these women who have access to media. Women's living standard and ANC service use is significantly associated in this study (χ^2=4.02, P< 0.05).54.1%of women who are in low living standard found to be the non users and 42.3% of non uses are in medium living standard .

4.3.2. Accessibility and Availability

Distance of the health centers from the women home is also found to be one of the significant determinant for the women use of ANC service in the baivariate analysis (χ^2=12.28, P<0.01). 60% of women who resides being to far from the health service centers are found to be the non-users of ANC service and this proportion falls to 38.8% for the women who live at an average distance. But it has an increasing proportion (57%) for the women who live close to the centers. I thing this increment is due to the location of the health center and the hospital. Both of them are located around the peripheral area of the town where rural population dominates.

Time taken to reach the health service center significantly affect the use of ANC (χ^2=9.3, P<0.05). Similarly to the different areas, the proportion of not- users of ANC service is linearly related in the study area. As the time taken to the health centers increase, the proportions of women who do not attend the ANC increase. Thus 80% of women are found to be the non-users of ANC who travel for 2 to 3 hours and the proportion falls to 65.6% and 46.6% for those women who travel for one to two hours and below one hour respectively.

Women use of ANC and waiting time in the health centers found to be negatively related in the study area (χ^2=14.1, P<0.01). Of women who wait for 3 and above hours, 90% are found to be the users but this proportion for the users falls to 47% for those who wait below one hour. I think such association is because women of the study area do not use the MHC service at the same level of health service centers. Most of the rural women attend the ANC at health post where there is low waiting time and most of the urban women attend at health centers and hospitals where there is longer waiting time. The majority of these urban women have a tendency of attending ANC service although they wait for longer time.

4.3.3. The Role of the Husband

The utilization of ANC service and husband's provision of advice on MCH use for their women is significantly associated (χ^2=4.9, P<0.05). Of women who are not provided with any advice about MCH, 63.1% are found to be the non-users but this proportion decrease to 47.7 for those which are supported by advice from their husband.

Finical support of the husband for MCH use and women's use of ANC are also significantly associated (χ^2=4.4, P<0.05). 58.5% of women who are not supported by finance from their husband are found to be the non-users but it is lower (46.6%) for those who have financial support from their husband.

Husbands willingness to give permission for their wives to use MCH is also significantly associated with the use of ANC service (χ^2=7.5, P<0.01). 67.9% of women who refused by their husband are found to be the non-users.

The attitude of the husbands towards MCH is also found to be obstacles to use ANC service in the study area (χ^2=11.72, P<0.01). Of women whose husband attitude is negative towards MCH, 70.5% are found to be the non-users but this proportion falls to 46.6 for the positives attitude.

4.3.4. Knowledge and Attitude of the Women.

Women's attitude towards the ANC service and their use of the service is significantly associated (χ^2=18.2, P<0.000). Of the women who have negative attitude towards ANC service, 74.2% are found to be the non-users.

Women's access to information about ANC service and their use of the service is also significantly associated (χ^2= 18.2, P=0.000). 74.2% of women who has no information about ANC service are known to be the non-users in the study area. But 55% of women use the service that had got some information about the ANC service.

Knowledge on the location of the service provision is also significantly associated with the women's use of ANC service (χ^2=20.6, P=0.000). 63.3% of women who have located to take the service by TTBA known to be the non-users of the service. Striking result is seen on the proportion of women who know the right location (health institute) 46.6% of them are found to be the non-users of the service above the cut point.

The other important factor which is found to be the significant determinant of the use of ANC service is their knowledge about the benefit of the service (χ^2= 8.8, P<0.05). Of the women who do not know the benefit of the service 67.8% are identified as the non-users of the service.

Table .4.6: Association of selected factors that affect the utilization ANC service in Goffa Woreda, 2009.

Variable		ANC use		P-Value	Chi-square (χ^2)
		Yes NO. (%)	No NO. (%)		
Socioeconomic factors					
Residence	Urban	63(67)	31(33)		
	rural	110(43)	146(57)	P=0.000	15.9
Women education	Illiterate	48(42.5)	6557.5)		
	Read & write	19(38.8)	30(61.2)		
	Primary	51(47.7)	56(52.3)	P<0.01	15.6
	Secondary & above	55(67.9)	26(32.1)		
Women occupation	Housewife	130(48)	141(52)		
	Earner	15(55.6)	12(44.4)		
	Civil servant	15(88.2)	2(11.8)	P<0.01	12.99
	other	13(37.1)	22(62.9)		
Household income	<300	82(51.9)	76(48.1)		
	301-600	37(33.9)	72(66.1)		
	601-1000	31(54.6)	21(40.4)	P=0.000	20.6
	Other	23(74.2)	8(25.8)		
Husband education	Illiterate	23(36.5)	40(63.5)		
	Read & write	24(36.9)	41(63.1)		
	Primary	51(56)	40(44)	P<0.01	13.07
	Secondary & above	75(57.3)	56(42.7)		
Husbands occupation	Farmer	74(37.6)	123(62.4)		
	Civil servant	34(81)	8(19)		
	Private trade	33(67.3)	16(32.7)		
	Daily laborer	23(54.8)	19(45.3)	P=0.000	34.72
Access to media	No exposure	53(37.3)	89(62.7)		
	TV/Radio/ Newspaper	120(57.7)	88(42.3)	P=0.000	14.006
Living standard	Low	113(45.9)	133(54.1)		
	Medium	60(57.7)	44(42.3)	P<0.05	4.04

Accessibility & Availability					
Distance	Very close	71(43)	94(57)	P<0.01	12.28
	Average	80(61.5)	50(38.5)		
	Too far	22(40)	33(60)		
Traveling time	Below 1 hour	150(53.4)	131(46.6)	P<0.05	9.29
	1-2 hours	22(34.4)	42(65.6)		
	Above 2	1(20)	4(80)		
Waiting time	Below 1 hour	118(47)	133(53)	P<0.01	14.14
	1-2 hours	14(50)	14(50)		
	2-3 hours	23(45.1)	28(54.9)		
	3 & above	18(90)	2(10)		
The role of the husband					
Husband's advice	Yes	149(52.3)	136(47.7)	P<0.05	4.99
	No	24(36.9)	41(63.1)		
Financial support	Yes	124(53.4)	108(46.6)	P<0.05	4.44
	No	49(51.5)	69(58.5)		
Husband's permission	Yes	156(52.5)	141(47.5)	P<0.01	7.52
	No	17(32.1)	36(67.9)		
Attitude of the husband	Positive	155(53.6)	134(46.4)	P<0.01	11.72
	Negative	18(29.5)	43(70.5)		
Women's attitude and knowledge					
Women's attitude	positive	156(54.9)	128(45.1)	P=0.000	18.23
	Negative	17(25.8)	49(74.2)		
Information about ANC	Yes	156(54.9)	128(45.1)	P=0.000	18.23
	No	17(25.8)	49(74.2)		
Knowledge about the location	Health institution	159(53.4)	139(46.6)	P=0.000	20.63
	TTBA	11(36.7)	19(63.3)		
Knowledge about benefit	Yes	154(53.1)	135(46.9)	P<0.05	8.88
	No	19(32.2)	42(67.8)		

Source: Own survey, 2009

4.4. Utilization Professionally Assisted Deliver Care (PADC)

4 .4.1.Level of the Utilization of PADC in Denba Goffa woreda

Result presented in table 4.7 show the level of the utilization of PADC in Denba Goffa woreda. 51.7% of women who had at least one birth in the previous three years preceding the survey delivered assisted by health professionals.

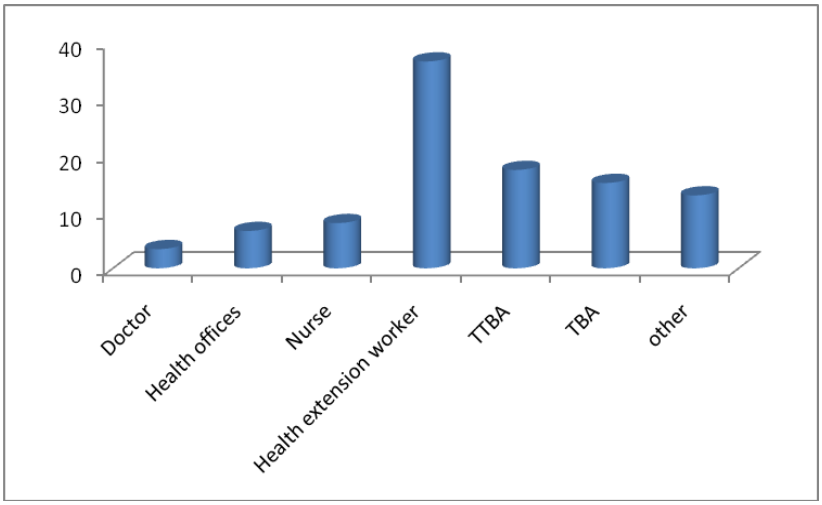
Table.4.7. Assisted delivery by health professionals

	Frequency	Percent	Valid Percent
Yes	181	51.7	51.7
No	169	48.3	48.3
Total	350	100	100

Source: Own survey, 2009

Of these, 36.6% of the women gave birth assisted by health extension workers and 17.4% of women were delivered assisted by TTBA and 15.1% gave birth assisted by TBA, 12.9% women gave birth assisted by others. But only 3.4%, 6.6%, and 8% of women gave birth assisted by doctors, heath officers and nurses respectively.

Fig.4.3.Assistant during delivery



Source: Own survey, 2009

These women gave reason for their use of PADC. Accordingly, 51.4% of them were for safe delivery and 32.4% of them were because of their access to get information during ANC and the reaming 12.3% of them used the PADC due to pregnancy complication but other reason share 3.9%.

The study also investigated the reason for non-users of professionally assisted delivery care. Thus the most important reason for the failures of women to use the service found to be I was healthy (42.9%) and long travel time, financial constraints, long distance, long waiting time, husbands disapproval and poor quality of health service shares 10.6%, 9.1%, 8.6%, 6.3%, 3.7% and 2.9% respectively and 10% of women did not use the service because of lack of information and absence of any idea about the service.

