Assessment of Antenatal Care Utilization and its Associated Factors Among 15 to 49 Years of Age Women in Ayder Kebelle, Mekelle City 2012/2013; A Cross Sectional Study

Kalayou K Berhe*[1], Haftom G Welearegay[2], Gerezgiher B Abera[1], Hailemariam B Kahsay[1] and Alemayehu B Kahsay[1]

[1]Department of Nursing, College of Health sciences, Mekelle University, Tigray, North Ethiopia.
[2]Department of Midwife College of Health sciences, Mekelle University, Tigray, North Ethiopia.

Address for Correspondence
Mekelle University, College of Health Sciences, department of Nursing, PO. Box 1871, Tigray region, North Ethiopia.
E-mail: Kalushaibex@yahoo.com

ABSTRACT

Objective was to assess ante natal care utilization and its associated factors among 15 to 49 years of age women in Ayder Kebelle, Mekelle city 2012/2013. Community based cross sectional study design was conducted, interviewer administer questionnaire was used to collect the data. Pre-test was done for assuring data quality, the study population was all child bearing women in Ayder kebelle. Systematic random sampling technique was employed to select the intended study subjects. Sample size was 252 and bivariate logistic regression analysis was computed to interpret and identify factors associated with antenatal care utilization. OR using 95% confidence interval and p- value were calculated. Data entry, cleaning and analyzing were done by using SPSS version16 statistical software. The study revealed that about 88.9% of the women had at least one antenatal visit during their recent pregnancy. Almost half of the antenatal care (44.2%) attendants made their first visit during their second and third trimester of pregnancy. Among antenatal care users around 84.8% had four and above antenatal care contacts. The main reasons for non-attendance at antenatal care clinic were related to being in good health and poor quality of service. It was also observed that non-attendance was higher for those with unplanned pregnancy, low knowledge of unhealthy pregnancy and those whose husband or partner's attitude to antenatal care attendance were negative. In conclusion the study revealed that Socio demographic factors were found to be barriers to utilization of antenatal care services and the overall antenatal care utilization is higher 88.9%.

INTRODUCTION

Background

Maternal and child health care begins with the immediate health Problems of mothers and child extends to health throughout life and to the health of the community. The primary objective of antenatal care is to establish contact with the women, and identify and manage current and potential risks and problems. It is considered as one of the most important for the health of the mother and optimal development of the fetus as well as for preventing or minimizing the complication of pregnancy. Quality antenatal care is associated with a better overall pregnancy outcome for both mother and infant. Many health problems experienced by pregnant women can be prevented, detected and treated during antenatal care visits with trained health workers. Antenatal care can foster a rapport between the mother and the father and the health care provider, provide preventive care and health education, identify and treat illness, encourage skilled attendance at birth and prepare the mother, other family members, and birth attendants for possible emergencies. Good antenatal care can help prevent factors associated with newborn mortality such as low birth weight and complications from infectious diseases, including reducing mother to child transmition. Male partner participation in antenatal health care can encourage male partner support and involvement in pregnancy and delivery[1-4].

The aim of antenatal care is to assist women to remain healthy, finding and correcting adverse conditions when present, and thus aid the health of the unborn. Antenatal care should also provide guidance to the woman and her partner or family, to help them in their transition to parenthood.

Antenatal care is a care given to a pregnant women delivery and it is an integral component of maternal and child health. Maternal and child health services are essentially primitive, preventive and provide for early detection of mother and infants at high risk of illness and mortality. Most obstetric complications are random and unpredictable event. The main causes of maternal death are hemorrhage, obstructed labor, hypertensive disorder, sepsis and unsafe abortion antenatal care are useful to detect and treat various conditions (including the main cause of maternal death) and monitoring fetal growth such as contact improves the general health status of pregnancy. Five direct complications account for more than 70% of maternal deaths: hemorrhage (25%), infection (15%), unsafe abortion (13%), eclampsia (very high blood pressure leading to seizures – 12%), and obstructed labour (8%). While these are the main causes of maternal death, unavailable, inaccessible, unaffordable, or poor quality care is fundamentally responsible. They are detrimental to social development and wellbeing, as some one million children are left motherless each year. These children are 10 times more likely to die within two years of their mothers' death[5,6,7,8].