Table 4.8. Reason for Non-use of PADC

	Frequency	Percent	Valid Percent
I was healthy	150	42.9	42.9
long distance	30	8.6	8.6
long travel time	37	10.6	10.6
financial constraints	32	9.1	9.1
health providers were not available	8	2.3	2.3
long waiting time	22	6.3	6.3
poor quality of health service	10	2.9	2.9
husbands disapproval	13	3.7	3.7
I have no idea about it	34	9.7	9.7
No female mid wives	3	0.9	0.9

Source: Own survey, 2009

4.4.2. Determinants of PADC Utilization in Denba Goffa Woreda:

Bivariate analysis

Different variables like socio-economic, demographic, women status, the role of husband, availability and accessibility, attitude and knowledge of women cross-tabulated with the utilization of PADC. The study used dichotomous out come for the PADC (Yes or no) and checked the association taking the different dimensions of the above independent variables. The Chi-square statistics showed the significant association between PADC and some of the independent variables at the 95% CI. The result is shown in the table 4.8.

4.4.2.1. Socio-economic determinants

The socio-economic determinants that found to affect the PADC significantly were residence women education, Ethnicity, women's occupation, household income and husband's occupation.

PADC and residence were significantly associated (χ^2=29.7, P=0.000). Women of the rural (60.5%) were more likely to utilize PADC than the urban (27.7%).This result is also almost similar with woreda health office PADC report (WHO, 2009). Accordingly it is found to be 88% for the rural and 63% for the urban women. The survey confirms that utilization of PADC is higher for the rural women than the urban. Women education found to affect the utilization of PADC (χ^2=10.3, P<0.05).Women who were illiterate (50%) were less likely to utilize PADC than women at primary (56%) and secondary and above (75%).

Ethnicity and PADC have also associated significantly (χ^2=5.9, P<0.5). Women of Goffa (53.8%) were more likely to utilize the service than others (31.1%). Women occupation and PADC were also associated significantly (χ^2=11.9, P<0.05). Women in the study area who were civil servants (76.5%) were more likely to utilize than farmers (55.6%), house wives (52.5%) and others (28.6%).

PADC and household income had a significant association in the study area (χ^2=15.1, P<0.01). χ^2 test found the linear association between household income and PADC. Women whose income less than 300 birr (40.5%) were less likely to utilize PADC than women whose household income was 301-600 (59.6%), 601-1000 (59.6%) and 1001+(67.7%). As income increase the probability of the utilization of PADC also increase.

Husband's occupation and PADC had found to have a significant association (χ^2=39.8, P=0.0000). Women whose wives were daily laborer (16.7%) and private trades (32.7%) were less likely to utilized PADC than the farmers (69.9%), civil servant (69.0%). Farmers wives of the study area were highly utilize the PADC. This is may be caused by wide provision of the home to MCH service in the rural area. Each kebele had health post with two health extension workers that provide the service for most pregnant women in their kebele. Similar association was also seen by residence. Religion, Access to media and living standard has no significant association with PADC in the study area.

4.4.2.2. Demographic Determinants

PADC was cross tabulated with different dimensions of demographic factors. Only the type of family was found to have a significant relation with PADC service utilization (χ^2=4.1, P<0.05).

Women who have nucleated family (54.5%) were more likely to utilize PADC than extended (41.1%). Most demographic factors like age of respondents, age at first marriage, age at last birth, children ever born, number of surviving children, family size, and birth order did not have significant association with the utility of the service.

4.4.2.3. Availability and Accessibility.

Utility of PADC was significantly associated with the different dimensions of availability and accessibility factors. For instance distance from home to health center found to have significant association with the utility of PADC (χ^2=73.26, P=0.000). The χ^2 test showed the linear association between the service utility and distance. Women who live too far from the health centers (12.7%) were less likely to utilize PADC service than those women of an average distance (40.0%) and women who were closer to the health centers (73.9%).

Travel time to reach the service was also significantly associated with the utilization of the service (χ^2=19.8, P<0.000). Women who travel longer distance between two to three hours (60%) were more likely to utilize PADC service than those women who travel shorter distance below one hour (57.3%) and for women who travel between one to two hours (26.6%).

Availability and PADC found to have strong association in the study area (χ^2=56.8%, P=0.000). The proportion of those women who get DC service at any time day and night to use PADC (62.5%) is higher than those women who do not get it at any time (14.1%).

4.4.2.4. Women's Autonomy and the Role of Husband

The association of the utilization of PADC and women's autonomy and the role of husband is also checked by the chi-square test using some selected dimensions for the above independent variables.

Accordingly, from the different dimensions used to see the authority of women with in the household, the last decision on visiting relatives and on their movement for personal matter found to have significant association with PADC (χ^2=12.2, P<0.01). Women who give the last decision on visiting relatives with in the household (55.2%) were more likely to use PADC than the women whose decision is made by husband (27.5%). Those women whose autonomy lowers to visit relatives were less likely to utilize PADC. More over women's autonomy with in the household to give the last decision on their movement for personal matter found to have strong association with the use of PADC (χ^2=45.2, P=0.0001).

Those women who give the last decision on their movement for personal matter (68.2%) were more like to use PADC than those women who were dominated by their husband (16.7%). 83.3% of this group are not the users of the PADC. But in the family where decision made jointly for women movement almost 45% of women were not the user of PADC. There for women's right to decide movement for personal matter increase the probability of using PADC.

The other important barrier for the utilization of PADC is husband's role to use the MHC service. Husband's role in giving advice, financial support, and companion during MCH use, willingness to give permission, and his attitude towards the service found to have significant association with the utilization of PADC.

As the chi-square test measured the association between PADC and husbands role giving advice, it found to be significantly associated (χ^2=32.1, P=0.000). Thus 80% of women who do not be given any advice from their husband were not the user of PADC but 58.9% of the women who are supported with their husband in advice about MCH were the users of PADC.

Husband's finical support and the women's utilization of PADC is also significantly associated (χ^2=29.3, P=0.000). 68.6% of women who do not have financial support from their husband are found to be the non-users of PADC. But 62.1% of the women who have financial support from their husband use PADC in the study area.

Husbands companion during MHC and women's utilization of PADC is also significantly associated (χ^2=10.1, P<0.01). Accordingly women who went to health center for ANC with their husband were more likely to use PADC. 61.9% of women of this group utilized PADC during their last birth, and 55.3% of women were non-users of PADC who do not have any companion with their husband during ANC use.

Husbands role by giving permission to use MCH was also strongly associated with women's use of PADC (χ^2=13.7, P=0.000). 77.5% of women who do not have any permission from their husband for MHC were found to be the non-users of PADC. But 55.9% of women use PADC that have permission from their husband.

The attitude of the husband to wards MHC service and women's utilization of PADC is also significantly associated (χ^2=14.5, P=0.000). The negative attitude of the husband for MHC came to be a threat for the 70.5% of the women not to use the PADC. 56.4% of women use PADC whose husband have a positive attitude towards the service.

The women's attitude to wards the preference of place of delivery found to be significantly associated with PADC (χ^2=89.8, p=0.000). 68.1% of women are the non users of PADC who prefer to deliver at home and 80.27% of women who prefer to deliver at health institutions utilized the PADC. Women's knowledge on the importance of PADC and the use of it is significantly associated (χ^2=19.9, P=0.000). 75.9% of women were the non users of PADC who do not have the knowledge on the importance of PADC. Of those women who have the knowledge about the importance of the service, 57.2% are the users of the service.

Women's knowledge about safe delivery and the use of PADC is also significantly associated (χ^2=24.6, p=0.000). Of women's group who do not have the knowledge, 72.6% are not users of PADC and almost 60% of women who know about safe delivery are user of PA

Table 4.9: Association of some selected variables with PADC service use in Goffa Woreda, 2009

Variables		PADC use		P-Value	Chi-square (χ^2)
		Yes No. (%)	No No. (%)		
Socioeconomic & Demographic					
Women residence	Urban	26(27.7)	68(72.3)	P=0.000	29.78
	rural	155(60.5)	101(39.5)		
Women education	Illiterate	50(44.2)	63(55.8)	P<0.05	10.34
	Read and write	35(71.4)	14(28.6)		
	Primary	56(52.3)	51(47.7)		
	Secondary & above	60(75)	21(25)		
Ethnicity	Goffa	171(53.8)	147(46.2)	P<0.05	
	other	10(31.3)	22(68.8)		
Women occupation	Housewife	143(52.8)	128(47.2)	P<0.01	11.9
	Farmer	15(55.6)	12(44.4)		
	Civil servant	13(76.5)	4(23.5)		
	Other	10(28.6)	25(71.4)		
Household income	<300	64(40.5)	94(59.5)	P<0.01	15.17
	301-600	65(59.6)	44(40.4)		
	601-1000	31(59.6)	21(40.4)		
	1000+	21(67.7)	10(32.3)		
Husbands occupation	Farmer	120(60.9)	77(39.1)	P≤0.000	39.88
	Civil servant	29(69)	13(31)		
	Private trade	16(32.7)	33(67.3)		
	Daily laborer	7(16.7)	35(83.3)		
	other				
Type of Family	Nucleated	151(54.5)	126(45.5)	P<0.05	4.16
	Extended	30(41.1)	43(58.9)		
Accessibility & availability					
Distance	Very close	122(73.9)	43(58.9)	P=0.000	73.26
	Average	52(40)	78(60)		
	Too far	7(12.7)	48(87.3)		
Traveling time	Below 1 hour	161(57.3)	120(42.7)	P=0.000	19.857
	1-2 hours	17(26.6)	47(73.4)		
	3+	3(60)	2(40)		
Waiting time	Below 1 hour	160(63.7)	91(36.3)	P=0.00	53.3
	1-2 hrs.	5(17.9)	23(82.1)		
	2-3	14(27.5)	37(72.5)		
	3+	2(10)	18(90)		

Availability of the service any time	**Yes**	**170(62.5)**	**102(37.5)**	**P=0.000**	**56.86**
	No	**11(14.1)**	**67(87.9)**		
Women's Autonomy					
Decision on visiting relatives	**Respondent**	**16(55.2)**	**13(44.8)**	**P<0.01**	**12.25**
	Jointly	**152(54.5)**	**127(45.5)**		
	Husband	**11(27.5)**	**29(72.5)**		
	Other	**2(100)**	**0(0)**		
Decision on women movement for personal matter	**Respondent**	**107(68.2)**	**50(31.8)**	**P=0.000**	**45.24**
	Jointly	**64(44.8)**	**79(55.2)**		
	Husband	**8(16.7)**	**40(83.3)**		
	other	**2(100)**	**0(0)**		
The role of husband					
Advice support	**Yes**	**168(58.9)**	**117(41.1)**	**P=0.000**	**32.15**
	No	**13(20)**	**52(80)**		
Financial Support	**Yes**	**144(62.1)**	**88(37.9)**	**P=0.000**	**29.54**
	No	**137(31.4)**	**81(68.6)**		
Husbands companion	**Yes**	**91(61.9)**	**56(38.1)**	**P<0.01**	**10.01**
	No	**88(44.7)**	**109(55.3)**		
Husbands permission	**Yes**	**166(55.9)**	**131(44.1)**	**P=0.000**	**13.71**
	No	**15(28.3)**	**38(71.7)**		
Attitude of the husband	**Positive**	**163(56.4)**	**126(43.6)**	**P=0.000**	**14.58**
	Negative	**18(29.5)**	**43(70.5)**		
Women's attitude and knowledge on PADC					
Attitude of the women on the location of delivery	**Home**	**69(31.9)**	**147(68.1)**	**P=0.000**	**89.85**
	Institutional	**112(80.2)**	**22(19.8)**		
Knowledge on importance of PADC	**Yes**	**162(57.2)**	**121(19.8)**	**P=0.000**	**19.98**
	No	**13(24.1)**	**41(42.8)**		
Knowledge on safe delivery	**Yes**	**145(58.9)**	**101(41.1)**	**P=0.000**	**24.96**
	No	**23(27.4)**	**61(72.6)**		

Source: Own survey, 2009

4.5. Utilization of Postnatal Care (PNC) Service in Denba Goffa Woreda

4.5.1. Level of Utilization of PNC

As result showed in table 4.10 , the level of the utilization of postnatal care service in Denba Goffa woreda has reached to 60.3%.Of the selected 350 sample women who had at least one birth in the previous years preceding the survey, 211(60.3%) had postpartum visit in 45 days after birth.

Table 4.10.Postpartum Visit Schedule in 45 days after birth

	Frequency	Percent	Valid Percent
Yes	211	60.3	60.3
No	139	39.7	39.7
Total	350	100	100

Source: Own survey, 2009

These women had different reasons to attend postnatal care in the study area. Reasons for 50.2% of the valid case was not for check up but it was only 48.8% of women went to health centers to use postnatal care either for her self or for the baby checkup. As the table 4.11 indicates 37% of women went for health problem of them selves and 12.3% of these women went for the health problem of the baby.

Table4.11. Reason for attending postnatal care

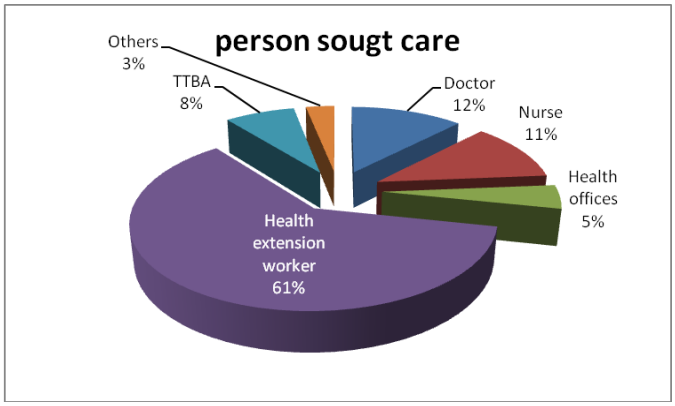
	Frequency	Percent	Valid Percent
Because I was sick	78	22.3	37
Because my baby was sick	26	7.4	12.3
To check my health and baby health	103	29.4	48.8
Other	4	1.1	1.9
Total	211	60.3	100

Source: Own survey, 2009

The survey made for this study indicates that most of the women in the study area deliver at home. But only 26.3% of the sample women delivered in health institution. Of these (26%) of the women, 46.9% received treatment before they leave the health centers after giving birth. Accordingly, 78.3% of these, supported to initiate breast feeding and 74.5% of these women provided with information about potential problem for which to seek cares.

Women in the study area face different problem during the postnatal period. It was true for 38.3 of the total sample women. But only 57.5% of these women sought care for any complication after delivery. The rest 42.5 percent do not sought care .Even those women who sought care treated by HEW who have lower skill in the field. As the fig 4.4a indicates, 61.1 percent of these women utilized the service assisted by health extension workers, 12.2% by doctors, 11.5% by nurses, 4.6% by health officers and 7.6 of these women attend by TTBA.

Fig4.4a-Person sought PN care



Source: Own survey, 2009

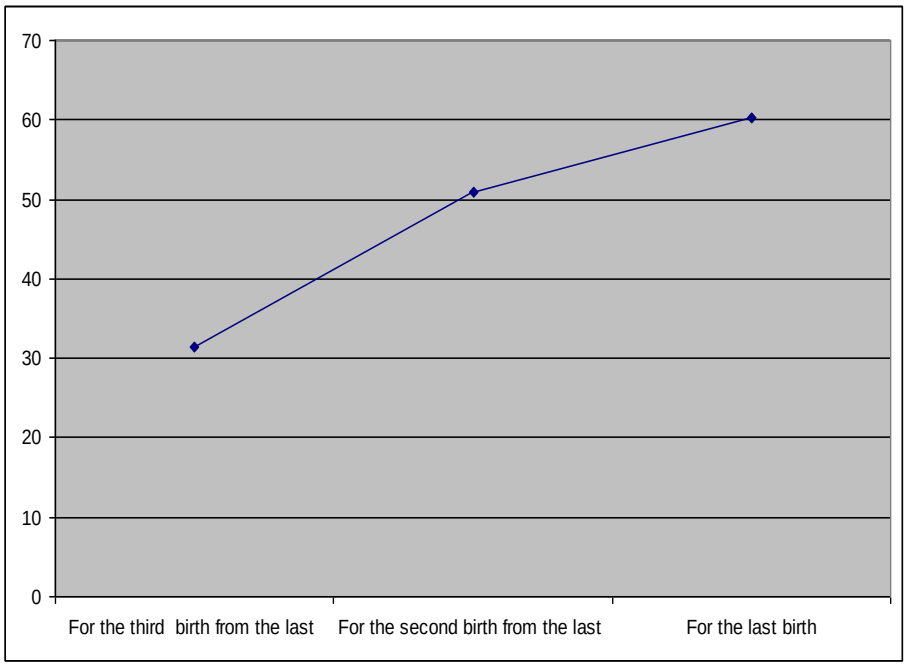
The study also identified the reasons for the non-attendance of postnatal care. As table 4.12 show the result, reasons for 25.7% was I was healthy, and have no idea was for 9.7%, being too busy was for 9.7%, husbands disapproval was for 8.9%, poor quality service was for 6.9%, financial constraints was for 5.7%, long waiting time was for 4.6% and others.

Table 4.12.Reasons for the non-attendance of postnatal care

	Frequency	Percent	Valid Percent
I was healthy	90	25.7	25.7
Long waiting tome	16	4.6	4.6
Financial constraints	20	5.7	5.7
Long traveling time	15	4.3	4.3
Long distance	9	2.6	2.6
Health providers were not available	15	4.3	4.3
Poor quality service	24	6.9	6.9
Husbands disapproval	31	8.9	8.9
I have no idea	34	9.7	9.7

Source: Own survey, 2009

Fig 4.4b .Trends of PNC use by birth in Denba Goffa woreda



Source: Own survey, 2009

The survey found the presence of increasing trend in the use of PNC services in study woreda.

4.5.2. Determinants of Postnatal Care Service Utilization in Denba Goffa woreda:

Bivariate Analysis

The different independent variables were used to know the important predictor for the utilization of PNC service. These independent variables used here are similar with those variables used in analysis of ANC and PADC. The chi-square statistics showed the significant association between the dependent variable i.e. use of PNC service having two out come (yes or no) and the independent variable used in the previous discussions.

4.5.2.1. Socio-Economic Determinants

Socio-economic factors like residence, women education, religion, ethnicity, women occupation, and husband's education, and husband's occupation, access to mass media, household income and living standard are used to know the predictor of the utilization the service (PNC). Of the above different factors the chi-square test revealed women residence and house hold income to be the only factors which have significant association with women's utilization of PNC service in the study area.

Women residence and use of PNC associated significantly (χ^2=11.3, P<0.01). Thus 54.3% of the urban area does not use the service but it is only 34.4% for the women of rural area. 66% of rural women use PNC service. According to woreda report, PNC use is 15% and 66% for the urban and rural women respectively (WOH, 2009).This service use is higher in the rural area.

Women house hold income and PNC service use were also significantly associated (χ^2=13.7, P<0.01). 50% of women who are in the house hold income below 300 do not use PNC service. But the proportion of non-users of the PNC service is very lower for the higher income group. It is only 30.3%, 36.5% and25.8% for those women whose household income is between 301 and 600 ,601 and 1000 and one thousand and above respectively.

4.5.2.2. Demographic Determinants of the Utilization PNC Service

The demographic factors like age of respondent, age at first marriage, age at last birth, children ever born, number of surviving children, family size, Birth order and the type of the family were used to know the demographic predictors of the use of PNC service in the study area. The chi-square statistics revealed that only age at first marriage and family size to be associated significantly with the use of the service under discussion.

Women age at first marriage and use of PNC service were significantly associated (χ^2=4.45, P<0.05). Accordingly, of women who get marriage at early age below 19, 48.8% were non users but it is very much lower for those women who got marriage after age 18. The proportion of non users for this age group is only 32.1% and 67.7% of this group are users of PNC service.

Women's family size and use of PNC service is also significantly associated from the demographic factors (χ^2=10.8, P<0.01). Proportion of non users of PNC service is higher for larger family size 8+ is (54.8%), but it tend to be lower for the middle family size (5-7) which is 32.1% and it is 45% for below 5 family size.

4.5.2.3. Accessibility and Availability

Distance from home to health center, travel time, waiting time to get the service and availability of the service were found to have significant association in the chi-square test.

The distance between women home and health center is significantly associated with use of PNC service (χ^2=54.6, P=0.000).The proportion of non-user for the women whose home is too far is very large 83.6%. But it is only 36.2% and 27.6% for those women whose home is in the average and shorter distance respectively. 72% of women who are living very close to the service center

use PNC service. The same is true for 63.8% of women who are living at an average distance. Therefore utilization of PNC service is linearly related with distance.

Time taken to reach the health centers and PNC service use is associated significantly (χ^2=20.8, P=0.000). Travel time came to be an obstacle to PNC service for 60% of women who travel for two to three hours .This is also true for 64.1% of women who travel for 1to 2 hour to reach health centers. But 66.2% of women in shorter travel time group (below one hour) use the PNC service. It is clear that the shorter travel time tend to increase the probability of the use of PNC service in the study area while the reverse is true for longer travel time.