Statement of the Problem

Every minute, at least one woman dies from complications related to pregnancy or childbirth – that means 529 000 women a year. In addition, for every woman who dies in childbirth, around 20 more suffer injury, infection or disease – approximately 10 million women each year. Studies reveal that the cause of maternal mortality in developing countries is mostly

due to poor accessibility to maternal health's service poor referral to appropriate antenatal and delivery care unit, and inadequacies of available care. These studies suggested that most of the maternal deaths were preventable with improved coverage of antenatal care, safe delivery and postpartum care. There are regional variations in antenatal care utilization rate basically due to differences in the availability of health care facilities, among the regions during 1985-1990, antenatal coverage rate for the whole Africa was 60% compared to 99% for developed countries. In Ethiopia the maternal mortality rate has been estimated to be 676 per 100,000 live births. This is one of the highest rates in the World. About 13% of the children are born with low birth weight and the Infant mortality rate is 59 per 1000 live births, which is 10 to 20 times higher than for developed countries. In Tigray infant mortality rate is 64 per 1000 live births. Antenatal care (ANC) is an integral component of maternal and child Health care (MCH) as part of global strategies for achieving health for all. It is an effective health intervention tool for reducing the risk of maternal morbidity and mortality, particularly in places where the general health status of women is poor[9,10,11,12,13,14].

The Purpose of antenatal care is to screen for sign of illness or other Complications that may occur during pregnancy. For instance, blood pressure Measurements and urine analysis done during antenatal care Visits can screen pregnant women for hypertensive disorders of Pregnancy (including pre-eclampsia and eclampsia) and to seek medical attention when the condition appears. It is also an opportunity to treat existing diseases, which may be aggravated by Pregnancy such as sexually transmitted diseases, anemia, hypertension, etc. The provision of iron tablets during pregnancy, has been shown to reduce the risk of being anemic, which is an important risk for hemorrhage and cardiac failure during pregnancy, it also provides an opportunity to be immunized against Tetanus toxiod. Both of these interventions are considered highly effective, In late pregnancy, antenatal visits can help Identify women at risk for difficult deliveries (including cephalo-pelvic Disproportion and a breech or transverse presentation) and direct them to appropriate delivery care. Antenatal care use has been shown to influence women's use of delivery services, as well; Neonatal and infant health has been shown to be significantly affected by Women's use of antenatal care. The gains from expanded antenatal health-care utilization are greatest in Countries such as Ethiopia where fertility and mortality are high[3,4,5,15,16,17].

According to the 2005 Ethiopia demographic and health survey (DHS) Only 28 % of mothers who have had a live birth in the five years preceding the survey received prenatal care from health professionals. Antenatal care coverage of the world is 72% (developing countries 68%, and industrialized countries 98%). Antenatal care Coverage of Ethiopia is 52.1% and percentage of deliveries at health care Facilities are 16.4%. Antenatal care coverage Of Tigray region is 60.5% and percentage of deliveries at health care Facilities are 10.4%. A more important problem is however, delayed start of Antenatal care attendance. Despite the fact that antenatal care utilization is essential for further Improvement of maternal and child health, little is known about factors Affecting the use of this service in Ethiopia in general and in Tigray Region in particular. Thus, this paper aims to fill this gap using primary Data collected from the study area[3,12,18].

Significant of the Study

The anticipated applications of the results from this study were: increase awareness of health professionals, and all others concerned about the possible causes of non-attendance of antenatal care in the study area, utilization for planning and evaluation of maternal and child health services in the study area. The study would hope fully used as base line information for concerned governmental bodies, non-governmental organizations or health service providers to plan and act in motivating our mothers to use Antenatal care and institutional delivery service so that maternal and infant mortality and morbidity was decline.

MATERIALS AND METHODS

Study Setting

Mekelle city is the study area and the capital city of Tigray about 780 km far from the center of the country (Addis Ababa) and has an area of 28 sq. km. Its altitude ranges from 2200 meters above sea level. The population of Mekelle city was 227, 505 (2007) and from this child bearing age women (15-49) was constituted 60, 998 (32.97%) in 2007. the city has seven sub cities administration. These are Hawelti, Hadinet, Ayder, Semien, Kedamay Weyane, Adi-haki and Quiha. And includes eight health centers, 38 private clinics, four private Hospitals and three public Hospitals, (two zonal and one special teaching Referral Hospitals). The total population of Ayder Kebelle is 44656 with the total house hold of 10149 and the number of women age 15-49 is 10016 (2012) and have three health facilities from this two health center and one referral hospital, Two secondary schools, Seven elementary schools were found in the Kebelle. A community based cross sectional study design was employed. The study was conducted from (Oct.2012 to Jan.2013) and data collection period was from (Jan 23 to 5

February, 2013). Source population was all women of reproductive age group (age 15 to 49 years of old) who are living in the Ayder Kebelle in the Age of 15-49 years, Study population was all sampled women in the Age group of 15-49 years reproductive age group who have given at least one birth.