Waiting time in the health centers and use of PNC service also associated significantly (χ^2=64.3, P=0.000). This factor is also linearly associated with use of the service. The longer the waiting time for the women in the health center, the lower the proportion of the group to use the service. Thus the 90% of women who wait in the health center for more than 3 hours are the non-user. Of women who wait for 2-3 hour, 72.5% were non-users and this proportion decrease to 57.1 for those women who wait in the centers between one to hour. But the proportion of women to utilize the service is larger for those women who wait in center below one hour which is 72.9%.

Availability of the maternity service to utilize at any time is also one of the important factor which has strong association with PNC use (χ^2=46.66, P=0.000). 73.1% of women who can not get the service at any time were found to be the non-users of ANC service whereas 69.9% of the women who can get the service at any time utilize the service. The proportion of non-users reduced to 30.1% in this category.

4.5.2.4. Women autonomy within the Household

Almost all the dimensions used to see the level of women autonomy significantly associated with the use of PNC service utility. Of women who give last decision to buy the daily item 51% are found to be the non users but it is lower for those who are dominated by their husband (48.7%). The proportion of non-users is lower for those women who give decision jointly to buy the daily item. It is 33.2% of women under this group.

Decision on the large item is also significantly associated with use PNC service (χ^2=15.3, P<0.01). Women who have autonomy to decide by themselves to buy large items have lower probability to utilize the PNC service. Accordingly 75% women who decide on purchasing large item are found to be the non-users but it is lower for those who give decision jointly with their

husband (35.5%). But the majority of women who are dominated by their husband to decide on the large item are also found to be the non-users of PNC service (58.5%).

Women PNC service utilization and women autonomy to give the last decision on visiting relatives also significantly associated (χ^2=19.35, P=0.000). The proportion of users is very large (65.6%) for those women who give decision jointly with their husband. But women who give decision by them selves and those women who are dominated by their husband have lower probability to utilize the service of PNC. It is 37.9% and 37.5% respectively.

Women's autonomy to give the last decision on their movement for personal matter and utility of PNC service are found to be associated strongly (χ^2=30.7, P=0.000). With regard to the women's autonomy on their freedom to leave their home for their own personal matter and the use of PNC service, the chi-square test revealed the existence of direct relationship reversing the result which are seen in the other dimension .The more the freedom, the higher the proportion to use the service. Thus almost 60% of women who give the last decision by them selves are found to be the users of PNC service but it is lower for those women who are dominated by their husband. It is only 27.1%. So 72.9% of women of this group are non-users of PNC service. The proportion of women who use PNC service is also higher (71.3%) for those who give the last decision jointly with their husband.

4.5.2.5. The role of husband

This is also one of the important factors to determine the utilization of PNC service in the study area. Of the different dimension used to see the effect of the role of the husband, husband's advice, husband's willingness to give permission and his attitude towards the service found to have a strong association with PNC service use.

Thus women who are given advice to use the MCH service and PNC use are associated significantly (χ^2=18.1, P=0.000).Accordingly 65.6% of women who are advised with their husband were found to use PNC service but 63.1% of women who do not get any advice about the MCH use found to be the non-users.

Husband's willingness to give permission and PNC service use is also significantly associated (χ^2=11.1%, P<0.01). Thus of women who get permission to use the MCH service, 64% are found to be the users of PNC service and 60.4% of women are found to be the non-users who denied by their husbands.

Husband's attitude towards the MCH service and women use of PNC service are significantly associated (χ^2=13.5, P=0.000). Of women whose husbands have a positive attitude, 64.7% are users of the service but 60.7% of women are non-users from the negative group.

4.5.2.6. Knowledge and Attitude of the women

The knowledge and the attitude of the women about the PNC service are found to be associated strongly. Women's access to information about PNC service and PNC service utility are associated strongly (χ^2=46.9, p=0.000). Thus 68.5% of women who have information about the service are the users but 78.1% of women who do not have the information about this service found to be the non-users in the study area.

Women knowledge on the importance of the service and PNC service utilization is also significantly associated (χ^2=30.8, P=0.000). Of the women who know about the importance of PNC service, 67.3% are users but 69.1% of women who do not know the importance are found to be the non-users the service in the study area.

The utilization of PNC service and women's attitude towards the service are significantly associated (χ^2=33.9, P=0.000). Accordingly 65.9% of women are found to be the users from those who have positive attitude towards the service and 81% of women are non-users from those who have negative attitude towards the service.

Table 4.13: Association of some selected variables with use of PNC service in Denba Goffa Woreda, 2009.

Variables		PNC use		P-Value	Chi-square (χ^2)
		Yes No. (%)	No No. (%)		
Socioeconomic & Demographic					
Women residence	Urban	43(45.7)	51(54.3)	P<0.01	11.35
	rural	168(65.6)	88(34.4)		
Household income	<300	79(50)	79(50)	P<0.01	13.76
	301-600	76(69.7)	33(30.3)		
	601-1000	33(63.5)	19(36.5)		
	1000+	23(74.2)	8(25.8)		
Age at first marriage	<19	127(56.2)	99(43.8)	P<0.05	4.45
	19-30	84(67.7)	40(32.3)		
Family size	<5	61(55)	50(45)	P<0.01	10.86
	5-7	125(67.9)	59(32.1)		
	8+	25(45.5)	30(54.5)		
Accessibility & Availability					
Distance	Very close	119(72.1)	46(27.9)	P=0.000	54.69
	Average	83(63.8)	447(36.2)		
	Too far	9(16.4)	46(83.6)		
Traveling time	Below 1 hour	156(66.2)	95(33.8)	P=0.000	20.8
	1-2 hours	23(35.9)	41(64.1)		
	3+	2(40)	3(60)		
Waiting time	Below 1 hour	183(72.9)	68(27.1)	P=0.000	64.34
	1-2 hrs.	12(42.9)	16(57.1)		
	2-3 hrs.	14(27.5)	37(72.5)		
	3+ hrs.	2(10)	18(90)		
Availability of the service	Yes	190(69.9)	82(30.1)	P=0.000	46.66
	No	21(26.9)	57(73.1)		

Knowledge and attitude of the women					
Information about PNC	Yes	191(68.5)	88(31.5)	P=0.000	46.98
	no	14(21.9)	50(78.1)		
Knowledge on the importance of PNC	Yes	188(67.3)	91(32.7)	P=0.000	30.85
	No	21(30.9)	47(69.1)		
Attitude of the women of PNC service	Yes	203(65.9)	105(34.1)	P=0.000	33.9
	No	8(19)	34(81)		
Women's' autonomy					
Decision on daily item	Respondent	47(49)	49(51)	P<0.05	10.94
	Jointly	143(66.8)	71(33.2)		
	Husband	20(51.3)	19(48.7)		
	Other	1(100)	0(0)		
Decision on large item	Respondent	2(25)	6(75)	P<0.05	15.37
	Jointly	185(64.5)	102(35.5)		
	Husband	22(41.5)	31(58.5)		
	Other	2(100)	0(0)		
Decision on visiting relatives	Respondent	11(37.9)	18(62.1)	P=0.000	19.35
	Jointly	183(65.6)	96(34.4)		
	Husband	15(37.5)	25(62.5)		
	others	2(100)	0(0)		
Decision on women's movement	Respondent	94(59.9)	63(40.1)	P=0.000	30.7
	Jointly	102(71.3)	41(28.7)		
	Husband	13(27.1)	35(72.9)		
	Others	2(100)	0(0)		
Advice of the Husband	Yes	187(65.6)	98(34.4)	P=0.000	18.19
	No	24(36.9)	41(63.1)		
Husbands permission	Yes	190(64)	107(36)	P<0.01	11.13
	No	21(39.6)	32(60.4)		
Husbands Attitude	Yes	187(64.7)	102(35.3)	P=0.000	13.53
	No	24(39.3)	37(60.7)		

Source: Own survey, 2009

4.6. Multivariate analysis of MHC

The bivariate analysis used in this study could only used to see the association between the dependent and independent variables using the chi square statistics. How ever this cross tabulated chi-square result cannot show the independent exact influence over the dependent variable because the influence of the other variables was not controlled.

To see the net effect logistic regression was applied to those variables that had significant association in the bivariate analysis. Therefore the following discussion explains about these strong predictors of MHC use in Denba Goffa woreda as the result shown in the logistic regression tables.

4.6.1. Determinants of ANC service Utilization

Of the different independent variables used in this study in the bivariate model household income, media, distance, husband's financial support and information about ANC service found to be the significant determinants of ANC service utilization as the results shown in table 4.14.

Results of this multivariate analysis showed household income to be one of the significant predictor of ANC service utilization in the woreda at $P<0.05$. Women whose household's income is between 601 and 1000 are 1.9 times more likely to use the ANC service than the women whose household income is below 300 birr. But the likely hood to use the service is lower by 10 %(1-OR=0.87) for the women whose household income is one thousand and above. This difference in the use of the service between the two contrasting groups may be arise from other factors like the husbands influence either interims of his negative attitude towards the service or the women knowledge about the service.

The other important predictor of the utilization of ANC service in Goffa woreda is women's access to media at $P<0.05$. Women who have access to media to any type either TV/radio or news pare are 90% more likely to use ANC service than who do not.

Distance from health centers is also found to be the other significant predictor of the utilization of ANC service at $P<0.05$. Women of the study area who live at an average distance are 3.7 time more likely to use the service than women who live close to the service but women who live at further distance are less likely to use the service than those women who live at an average. The difference in the utility of the service between the close distance and those who live at an average distance may be caused by the location of the higher grade health service centers. Hospital and

health centers are established at an average distance from the urban areas. Rural women who are living at peripheral area of the town are more close to these centers. So these rural women are 40% less likely to use the service than the urban women although it is insignificant.

Pertaining to the role of husbands in the utilization of ANC service, it is found to be one of the significant predictor of the utilization of ANC service. Husbands financial support and women ANC service utilization significantly associates at $P<0.05$. Women who are supported financially are 51% more likely to use the service than who do not. Even though women of the study area do not pay for the MCH services, they may use the money for the cost of transportation to come to hospital and health centers and this money is also important for the stay in the urban area to use it in different public service centers. Husband's attitude is also one of the insignificant factors to determine the use of the service under discussion .Women whose wives known to have a negative attitude towards the service were 37% less likely to use the service than the positives.