Eligibility criteria

All women in the Age group of 15-49 years reproductive age group who have given at least one birth and Permanent resident of the study area were included in the study and all Women, who could not talk or listen, who have mental problem and those who lived for less than one year in the area at the time of the interview were excluded from the Study.

Sample size determination and sampling procedure

The Sample size determination was computed with the assumption of Confidence interval of = 95%, Critical value z = 1.96 (from significance level α = 5%) and degree of precision, w = 0.04. and the previous antenatal care prevalence in Tigray was =90% (2012 RHB report) and Non response rate 5%. And the sample size was calculated using a formula for single population Proportion. Using.

$$n = \frac{\left(\left(z\alpha/_2\right)^2 (p(1-p)\right)}{(d^2)} = \frac{\left((1.96)^2 (0.9(1-0.9)\right)}{(0.04)^2} = 240$$

After adding 5% non response rate, then the final Sample size was 252.

Our sampling technique was systematic random sampling method and the class interval to systematic random sampling method was K= 40 and based on our sample size 252 study participants were interviewed. Since the members of the community of the study area are socially and culturally

homogenous the samples taken was expected to represent the rest of mother in reproductive age group and By using systematic random method, the 1st house visit was began at number 2 and continue to 42, 82,122, 162,202,242….9960.

Data collection tools and quality control methods

Questionnaire was prepared in English used to collect the necessary information. The interviewers were third year nursing students. They were be briefed about the aim of the study and explanation to each point on the questionnaire was given permission was required from respective Kebelles where there sample was taken from respondents and house survey was conducted. The questionnaire was adopted from the research done in Maichew by Hayelom Kassyou on 2008. All questionnaires were prepared in the form of close end question. The questionnaires was contains, Part I-to assess socio-demographic data, Part II-to assess Antenatal care utilization condition, Part III- to assess the respondent attitude and knowledge of an healthy pregnancy and perceived susceptibility to those pregnancy related health problem, Part IV-to assess the respondent view on the quality of antenatal care received[34].

Pre-test

The pre-test of the questionnaire was carried out in one Kebelle outside of the selected Kebelles that has similar socio-demographic characteristics with the people in the selected Kebelles. After house to house Survey was conducted on Jan.20, 2012, to identify women those who met the inclusion criteria, 20(twenty) - study subjects were identified and the questionnaire were administered on Jan.22, 2012. Then after, both the interviewers and supervisors assessed clarity, understandability, comp-leteness of questions and others. The

feedback that was obtained from the pretest contributed much to the improvements of the measurement questionnaire.

Survey Procedures

An initial house-to-house survey was conducted in the selected Kebelles of the city, from Jan 23-5, February, 2013, to find and register those women who met the inclusion criteria. Thus, a total of 384 participants were identified and based on systematic random sampling. In order to ensure maximum availability of respondents, supervisors and interviewers worked on all days of a week including Saturdays and Sundays and rested on Fridays.

Variables

Dependent variable was Utilization of Antenatal care and Independent variable, Age, Religion, Ethnicity, Parity, knowledge's of dangerous health problem related to partner attitudes, Educational status, Health service barriers such as distance and women's opinion about the quality of car

Ethical consideration

The study proposal was approved by the ethical clearance committee of Mekelle University and Regional health Bauru. Data collection was started after official letter and permission was obtained from Mekelle University-College of Health sciences-Nursing department, Tigray regional health Bauru and Ayder Kebelle administrative office. Specifically, respondents were informed about the objectives of the study and that their participation was purely voluntary and they can be free to decline or withdraw at any time during the course of the study. So only those willing to participate were included in the study. Confidentiality and beneficences were insured by making the questionnaires anonymous. Personal identification of the respondents was not asked. They were also be assured that the

information provided in writing would be used only for research purpose and would therefore be strictly anonymous and data was entered as confidential, aggregate analysis and reporting system was put secured and in place.

Operational definition of terms

Antenatal care-visiting of health institution once or more during pregnancy for check up of problems related to pregnancy. Antenatal care non-attending woman: - is a pregnant woman in her third trimester and those women wit in 12 months of post delivery at the time of the interview and has not attended antenatal clinics at all. A pregnant woman in the third trimester: - is a woman whose menstrual period is above 6 months or a woman who claims to be 7, 8 and 9 months pregnant during registration. Better knowledge: - those women who are able to name two or more of the accepted anger signs of pregnancy. Poor knowledge: - those women who are able to name one or none of the accepted danger signs of pregnancy. Quality antenatal care-when clients get satisfied, if the health care system has necessary enough equipments to conduct safe delivery, prenatal and post natal care.

Data processing and analysis

Data analysis was started by sorting and performing quality control checkup at the field. The data was checked in the field to ensure that all the information if properly collected and recorded. Before and during data processing the information was checked for completeness. SPSS version 16 statistical software was employed for data entry and analysis. All data were coded in terms of numbers. The analysis included checking errors and describing the collected data by numerical summary measure tables, charts and measures of association, all of which are instruments for interpretation of the collected data. Bivariate analysis was done at a confidence limit of 95% to calculate the crude odds ratio with the outcome variable. The significance was checked using p-value 0.05 and 95% confidence interval. Multivariate logistic regression analysis was used to identify factors associated with outcome variables ANC utilization. Hosmer and Leme show model was used to check the goodness of fit.

RESULTS

Socio demographic characteristics of the study subjects

A total of 252 reproductive age group women were interviewed using standardized structured questionnaire and included in the analysis. Twenty eight respondents were excluded from the analysis for gross incompleteness and inconsistency of responses, made a response rate of 88.9 %. The majority of the study participants 142 (63.4%) were in the age group of 25 to 34 years. Most of the respondents 194(86.6%) were orthodox Christian by religion. A significant number 187 (76.3%) of the respondents did attend formal education. Of the total 191(85.3%) respondents were married currently. From the total respondents 121(54%) were unemployed or house wife and majority of the study participants 111(49.6%) had zero parity (Table 1).

N.B: Age was classified as 15-24, 25-34, and 35+. This was mainly to see the Antenatal care utilization of younger (15-24) and the old age (35+). Since these age groups are affected by high pregnancy related complications

Antenatal Care Utilization Patterns

Out of the total women (224) included in the study, 221(94.2%) had at least one antenatal visit, while 13(5.8%) had none.

Starting date of antenatal care attendance, reasons for attendance and total number of visits

Trimester of pregnancy at which attendants have first contact with ANC was found to vary. Most of the attendees 109(48%) made their first visit in their first trimesters, 95(42.4% in their second trimester of pregnancy and only 4(1.8)% of women attended antenatal care in their third trimester of pregnancy. Among the antenatal user 2(0.9%) had only one and 5(2.2%) had two antenatal contacts 14(6.2 %) had three antenatal visits and Majority of the attendees 190(84.8%) reported to have four or more antenatal visits at the time of the interview. Attendants gave different reasons why they attend Ante natal care. The main reasons given "to start regular check up" 19(8.4%) and "sick and need of treatment' or because of health problems 192 (85.7%). It indicated that the majority attended the clinics for curative purpose that is that large number women attended the services because they were, in fact, not feeling well and felt that they were in need of treatment. So awareness creation activities need to implement to change this pattern (Table 2).

Reasons for Choice of Health Institutions for Antenatal Care Attendance

Those women who attend antenatal care clinics were asked the reasons for choice of health institution for antenatal care attendance. The most frequent reason was closeness of health institution to which the respondent lives 139(62.1%), Convenient time of services 44 (19.6%), good behavior of health workers 32 (14.3%), High quality of services 27 (12.1%) and little or no cost for antenatal care attendance 24 (10.7), and because of other reasons 5 (2.2), (Table 4).

DISCUSSION

This community based cross-sectional study tried to assess Antenatal care utilization among child bearing mothers in Ayder Kebelle, Mekelle City. In this study the overall coverage for Antenatal care utilization was 88.9% for women in their Pregnancy time. The result was higher to that found in a previous study in Maichew town, which was 80% Antenatal care utilization. The increment from Maichew town might be due to the Antenatal care utilization awareness of respondents and Accessibility. The other possible reason could be at this time the government gives priority for the health sector that may help respondents to have more information on antenatal care services, which is more than 85% of the respondents reported that their source of information was governmental institutions.