The result of the multivariate analysis also showed women knowledge about the service utilization to be one of the significant determinant of ANC service utilization in the Woreda at $P<0.05$. Women who have been informed about the utilization of ANC service are 75% more likely to use the ANC service than who do not have the information.

Women education and travel time are also found to be the predictors to use ANC service in the study area even though their influence is insignificant. In relation to women education, the model revealed that women who are at primary level are 1.3 times more likely to use the ANC service than illiterates and women at secondary and above level are also 1.2 times more likely to use the service than illiterate.

With regard to traveling time, the shorter the traveling time, the more the likely hood to use the service perceived in the study area. Women who travel between one to two hours are 70% less likely to use the service than below one.

Women who know about the benefit of ANC were also 10% more likely to use the service than who do not in the study area of Goffa woreda

Table.4.14. Multivariate Analysis Result of Respondents in ANC, Goffa Woreda, 2009.

Variables	B	S.E.	Sig.	Exp(B)
Place of Residence				
Urban (RC)				
Rural	-.496	.375	.186	.609
Women Education				
Illiterates (RC)				
Read and write	-.022	.431	.960	.979
Primary	.320	.474	.500	1.377
Secondary and above	.210	.378	.578	1.234
Ethnicity				
Goffa (RC)				
Others	.846	.501	.091	2.331
Household Income				
<300 (RC)				
301-600	-.257	.589	.002	.773
601-1000	.671	.581	.248	1.955
1001^{+}	-.138	.616	.823	.872
Access to media				
No Exposure (RC)				
Exposed to TV/Radio/Newspaper	.643	.299	.031	1.903
Living Standard				
Low (RC)				
Medium	-.154	.340	.650	.857
Distance				
Very close (RC)				
Average	1.308	.526	.013	3.700
Too far	.533	.495	.282	1.704
Traveling Time				
<1 hour (RC)				
1-2 hours	-1.181	1.251	.345	.307
> 2 hours	-.347	1.285	.787	.707
Husband' advise				
Yes (RC)				
No	.442	.511	.388	1.556

Husband's Financial Support				
Yes (RC)				
No	-.705	.320	.027	.494
Husband's attitude				
Positive (RC)				
Negative	-.461	.488	.345	.631
Women attitude				
Positive (RC)				
Negative	-.502	.388	.196	.605
Information about ANC				
Yes (RC)				
No	-1.356	.427	.001	.258
Knowledge about benefit of ANC				
Yes (RC)				
No	-.114	1.271	.929	.892

Source: Own survey, 2009

(RC)------Reference category

4.6.2. Multivariate analysis of the determinants of PADC

To see the net effect of the independent variables on the utilization of professionally assisted delivery care service in the woreda, binary logistics regression model is used. It is because of the dichotomous out come of the dependent variable (use or not) and any type of the independent variables.

Thus resident, waiting time, distance and attitude of the women towards the place of delivery were found to be the significant predicator of the utilization of PADC as it is shown in table 4.15.

According to the multivariate analysis result, women of the rural area were 2.2 times more likely to use PADC than the urban women.

Women who wait in the health institution for more than three hours are 61% less likely to use the service than who wait below one. But here the multivariate analysis model showed dramatic result on waiting time. Women who wait for one to two hours are 10 time more likely to use the PADC service than below one in the study area and women who wait for the service two to three hours are 28% more likely to use the service than below one hour. This result may be because of the difference between the rural and urban service provision. Although women of rural area provided the MCH service quickly, the likely hood of the use of the PADC service is grater for

the urban women.So urban women who wait for more than two hours are found to be more likely to use assisted delivery care in the study area.

Distance is also a significant predictor PADC in the area. Women who live too far from the health centers were 37% less likely to use the PADC service than those who live close to the centers. But for similar reason mentioned in the case of waiting time, women who are living at an average distance from the health service found to be four times more likely to use the service than those women who live close to the centers.

The attitude of the women on the place of delivery also significantly affects the use of PADC. As the multivariate analysis result showed in the table below women who prefer to deliver in their home are 10% more likely to be assisted by health professionals. This unusual out come has seen in the study area because of the home to provision of MCH service in the rural areas. All women in the rural areas give birth in their home except those who face complication during delivery. Those who deliver in their home are assisted by health extension workers for most of home delivers. So although women's preference is at home, the PADC service utility is higher for these women.

The others like residence, women's education and husbands occupation are also found to be important predictors but insignificant. Women education is linearly related with PADC. Women who are at secondary and above level are three times more likely to use the service than illiterates and women at primary level are also 34% more likely to use the PADC service than illiterates.

Moreover, women whose husband were civil servant are 1.2 time more likely to use the service than the farmers and women whose wives are private trade men are 3 times more likely to use the PADC than the farmers.

Table.4.15. Multivariate Analysis Result of Respondents in PADC, Denba Goffa Woreda, 2009.

Variables	B	S.E.	Sig.	Exp(B)
Place of Residence				
Urban (RC)				
Rural	1..374	.511	.007	2.253
Women Education				
Illiterates (RC)				
Read and write	-.134	.575	.815	.874
Primary	.295	.470	.530	1.344
Secondary and above	1.094	.593	.065	2.987
Ethnicity				
Goffa (RC)				
Others	-.465	.692	.502	.628
Women Occupation				
House wives (RC)				
Farmer	1.002	.625	.109	2.725
Civil servant	-1.217	.915	.183	.296
Others	-.226	.579	.696	.797
Household income				
<300				
301-600	-.651	.429	.129	.521
601-1000	-1.459	.584	.012	.232
1001^{+}	-1.466	.768	.056	.231
Husband's Occupation				
Farmer				
Civil servant	.024	.715	.973	1.025
Private trade	1.127	.619	.049	3.088
Daily laborer	1.239	.699	.076	3.452
Others	.117	.779	.881	1.124
Type of Family				
Nucleated (RC)				
Extended	.587	.471	.212	1.799
Distance				
Very Close (RC)				
Average	1.419	.408	.001	4.132
Too far	-.450	.987	.648	.637
Traveling Time				
< 1 hour (RC)				
1-2 hours	.455	.604	.451	1.576
> 2 hours	-2.167	1.671	.195	.115

Waiting Time				
<1 hour (RC)				
1-2 hours	2.337	1.183	.048	10.354
2 – 3 hours	.252	.662	.703	1.287
3 and above hours	-.930	1.260	.461	.395
Husband's advice				
Yes (RC)				
No	.536	.723	.459	1.709
Husband's financial support				
Yes (RC)				
No	.414	.460	.368	1.513
Husband's Companion				
Yes (RC)				
No	.324	.419	.439	1.383
Husband's Permission				
Yes (RC)				
No	-1.292	.762	.090	.275
Husband's attitude				
Positive (RC)				
Negative	.360	.761	.636	1.434
Attitude on place of delivery care				
Home				
Institutional	-2.395	.448	.000	.091
Knowledge about importance of PADC				
Yes (RC)				
No	.521	.603	.387	1.684
Knowledge of safe delivery				
Yes (RC)				
No	.006	.548	.991	1.006

Source: Own survey, 2009

(RC)------Reference category

4.6.3. The determinants of PNC use in GOFFA

As table1.16 show, among the variables included in the binary logistic model, residence, family size, waiting time and the attitude of the women found to affect significantly the use of PNC. Residence associated significantly at $P < 0.05$. Women who live in rural area are 2.39 times more likely to use the PNC service than the urban women.

Family size of the respondents is also one of the important predictor of PNC utilization in the study area (P<0.01). Women whose family size five to seven are 64% less likely to use PNC service (OR=0.36) than women who have below five. Women whose family size eight and above are 69% less likely (O.R=0.304) to use PNC service than those who have below five.

Waiting time at the health centers to get MCH is also significant predictor of PNC service use (P<0.01). As women's waiting time in the health centers decrease the likely hood to use the service also increase. Waiting time is linearly related with PNC service use. Accordingly women who wait in the health center one to two hours are 91% less likely to use PNC service than women who wait below one hour (OR=0.09) and women who wait two to three and three and above in the health center were 90% and 68% less likely to use the PNC service than those who wait below one hour respectively.

The attitude of women towards the utilization of PNC service found to be one of the significant determinant of PNC service use in the study area (P<0.05). Women who have negative attitude towards the service are 73% less likely to use the service than those women who have positive attitude to wards.

4.16. Multivariate Analysis Result of Respondents in PNC,Denba Goffa Woreda, 2009.

Variables	B	S.E.	Sig.	Exp(B)
Place of Residence				
Urban (RC)				
Rural	.872	.343	.011	2.391
Household Income				
<300 (RC)				
301-600	.896	.524	.087	2.451
601-1000	.361	.549	.511	1.435
1001+	.531	.576	.357	1.700
Age at first marriage				
<19 (RC)				
19 - 30	.177	.292	.546	1.193
Family Size				
<5				
5-7	-1.008	.425	.018	.365
8+	-1.191	.386	.002	.304
Distance				
Very close(RC)				
Average	-1.421	.746	.057	.242
Too far	-1.384	.708	.051	.250
Traveling Time				
<1 hour(RC)				
1-2 hours	-.484	1.206	.689	.617
>2 hours	-.408	1.211	.736	.665

Waiting Time				
<1 hour (RC)				
1-2 hours	-2.407	1.026	.019	.090
2 – 3 hours	-2.281	1.119	.041	.102
3 and above hours	-1.125	1.023	.271	.325
Availability of Service providers				
Yes (RC)				
No	.429	.593	.470	1.536
Husband's Advice				
Yes (RC)				
No	.418	.557	.453	1.519
Husband's Permission				
Yes (RC)				
No	.440	.667	.510	1.552
Husband's Attitude				
Positive (RC)				
Negative	-.687	.611	.261	.503
Information on PNC				
Yes (RC)				
No	-1.018	.551	.065	.361
Attitude of the Women				
Positive (RC)				
Negative	-1.309	.581	.024	.270
Knowledge about importance of PNC				
Yes (RC)				
No	.266	.563	.637	1.304

Source: Own survey, 2009

(RC)------Reference category

CHAPTER FIVE

5. DISCUTION OF THE FINDINGS

The maternal health care that received by the mothers during their pregnancy, at delivery, and after delivery is important for the survival and well being of both the mother and the child (EDHS, 2005). Knowing this a community based cross-sectional study assessed the level of the utilization of maternal health care service and it's determinants along with other areas importance to maternal health: AN, delivery and postnatal care in Denba Goffa Woreda.