In this study socio-demographic factors were found to be related to Antenatal care attendance. It was found that women in the age group (25-34) were more likely to use the Antenatal care utilization service which was around 135(95.8%) than the old age (35+). The impact of age on Antenatal care utilization was also found in other studies that shows (15-34yrs) (82%) women's was Antenatal care utilization. This might be due to women in the older age group are more likely to have many children to care and many of the older pregnant women's might have ingrained cultural biases against formal health care. Approximately 4 (1.8%) of widowed and divorce women did not utilize Antenatal care and 9(4%) married women from 190(85.3%) women's did not attend Antenatal care.

But this is lower than Study conducted in Maichew 78(57.7%) and 39(15.2%) respectively. This might be because widowed and divorced mothers fear of coming to the service due to possible stigma if the pregnancy is out of marriage.

Almost equal proportion of Illiterate mothers, about 7(3.1%), did not attended Antenatal care utilization than mothers who attended formal school, 6(2.5%) of the total not attended Antenatal care utilization. This is in line with study conducted in Yem special Woreda, southwestern Ethiopia. It might also increase their knowledge of modern health care and its effectiveness. Large number of mothers whose partners have good attitude towards Antenatal care was used antenatal care, 196(87.5%) and Study conducted in Maichew supported the finding. Studies suggest that psychological factors that include women's attitude towards their current pregnancy, i.e. whether or not the pregnancy was planned, were found to affect Antenatal care utilization. In this study higher proportion of women, 182(81.2%), who wanted to get pregnant or planned a pregnancy used Antenatal care than mothers who had unplanned pregnancy 29(12.9%). This was in line with study conducted in Yem special Woreda southwest Ethiopia. In this study almost half of the mothers 99(44.2%) started utilizing antenatal care services in their second and third trimester of pregnancy this result also similar to the other study finding in Ethiopia. Considering the late initiation of Antenatal care visit of respondents, the effectiveness of the visit in reducing maternal morbidity and mortality could be hindered. The reasons given by the individual women for not attending Antenatal care were found to be absence of illness (being healthy), being too busy, long waiting time; Antenatal care attendance is useless, poor quality of services, and others. The study result revealed that non-attendance was highest for those women whose, high parity, illiterate, separated mothers like, divorced and widowed, whose current pregnancy was unplanned, and those who perceived the quality was poor and long waiting time.

CONCLUSIONS AND RECOMEN-DATION

Conclusions

In conclusion, even if there was relatively high antenatal care utilization among the study participants, the pattern of follow up was found to be inappropriate in most cases. Almost half of the mothers 99(44.2%) started utilizing antenatal care services in their second and third trimester of pregnancy. Considering the late initiation of Antenatal care visit of respondents, the effectiveness of the visit in reducing maternal morbidity and mortality could be hindered. The reasons given by the individual women for not attending Antenatal care were found to be absence of illness (being healthy), being too busy, long waiting time, Antenatal care attendance is useless, poor quality of services, and others. The study result revealed that non-attendance was highest for those women whose, high parity, illiterate, separated mothers like, divorced and widowed, whose current pregnancy was unplanned, and those who perceived the quality was poor and long waiting time. One of the reasons for not attending antenatal clinics was being too busy. Non attendees were high parity, thus might have to care for many children in addition to other works and responsibilities that make them too busy.

Recommendations

Based on the above findings of the study the following recommendations were suggested: Increasing awareness of mothers on the danger signs of pregnancy and the importance of Antenatal care utilization in addressing the problem, emphasis on advantage of early attendance of Antenatal care (together with her husband or partner) may lead to better antenatal care attendance and is probably the most feasible intervention for antenatal care utilization. Increase women's autonomy within the family

enhancing their ability to earn and control income and decided on their own health.

Education was found to have an impact on the use of antenatal care services suggests that improving educational opportunity for women may have a large impact on improving utilization of Antenatal care services. This is, however, a long term investment. As an alternative in short term, health promotion programs that centered on women with little or no education should be given. Second, women at higher parity, at old age, and women who have related with bad culture and whose current pregnancy are unplanned were less likely to utilize the services. Therefore, it is important targeting these groups in educational campaigns to promote sufficient antenatal care, family planning and safe mother hood programs. In addition, improving the working condition of women, especially for parity of four and above, is one of the solutions to increase Antenatal care utilization.

Another major focus on intervention should be increasing the quality of health services delivered. This would involve improving the quality of curative care, as well as reducing waiting time. Hence, the government should design effective Antenatal care service delivery, monitoring and evaluation methods (with full involvement of beneficiaries) to Improve the quality of health service delivered which in turn improves the utilization of antenatal care services. Focusing in family planning including contraceptive and vaccines, it helps to promote good health of mother and Childs for their best health condition also the responsible agent needs to give attentions. Improvement in family income should be addressed in the long term. Thus, the government and other development partners should design medium and long term plans to increase the income of poor households

Competing Interests

In this manuscript there is no any competing interest declaration from anybody or organization about finance, and non financial competing interests such as political, personal, religious, ideological, academic, intellectual, commercial or any other.

ACKNOWLEDGEMENTS

REFERENCES

1. WHO; New trends and approaches in the delivery of MCH services: Technical report series, 1976; 600:8: 17-18.
2. WHO; Mother-package: Implementing of the Safe motherhood in developing countries: Geneva, 1992.
3. UNICEF/WHO; Safe motherhood action agenda: Priorities for the next decade, 2004.
4. WHO; Provision of focused Antenatal Care for Pregnant women: Geneva, 2006.
5. WHO; Factors influencing prenatal care use among low-income countries report: Geneva, 1990.
6. G/her B, Fanthun M, Abubeker K, Assefa M, Daniel M, Estifanos M; assessment of ANC: (2000).
7. Federal democratic of Ethiopia Ministry of health Sector development program; annual performance report: 2009/2010.
8. Melaku E; The role of Ethiopian public health Association in the new sector strategy. Maternal mortality in rural community of Ethiopia: DTRC/DRL AAU.

9. WHO; research progress report; WHO/FHE/MSM/94;18,1987-1992 program,.

10. Chali J. *Et al*; *Ethiopian Journal of health science* January 2005, Vol. 5, page 50.

11. EDSH; maternal mortality rate: demographic and health survey, 2005.

12. Orc M *et al*; Ethiopia demographic and Health survey Addis Abeba Ethiopia and USA: CSA, 20111; (12)

13. Mesham; Care for adolescents' pregnancy and childbirth: *Int. J. Obs. and Gyn.*1992.

14. Lain C. *et al*; Maternal mortality in developing countries, Kansas State University, Manhattan, USA: Soc. *Sci and med*. 1989; 37 (54): 1755-1765.

15. William C; Mother and child health, delivering the services, Second edition, Oxford Medical Publication; London, 1989

16. WHO/UNICEF; Antenatal Care in developing countries; Promises, achievements and missed Opportunities. An analysis of trends, levels and differentials, 1990-2001. 2004.

17. .Melkamu F; Factors affecting utilization of maternal health care services in Ayssaita and Dubti towns, Afar Regional State: A thesis submitted to the school of graduate studies of Addis Ababa University, 2005.

18. Tigray Health Bureau; Report on the implementation of five-year strategic plan. Tigray Region; Mekele, 2005.

19. World Health Organization; what is the effectiveness of antenatal care? (Supplement*).* WHO, Europe, 2005.

20. Mpembeni, R.N.and *et al*; Use pattern of maternal health services and determinants of skilled care during delivery in Southern Tanzania: implycations for achievement of MDG-5 targets: *BMC* Pregnancy Childbirth, 2007: 7: 29.

21. World Health Organization; Maternal deaths worldwide drop by third*:* WHO, Geneva-New York, 2010.

22. Faundes A., Hardy, E., Diaz, J., & Pinotti, J ; Association of marital status and years of schooling with perinataloutcome: the influence of pre-natal care as an intermediate variable: *Journal of perinatal medicine*, 1982; 10(2): 105-13

23. Quelopana, A.M., Champion, J.D., & Salazar; B.C. Factors predicting the initiation of prenatal care in Mexican women: *Journal of Midwifery*, 2007; 25(3): 277-285

24. Gage, A; Barriers to utilization of maternal health care in rural Mali: *Social Science and Medecine*, 2007; 65(8): 1666-1682.

25. World health organization; what is the effective of antenatal care, (supplement): WHO, Europe, 2005.

26. Yenita AG and shigeko HR; factors influencing the use of antenatal care: BMC pregnancy and childbirth, 2012; 12:9.

27. Athar AM and. Khan z; antenatal care services: *journal of public health and epidemiology* may, 2011; 3(5): pp. 210-216.

28. Lieu T and George R; late entry to antenatal care: *Journal of reproductive health*, 2006; 3:3-8.

29. Iyaniwura C and Yusuf Q; utilization of antenatal care and delivery services in Sagamu, south western Nigeria, *2009;* 13[3]:111-122).