The result of this finding revealed that the over all coverage of ANC was 84% for married women age (15-49) who has given birth at least one for the last three years preceding the survey. The coverage is found to be high when it is compared with the national and regional level. EDHS (2005) result show that ANC coverage was 28% for the country Ethiopia and 30.3% for the region SNNPR. But the result has great consistency with regional ANC coverage for the year 2008(85.4%) (FMOH, 2007/08) and important towns of Ethiopia like Addis Ababa 88.3% (EDHS, 2005), Assaita and Dubti twon 80% (Melkamu, 2005), Maichew 80% (Hailom, 2008), Jima town 90 %(Challi and Tefera, 2005), Gondar 79% and Dire Dawa (K.Paul, 1993).

The wider coverage disparity between the study area and at the country and regional level for the results of DHS, 2005 may be due to the time gap for the period of the survey. Maternal health care has been given great attention globally and nationally in these recent times. The government of the country has made great effort to improve the quality of the service so as to reduce the high rate of maternal death of the country (MOH, 2007). Because of this, rural areas have been given priority in health sector which may help them use the service widely. This the government's intervention in the provision of MHC service through health extension policy has done much in increasing the ANC service coverage in the woreda. How ever, WHO recommends that under normal circumstances a woman with out complications have to make at least four visits to provide sufficient care. According to this recommendation, the coverage falls to only 49.1% of the total sample women. Almost half of the total women do not attend the required number of visit in the woreda.

This study also assessed the major reasons for the mothers to use ANC service in the study area and it is known to be for regular follow up for 62.3% of the women and medical problem shares 21.1% of the women. These percentages imply that women of the woreda are increasing their awareness about the importance of the use of the service.

16% of the women in the study area are known to be non-users of ANC service at least once. Therefore, the study documented the important reasons for these non-users in the woreda. The highest percentage share almost 71.4% goes to I was health and being to busy takes 14.37 of the valid percent of women of the area.

Utilization of ANC service is more effective in improving the negative pregnancy out come when it is sought early in the pregnancy and continued through to delivery (EDHs, 2005). Health professionals recommend that the first AN visit should secure with in the first three months of pregnancy and continued to the 28^{th} week of pregnancy on the monthly basis (EDHs, 2005). According to this point of view, the study found that only 21.8% of the pregnant women made their first prenatal visits in their first three months of pregnancy. And the rest 79.2% of the women started ANC at late stage of pregnancy.

The place of attendance and the person sought care can also explain the degree of the quality of ANC service utility for the effectiveness of the service. Although the coverage is higher, the persons sought care are the health extension workers for 64.6% of women, who do have the lowest skill in the field which are supported with poor medical equipment in the place where there is no transport and communication facility for most part of the Kebeles of the woreda.

This finding also documented the inadequate service in relation to the provision of the contents of the ANC service despite the incredible government's effort made to increase the coverage of the service from none to almost all kebeles universally in short period of time. Much has to be done to achieve the MDG-goal in increment of MCH service utility with skilled professionals and in turn to reduce maternal deaths in the woreda.

The major objective of this research is to asses the important factors that shape the use of MHC service in Denba Giffa Woreda. The study has identified several factors that significantly influence the use of the MHC service in the woreda.

Utilization of ANC service in the Woreda found to be affected significantly by family income, access to media, distance, and the role of husband after controlling the other factors.

Several studies made in different part of the world documented family income to be one of the important factors to affect the use of ANC service. These studies have shown that utilization rate increase substantially with increasing income (C. Guilleremo, 1992; H. Abbas, 1986; Andrson, 1995). The result of the present study reveals that women whose family income is between six

hundred and one thousand are more likely to use ANC service than who has below 300. The result of the finding is consistent with other studies made in different developing countries (Irma T.E., 1992; N. Nisar and F. white, 2003; Simon M.C. etal, 2007). This finding is also similar with the study made in Ethiopia, SNNPR (Belay, 1999).

Women exposure to mass media is also found to be the significant determinant of ANC use in the woreda. Accordingly women who have some exposure to media either TV/radio or news paper are more likely to use the service. Studies made in India and Ethiopia had found the same result with this finding (K. Navanee tham and A. Dharma Ingham, 2000; Mesfin, 2004).

A considerable variation in the utilization of MCH in developing countries believed to be caused by partly due to difference in access to health centers (P.Nancy et al, 1999).As several studies made in developing countries of Asia like Jordan and Iraq, distance found to be one of the important determinant of ANC use in these countries (A. Abbas, 1986; Habib SO, 1986).The effect of distance on the use of ANC also strong in Pakistan (Islam and Tahir, 2002; Mumtaz and Salway, 2005), Zambia (J. Scekeleburg, 2004) and Ethiopia (Mekonen, 1998). This study found the same result with the above all findings. Distance found to be one of the significant determinants of ANC use in the study area. Women whose house is near to the health service were more likely to use ANC service than the farthest in this study.

Many women in the developing countries need a husbands' permission to visit the health facility because women have very little control over their own or family income. Their ability to use the service especially when fees are involved, it is less likely to use MHC services. Studies made in Kenya and Swaziland found that women were less likely to use MHC service in the absence of husband's financial support and in his refusal to meet the expense. Husband's financial support is one of the encouraging factors that increase the likely hood of the use of the maternity care. (WHO,UNCEF and UNFPA, 1996; WHO and UNCEF, 2001). Women of the study area were also affected by lack of husband's financial support to use MCH care. The multivariate result of this study shows that women who have financial support from their husband are more likely to use ANC service than those who do not have.

Information about the ANC service is also found to be one of the significant predictor of ANC use in the study area. Women who are pre informed about the service are found to be more likely to use the service than not. This finding is consistent with other study made in Ethiopia, Bahirdar (Tarik, 2008). Women knowledge on the benefit of the service also found to affect the use of the

service. But it is statistically insignificant .The more the women knowledgeable on the benefit, the greater the likely hood to use the service in the woreda.

The multivariate analysis of this study has shown residence, and women educational level to affect the use of ANC service insignificantly. The educated women and the urban women found to use the service more likely than the illiterates and the rural women respectively. It has similarities with other studies made in Ethiopia (Tairk, 2008, Hailom, 2008, Melkamu, 2005).

It is known that having a skilled attendant at every delivery can lead to a marked reduction of maternal mortality (L. De Berns et al, 2003; AM Kblinsky et al, 1999; V. De Browwere, 1998; BE. Kwast,1996). As a matter of fact, the proportion of birth attended by skilled health personnel used as one of the important indicator to see the changes towards the achievement of the millennium development goal of reducing maternal mortality ratio. The target set at the ICPD is to have more than 80% of PAD by 2005, and 85% by 2010. Having this in mind this research tried to see the level of the use of PADC and its determinants in the woreda. Accordingly the result has found that 51.7% of the sample women could give birth assisted by professional skilled birth attendants. It is very high as compared to Ethiopia 6% and SNNP 4.2% (EDHS, 2005). But this result has great similarity with regional coverage for the year 2008 which is 46.8 %(ROH, 2008) and result of studies made in Bahirdar 55% (Tarik, 2008). The health extension policy of the country providing out reaching service contributed much for this success in the woreda. I found still the woreda has to work hard to achieve MDG goal 85% set by ICPD by the year 2010 despite many efforts made to achieve this 52% PADC coverage.

The study also documented the different factors that significantly influence the use of PADC service in the study area. Thus residence, women attitude, distance and waiting time found to be important predictors of this service use.

The multivariate analysis confirms that women of the rural area were more likely to use the PADC service than the urban. This result is not similar with several studies made in different developing countries like Ghana (Addai, 200), Bangladesh (Simon M.C. etal, 2007), Peru (Irma T.E, 1992). Ethiopia (Yared and Asnakech,2002).In most developing countries urban women were found more likely to use ADC than the rural women .The contrasting result seen in the Woreda is because of the special emphasis given for the rural women providing outreaching maternity services by health extension workers which is the result of the health extension policy of the country .

Distance is one of the important factors that affect the assisted delivery care in developing countries like Tanzania (Rose NM. M. et al, 2007) and Peru (Irma, 1992). Result of this study also found distance to be one of the significant determinants of PADC. It is said to be important by the fact that there is no means of transport facility for most kebeles. Women of this woreda were more likely to use the PADC if their house is closer to the heath centers. This factor is more important for the rural women for those who face delivery complication during labor. Study made by Mekonen(1998) in Ethiopia in the SNNPR, had shown the same result that distance and travel time to be important factors to affect MCH use in the rural Ethiopia.

Women attitude towards home or institutional delivery found to be one of the factors to affect this service use significantly. The result found that home deliveries are more likely to use PADC than those who prefer to deliver in health institutions. According to the survey made for the study 73.6% found to be delivered at home. The above two contrasting result indicate that, if women provided with skilled delivery service in their home, most women decide to use PADC service in the area. Several studies made in Ethiopia indicate that most women deliver at home. For instance 88% of women in the rural Butajira (Bihata, J, 1986) and 94% of women of Ethiopia (EDHs, 2005) found to deliverer at home. Until all women of Ethiopia increase their awareness about the benefit of institutional delivery, the wider home to PADC service provision requires quick response at country level in general and at woreda level (Under discussion) in particular in the places where there is no well equipped health institution in rural kebels.

Satisfaction or dissatisfaction with the service received (e.g. effectiveness of the treatment, remedies prescribed, staff attitude, long waiting time, hospital procedure, availability of the supply and efficiency) affect decision to seek care in developing and developed world (WHO, 1996). Waiting time to get the service in the health centers is one of the significant predictor of PADC service in Goffa woreda. Women who wait for shorter time are more likely to use the PADC than who wait for longer time. This result is consistent with several studies made in different part of developing countries (Stock, 1983; Addai, 1998; Mesfin, 1993; Melkamu, 2005).

A large proportion of maternal and neonatal deaths occur during 48 hours after delivery. Thus PNC is important for both mother and child to over come problems arising from delivery. It is also important to provide the mothers with important information on how to care for her self and her child (EDHS, 2005). Taking this in to consideration, this study had also emphasized on the

use of PNC in the woreda.

The utilization of PNC service is 60.3% in Denba Goffa woreda according to the result of these finding. It is found to be nearly similar with the SNNPR postnatal service coverage40.3%(MOH,2008) but very much higher as compared to that of the country level (6%) and the regional level (4.3%) for the the year 2000-2005.This difference implies the beginning of the success of the health extension policy of the country. The result has also similarity with different towns like Addis Ababa (55.7%) as it is indicated in result of EDHS for the year 2005.