30. Abdel AA **,** Mohammed MO**,** Ameer OA and Ishag A**;** use of antenatal care services: BMC pregnancy and childbirth, 2010; 10**(**67)

31. Gurmesa T; Antenatal care service utilization and associated factors, 2007.

32. Bahilu T, Abebe G, and Yohannes D; Factors affecting antenatal care utilization, 2008.

33. zeine A, Mirkuzie W, and shimeles O; Ffactors influencing antenatal care service utilization: *j. health sci*., 2010; 20(2): 75–82.

34. Hayelom K; factors affecting antenatal care, 2008, 11-12.

Table 1. Level of Antenatal care utilization versus socio demographic characteristics of Women in 15-49 age group in Ayder Kebelle, Mekelle City, 2012/13.

Variables		ANC Utilization				Total		P-value	COR	95 % CI
		Yes		NO						
		No	%	No	%	No	%			
Age	15-24	37	17.5	2	5.1	39	17.4		1	
	25-34	136	95.8	6	4.2	142	63.4	0.808	0.82	0.16-4.21
	35-44	30	14.2	5	14.3	35	15.6	0.197	3.08	0.55-17.03
	45-54	8	3.8	0	0.0	8	3.6	0.999	0.00	0.00-
	Total	211	94.2	13	5.8	224	100			
Marital Status	Married	182	81.3	9	4.0	191	85.3		1	
	Divorced	19	8.5	4	1.8	23	10.3	0.025*	4.257	1.197-15.145
	Widowed	5	2.2	0	0.0	5	2.2	0.999	0.000	0.000-
	Separated	5	2.2	0	0.0	5	2.2	0.999	0.000	0.000-
	Total	211	94.2	13	5.8	224	100			
Religion	Orthodox	183	81.8	11	4.91	194	86.6		1	
	Muslim	27	12.0	2	0.8	29	12.9	0.793	1.232	0.259-75.864
	Protestant	1	0.4	0	0.0	1	0.4	1.000	0.000	0.000-
	Total	211	94.2	13	5.8	224	100			
Ethnicity	Tigrian	200	89.2	12	5.4	212	94.6		1	
	Amhara	1	3.6	1	0.4	9	4.0	0.505	2.083	0.241-18.046
	others	0	1.4	0	0.0	3	1.4	0.999	0.000	0.000-
	Total	211	94.2	13	5.8	224	100			
Parity	0	107	47.8	4	1.8	111	49.6		1	
	1	41	18.3	3	1.3	44	19.6	0.393	1.957	0.420-9.127
	2	28	12.5	3	1.3	31	13.8	0.184	2.866	0.606-13.553
	3	20	8.9	2	0.9	22	9.8	0.274	2.675	0.459-15.599
	4	14	6.3	1	0.4	15	6.7	0.575	1.911	0.199-18.329
	5 and above	1	0.4	0	0.0	1	0.4	1.000	0.000	0.000-
	Total	211	94.2	13	5.8	224	100			
Educational Status	illiterate	42	18.8	7	3.1	49	21.9		1	
	Read and write	4	1.8	0	0.0	4	1.8	0.999	0.000	0.000-
	Primary school	41	18.3	3	1.3	44	19.6	0.256	0.439	0.106-1.815
	Secondary school	78	34.8	1	0.4	79	35.3	0.018*	0.077	0.009-0.646
	College/university	46	20.5	2	0.8	48	21.4	0.105	0.261	0.051-1.326
	Total	211	94.2	13	5.8	224	100			
Occupational Status	Housewife	116	51.8	5	2.2	121	54.0		1	
	Maid Servant	5	2.2	0	0.0	5	2.2	0.999	0.000	0.000-
	Civil Servant	45	20.1	2	0.9	47	20.9	0.971	1.031	0.193-5.508
	Merchant	14	6.3	2	0.0	16	7.1	0.175	3.314	0.587-18.714
	Student	7	3.1	0	0.0	7	3.1	0.999	0.000	0.000-
	Daily Laborer	19	8.4	4	1.8	23	10.2	0.027*	4.884	1.203-19.834

	Others	5	2.2	0	0.0	5	2.2	0.999	0.000	0.000-
	Total	211	94.2	13	5.8	224	100			
Feeling of distance from home to health facility	Very Close	117	52.2	2	0.9	119	53.1		1	
	Average	80	35.7	8	3.6	88	39.3	0.028*	5.80	1.211-28.270
	Too far	13	6.2	3	1.3	17	7.6	0.008**	12.536	1.926-81.587
	Total	211	94.2	13	5.8	224	100			
Husband's or partner's attitude to ANC	Positive	196	87.5	6	2.7	202	90.2	0.000**	0.009	0.001-0.051
	Negative	13	5.8	0	0.0	13	5.8	0.999	0.000	0.000-
	Do not know	2	0.9	7	3.1	9	4.0		1	
	Total	211	94.2	13	5.8	224	100			
Planned Current Pregnancy	Yes	182	81.2	8	3.6	190	84.8		1	
	No	29	12.9	5	2.2	34	15.2	0.024*	3.922	1.200-12.817
	Total	211	94.2	13	5.8	224	100			

*P< 0.05 and **P<0.01

Table 2. Starting date of antenatal care attendance, reasons for attendance and total number of visits by respondents, in, Ayder Kebelle , Mekelle City 2012/ 2013(N=224)

| Variables	Number of women	Percent
Trimester		
First	109	48.7
Second	95	42.4
Third	4	1.8
Don't know	3	1.3
Total	**211**	**94.2**
Total Number of visits		
Once	2	0.9
Twice	5	2.2
Three times	14	6.2
Four and above	190	84.8
Total	**211**	**94.2**
Reasons for ANC attendance		
Sick & need of treatment	192	85,7
To start regular check-up	19	8.4
Total	**211**	**94.2**

Table 3. Respondents choice of health institutions for Antenatal Care attendance, in Ayder Kebelle, Mekelle City, 2012/2013. (N=224)
Of all total respondents 127(56.7) respondents were choice health center for Antenatal care

Type of health institution	Number	Percent
Hospital	58	25.9
Health center	127	56.7
Private clinics	14	6.2
Other Specify	12	5.4
Total	211	94.2

Table 4. Reasons for choice of health institution for Antenatal Care attendance, in, Ayder Kebelle, Mekelle City, 2012/2013 (N=224)

Sr.No	Reasons for choice of health institution	Yes		No		Total	
		No	%	No	%	No	%
1	Close to where I live	139	62.1	72	32.1	211	94.2
2	Little or no expense	24	10.7	187	83.5	211	94.2
3	Behavior of health workers is best	32	14.3	179	79.9	211	94.2
4	Convenient time of services	44	19.6	167	74.6	211	94.2
5	High quality of services	27	12.1	184	82.1	211	94.2
6	Others	5	2.2	206	92.0	211	94.2
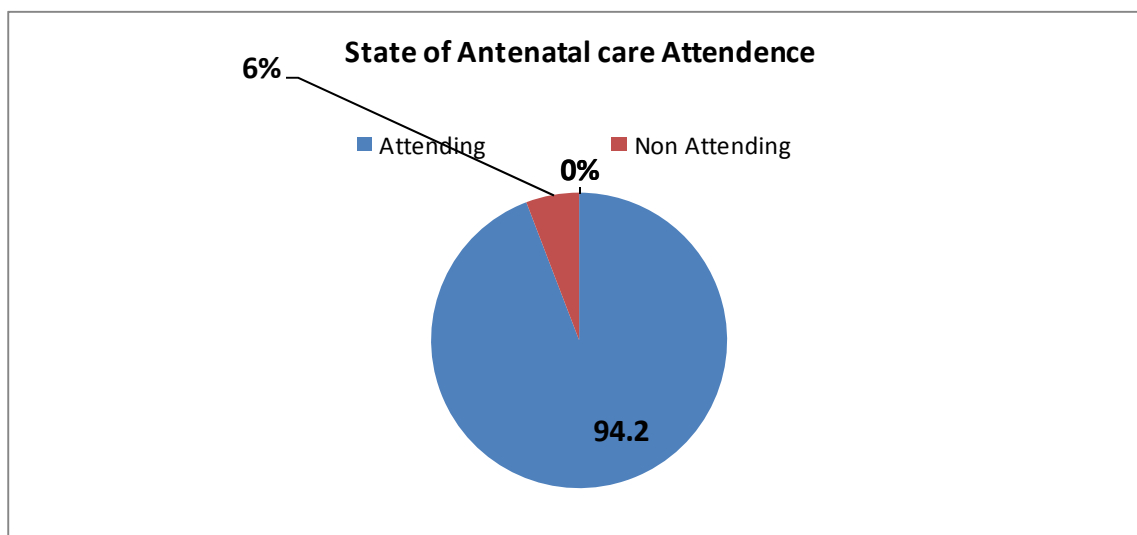
Fig.1. Antenatal care utilization patter of pregnant women in Ayder kebelles' of Mekelle city,2012/13