The study also documented some of the important reasons for the attendances of PNC service in the woreda. Accordingly, their sickness during postnatal period found to be reason for 37.3% of the women, and the sickness of their child was a reason for 12% of these women and 49% of these women attended the service for check up of the health of themselves and their body. The study also found that a considerable number of women face some health problem after delivery but those who sought care for such problems are almost half of them. Despite women of the study area found to use PNC service widely still strong campaign should be made creating awareness about the importance of this service in the study area.

Almost 40% of women were found to be the non-users of PNC service. Thus the study also tried to asses the reasons for the non- attendance of the service and it is found that I was healthy was for 26% of women but reason for the rest percentage is found to be being too busy, husbands' disapproval and absence of idea about the use of PNC service.

As it is indicated in the previous discussions, the principal focus of this study is to see the major factors that affect the use of MHC in the woreda. So this finding documented residence, family size, women's attitude and waiting time to be the significant determinants of PNC after controlling the other factors.

As the result of this study shows, rural areas are more likely to use PNC service than the urban women contrasting the expected out come. This may be because of the variation in the proportion of women who face health complication after delivery. It is found that the highest proportion is for the rural women to face such problems. The data for reason to use PNC service also confirmed that it is either mother's or child's sickness after delivery for majority of the rural population to use PNC service. The life of the rural area is the determining factor for these different problems which comes after delivery including poor hygiene, poor nutrition and absence of companions after delivery and so on.

Family size is one of the demographic factor that corollet with maternity care in different developing world (Nyamongo, 2002; Thorson et al, 2000). This was also found to be true in this study to affect PNC use in the woreda. Utilization of PNC service is linearly related with family size. As table 4.16 show the effect of family size, the likely hood of the use of PNC decrease with the increment of the family size. Women whose family size is higher are less likely to use PNC service than the smaller one. The reason for this may be women who care for more children might have shortage of time, money and energy to care for them selves. Women of the area are too busy in taking care of their large family. This caused difference in the use of PNC service.

Waiting time in the health centers to get service had found to affect significantly the use of PNC after controlling the other factors. Women who wait for shorter time were more likely to use PNC service than who wait for longer time. The result goes in line with the result seen under discussion of resident. Users of PNC are dominantly women of the rural area. These women may not wait for the service but the urban women who use the service in the health centers and hospitals wait for the service because of the larges number of clients. So when waiting time increase the likely hood to use the service decrease in the area. This finding has similarity with several studies made in developing countries (R.Stock, 1983; Addai, 1998).

Respondent's attitude towards the service is also found to be the significant predictor of PNC service use in the woreda. Women whose attitude is negative for PNC service are less likely to use service than those who have positive attitude. Attitude of women to wards MCH service can be influenced by the culture of the area. Cultural perspective on the use of maternal health care service determines the attendant of PNC in different areas as it is shown in several studies(World bank, 1994; Sergent, 1982; Borley, 1980; Jordan, 1978). Mother of the rural area of the woreda have different MCH service options (traditional, spiritual and modern). Traditional healers are the alternative source of health care service for considerable proportion of women in the study woreda.

CHAPTER SIX

6. CONCLUSION AND RECOMMENDATION

6.1 conclusions

This study has documented the following important findings about the MHC service use in Denba Goffa wereda.

- ❖The utilization of ANC service in the woreda can be said as inadequate for three reasons. First, the coverage for ANC service, according to the recommended number of visit for sufficient care, has found to be only 50%. Second, the first ANC visit occurs at late stage of pregnancy for almost 80% of women in the woreda .Third, low provision of the contents of ANC service in the woreda.
- ❖ The most important reasons for the non- attendance of ANC in the woreda are found to be being healthy for three-fourth of the women and being too busy and having no idea takes the rest share of reasons of these women.
- ❖ The bivariate analysis of this study confirmed that all the demographic factors and indicators of women autonomy to be weak predictors of the use of ANC service in the woreda.
- ❖Household income, access to media, distance, husband's financial support and information about the use of ANC service found to be significant predictors of the service after controlling the other factors. And the study documented the positive effect of the above factors in the use of ANC service in the woreda.
- ❖The level of institutional delivery is still very low; it is 26.3% but the coverage of PADC use has reached to 50% of the women in the woreda. The health extension policy providing home to service did much for this success in the rural areas.
- ❖The result of this study confirmed that the reason for non user of PADC to be being healthy for half of the women and long travel time, financial constraint, long distance, long waiting time, husband's disapproval take the rest half percent of reasons of the respondent.
- ❖Bivariate analysis showed all the demographic factors except the type of the family to be weak predictors of PADC in the study area. After controlling the other factors, residence, distance, waiting time and women attitude to wards the place of delivery found to be the significant predictors of the use of PADC in the woreda.

- ❖The present study revealed the coverage of the use of PNC service in the woreda reaching 60.3%.
- ❖The reasons for the use of the PNC service found to be the sickness of the mother and her baby for wider proportion of women but for check up takes almost half of the women of the woreda .
- ❖This study identified the wider probability for the occurrence of mother's health complication after delivery.
- ❖The important predictors of the use of PNC service was found to be residence, family size, waiting time and women's attitude towards the PNC service in the woreda.
- ❖The study also found the health extension workers to be the most important MHC service providers for almost two-third of the women of the owreda.

6.2 Recommendations

◈Extensive campaign has to be made by stakeholders specially on creating awareness about

- The benefit MCH service
- On the danger sign of pregnancy
- On the time of starting the ANC use
- On the place of delivery.

◈ Improving the skill of the health extension workers providing the in service and regular educational opportunities can improve the quality of MCH service in the rural areas of the study woreda.

◈Stakeholders should work on the provision of the service emphasizing on the home to service provision in the rural areas.

◈The national and regional mass Medias should work much on the issues of MCH services enabling the woman know about the importance of the service. More over the government of the region should work on accessing electronic media for these non-educated women of the area with local language.

◈Wider provision of ambulance service for the rural women of the woreda has great importance in increasing the MCH service use by the skilled attendants in the health center and hospital especially during the time of delivery complications.

◈NGO's and private MCH service providers should be encouraged to work on the sector so as to increase accessibility and availability of the service

◈Health centers and the hospital should improve the service provision minimizing waiting time.

◈There must be improvement in the distribution of health centers minimizing the problem of accessibility in terms of distance for non-attendances of MCH service both in the rural and urban Kebeles.

◈Intervenions programs and strategies should focus on the low income groups to improve the use of ANC service and on the women of urban area and of high family size to improve the use of PADC and PNC service.

◈Husbad's role are found to be significantly asociated with the MHC use of the study area. Because of their intense importance in suporting their wives ,they shuld be given some knowledge about the use of MCH services.

◈Research should be conducted on the cultural perspective to know the different factors that limit the use of MCH service in the woreda and in turn to change the attitude of the people to wards the service.

◈The majorities of the women of the woreda were found to be illiterates. Research should be made to identify the different factors that limited women education in the area.

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Appendix-A
English version of the questionnaire
ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES
INSTITUTE OF POPULATION STUDIES

This is a study which will be made aiming at assessing the level of utilization of maternal health care and its determinants in this Woreda. The target population of the study is married women age 15-49 who gave birth at least one in the last three years. Moreover, you are one of the selected women to be part of the study to provide information's that are required for the study. The reliable information's that you give determine the quality of the study. Knowing this you are kindly requested to give the true information to play your role in improving the utilization of maternity health care service in the Woreda. My sister or mother, your participation is voluntary and you have the right to refuse not to be the part of this study. However, be sure that the information that you provide us will be secret.

This study has approved from Addis Ababa University. May I continue? If yes, continue the interview. If not, thank and stop the interview.

Name of the interviewer _____ sign _____ Dale _____
Starting time _____
End time _____
Name of the Supervisor _____sign _____

Part I. Socio- Economic Characteristics of the Respondents

101. Women residence 1. Urban 2.Rural
102. Women's educational level
    1. Illiterate 3. Primary school
    2. Read & write 4.Secondary school 5. Above these
103. Religion 1.Orthodox 2.Protestant 3.Islam 4. Other
104. Ethnicity 1. Goffa. 2. Amhara. 3. Basketo. 4. Gurghe 5. Others
105. Women's personal income per month _____
106. Women Occupation
    1. House wives 3. Civil servant
    2. Farmer 4.Own private business 5. Other
107. Household income _____
108. Husbands Education
    1. Illiterate. 3 Primary school
    2. Read & with write. 4. Secondary school 5.above these
109. Husbands occupation 1.farmer 2.civil servant 3 .private trade 4.daily laborer 5. Other

110. How often do you read news paper?
    1. not at all 3. At least once in a weak
    2. Once in a week 4. Almost every day

111. How often do you listen to the radio?

1. not at all 3. At least once in a week
2. Once in a week 4. Almost every day

112. How often do you watch Television?

1. not at all 3. At least once in a week
2. Once in a week 4. Almost every day

Part II. Living standard

Standard of living index (SLI)		
Sr. No	Variable	Categories
1	Source of Drinking Water	1. Tap(own) 2. Tap shared 3. hand pump Well 4. others
2	Type of House	1. Pucca 2. Semi Pucca 3. kachcha
3	Source of Lighting	1. electricity 2. Kerosene 3. Other
4	Fuel for Cooking	1. LPG 2. Kerosene 3. Others
5	Toilet facility	1. Own Flush Toilet 2. Own Pit Toilet 3. shared Toilet 4. No Toilet
6	Ownership of items	1. Fan 2. Radio/Transistor 3. Sewing machine 4. Television 5. Telephone 6. Bicycle 7. Motor Cycle/Scooter 8. Car 9. Tractor 10. None

Part III. Demographic characteristics

301. Age _____
302. Age at First marriage _____
303. Age at last birth _____
304. No of children ever born _____
305. No of surviving children _____
306. Family size _____
307. The type of family 1.Nucleated 2. Extended
308. Birth order of the last birth _____

Part IV. Availability, Accessibility and Affordability

401. Is there any health service center in your locality? 1. Yes 2. No
402. Distance from home to health centers
1. Very cloth 2 Average 3. Too far
403. Time taken to reach any health service centers.
1. 0-1 hour 2.1-2 hours 3.3 hours 4. 3 and above
404. Waiting time to get the service in any health service central
1. <1 hours 2.1-2 hours 3.2-3 hours 4. 3 and above
405. Can you get maternal service in any time (day or night?)
1. Yes 2. No
406. Working time to get the ANC service in a week
1One day 2Two days 3.Three days 4. Four and above
407. Do you think that there is sufficient health service provision for delivery in your locality?
1) Yes 2) No

408. Is there any payment needed for the maternity care service?
1. Yes 2. No
409. Is the payment needed for ANC affordable? 1. Yes 2.No 3. No payment
410. Is the payment needed for PADC affordable? 1. Yes 2.No
411. Is the payment needed for PNC affordable? 1. Yes 2.No

Part V. Women's Status

501. The last decision on purchasing daily items
1. Respondent 2. Jointly 3.Husband 4.Others
502. Decision on purchasing large items
1. Respondent 2.Jointly 3. Husband 4. Other
503. The last decision on visiting relatives
1. Respondent 2.Jointly 3. Husband 4.Other
504. The last decision on women's movement for personal cases.
1. Respondent 2. Jointly 3.Husband 4.other

Part VI. The role of husbands

601. Is there any advice from your husband to use maternal health care? 1. Yes 2.no
602. Is there any financial support from your husband for maternal health care use?
1. Yes 2.no
603. Companion during ANC visit .1.yes 2.no
604. Is your husband gives you permission to go to maternal health care service centers 1.yes 2.no
605. What is his attitude to wards the service 1.posetive 2.negative

Part VII. The previous MHC use

Order of conception from the last	**ANC**		**DC**	**PNC**
	No of visit	**No of the vaccine**	**1. Institutional 2. Home**	**1. Yes 2. No**
The last birth				
The birth before the last				
The 3rd birth from the last				

Part VIII. Attitude and knowledge

ANC

801. Do you believe that pregnant women should get ANC follow up?
1. Yes 2. No 3. Do not know
802. Have you heard about ANC follow up 1.Yes 2. No

803. Do you have knowledge about the unhealthy pregnancy? 1. Yes 2. No
804. From where do you think pregnant women should get AN care for such unhealthy pregnancy? 1. Health institution 3. Relative/ Friends 4.TBA
2. TTBA 5. Other
805. Do you know about the benefit ANC? 1. Yes 2. No
806. If yes what is the benefit of ANC?
1. Maternal health 3. Both for maternal and child health
2. Child health 4. Other

PADC

807. Where do you prefer to deliver?
1) At home 2) Health institutions 3) Other
808. If you want to deliver at health centre, why?
1) It is my usual practice
2) I have learnt about it when I follow up ANC
3) For my child and my health 4) other
809. Do you know about the importance of PADC? 1) Yes 2) No
810. Do you know about what to mean by safe delivery? 1) Yes 2) No
811. Were you aware about where to deliver your child? 1) Yes 2) No
812. Does institutional delivery have any benefit? 1) Yes 2) No

PNC

812. Have you ever heard about postnatal care service 1) Yes 2) No

813. Do you believe that women after deliver should get postnatal care?
1) Yes 2) No 3) Do not know

814. Do you have a knowledge about the importance of PNC?1) Yes 2) No

Part IX. Questions on the level of ANC

901Have you faced problem during pregnancy? 1. Yes 2.no

902. What was the type of problem (multiple response is possible). 1. Seizer 2.persistent vomiting 3.leg swallow 4 .anemia 5. Prolonged labor 6.vaginal bleeding 7. Retained placenta 8. Abnormal fetal position 9.hypertenstion 10.other

903. Have you had Antenatal visit 4 and above times for the last birth 1. Yes 2. No

904. What was the no of antenatal visit in your last pregnancy? 1. 0 2.2-3 3. 4 and above

905. If you had ANC at least once, when was the timing of the first antenatal visit?
1. 1st trimester 2.2nd trimester 3.3rd trimester.

906. If you had ANC at least once, what was your reason for AN visit?
1. Follow up 2.Medical problem 3. Other

907 If you had ANC at least once, where is the location attended?
1. Hospital 2. Health center 3. Health post 4. Other

908. If you had ANC at least once, who was the person sought care? 1. Doctor 2.Health offices 3. Nurse
4. Health extension worker

909. If you had ANC at least once**,** what were **the** type service given during ANC

1. TT vaccine	1.yes	2.no
2. Ultrasound	1.yes	2.no
3. Health education	1.yes	2.no
4. Blood pressure	1.yes	2.no
5. Laboratory examination	1.yes	2.no
6. Physical examination	1.yes	2.no
7. Multivitamin and mineral	1.yes	2.no
8. Antenatal card	1.yes	2.no
9. Anti malaria	1.yes	2.no

910. What was the no of TT vaccine _____

911. Reason for not using ANC (multiple responses are possible)

1. Being to busy
2. I was healthy
3. Long distance
4. Financial constraints
5. Long travel time
6. Long waiting time
7. Health provides were not available
8. Poor quality of the service
9. Husband's disapproval
10. I have no idea about it.

Part X. Questions on the level of Delivery care

1001. What was the type of delivery for your previous birth? 1) Normal 2) Caesarean section

1002. How long was the duration of labor _____

1003. Have you faced any delivery complication? 1) Yes 2) No

1004. What was the out come of your last pregnancy?
1) Survival baby 2) Abortion 3) Still birth 4) other

1005. Have you delivered in health institutions? 1) Yes 2) No
1006. Have you delivered assisted by health professionals 1. Yes 2. No
1007. Who was the person attended during delivery? 1) Doctor 2) Health officer 3) Nurse 4) Health extension worker 5) TTBA 6) TBA 7) other
1008. If you are assisted by health professionals during delivery, what was your reason for choosing PAD care? 1. Pregnancy complication
2) Information during ANC 3. Safe delivery 4.othre
1009. What was your reason for not professionally assisted delivery (multiple response is possible).

1) I was healthy
2) Long distance
3) Long travel time
4) Financial constraints
5) Long waiting time
6) Health providers were not available
7) Poor quality of health service
8) Husbands disapproval
9) I have no idea about it
10.No female mid wives

1010. Have you paid for delivery care? 1. Yes 2.No
1011. Was the payment affordable? 1. Yes 2.No
1012. Who was your companion at labor?
1) None 2) Husband 3) sister/mother 4) in laws 5) other
1013. Who was your companion at birth?
1) None 2) Husband 3) sister/mother 4) in laws 5) other

Part xi: Question on the level of postnatal care

1101. Have had postpartum visit schedule in 45 days after birth? 1) Yes 2) No
1102. What was your reason for attending postnatal care?

1. Because I was sick
2. Because my baby was sick
3. To check my health and baby health
4. Others

1103. What was the length of stay in hospital (health centers) after deliver?
1) In hours. 2) For some days. 3) For weeks. 4. I do know
1104. Was there any treatment given after delivery before you live the health center?
1. Yes 2. No
1105. If yes, was there any support to initiate breast-feeding. 1) Yes 2) No
1106. If yes, was there any information about potential problem for which to seek cares.
1) Yes 2) No
1107Had you encountered any problem in postnatal period? 1) Yes 2) No
1108. If yes, have you sought care for complication after delivery 1) Yes 2) No
1109. Who was the person sought care 1) Doctor 3) Nurse 2) Health officers 4) health extension worker 5.TTBA 6.TBA 7.other
1110. Have you paid for postnatal visit? 1) Yes 2) No
1111. Was the payment affordable?
1112. What was your reason for not having postnatal visit?

1) Being too busy
2) I was healthy
3) Long waiting tome
4) Financial constraints
5) Long traveling time
6) Long distance
7) health providers were not available
8) Poor quality service
9) Husbands disapproval
10) I have no idea
11) other

Appendix B

STANDARD OF LIVING INDEX

No.	Variable	Categories	Scores
1	Type of house	Pucca	4
		Semi-pucca	2
		Katcha	0
2	Toilet facility	Own flush toilet	4
		Flush toilet-public/shared or own pit	2
		Pit toilet-shared/public	1
		No facility	0
3	Source of lighting	Electricity	2
		Kerosene/Gas/Oil	1
		Others	0
4	Fuel for cooking	Electricity/LPG/Bio-gas	2
		Kerosene/Coal/Charcoal	1
		Others	0
5	Drinking water	Own-tap/hand pump/well	2
		Public-tap/hand pump/well	1
		Other	0
9	Ownership of items	Fan	2
		Radio	2
		Sewing machine	2
		Television	3
		Telephone	3
		Bicycle	2
		Motorcycle	3
		Car/jeep	4
		Tractor	4
		None	1

*pucca-‘villa bet’
*semi pucca- ‘chika bet’
* Katcha- ‘sar bet’

Source: C.Ramanujam and N.Dhanabaghyam. 2007.

AppendixC.1.

Information about Variance of Inflation Factor for multi co linearity effect in ANC, PADC and PNC logistic model

	VIF		
	ANC	PADC	PNC
Women residence	0.001	0.014	0
Women Education	-	0.466	-
Women Ethnicity	0.163	0.863	-
Women's Occupation	-	0.653	-
Household Income	0.732	0	0.066
Husband Education	0.912	0.072	-
Access to Media	0.132	-	-
Living standard	0.684	-	-
age at first marriage	-	-	0.22
Family Size	-	-	0.171
The type of family	-	0.217	-
Distance from home to health centers	0.078	0	0.187
Traveling time reach any health service centers.	0.017	0.891	0.74
Waiting time in any health service center	-	0.596	0.007
Availability the service at any time	-	-	0.9
Husbands' support in advice for MHC use	0.34	0.026	0.588
Husbands' financial support for MHC use	0.021	0.681	-
Husbands' companion during MHC use	-	0.122	-
Husbands' permission to use MHC services	-	0.113	0.644
Husbands' attitude to wards the service	0.563	0.962	0.83
Women attitude to wards MCH use	0.39	-	-
Information about ANC service	0	-	-
Knowledge about the benefit ANC	0.619	-	-
Attitude of women on place of delivery	-	0	-
Knowledge about the importance of PADC		0.063	
Knowledge safe delivery	-	0.937	-
Information about postnatal care service	-	-	0.031
Women attitude towards postnatal care services		-	0.01
Knowledge about the importance of PNC	-	-	0.894

Appendix C - 2

Information about model goodness of fit

	ANC	PADC	PNC
Overall Percentage	69.1	51.4	90.2
Hosmer and Lemeshow Test	0.633	0.066	0.77

Declaration

This thesis is my original work, that has not been presented for degree in any other university and that all sources of martial use for this thesis have been duly acknowledged.

_____ _____ _____

Student Sign. Date

I confirm that this thesis has been submitted with my approval as the supervisor of the same.

_____ _____ _____

Adviser Sign. Date