

ORIGINAL RESEARCH ARTICLE

Prevalence and Determinants of Early Antenatal Care Visit among Pregnant Women Attending Antenatal Care in Debre Berhan Health Institutions, Central Ethiopia

Amtatachew M. Zegeye¹, Bikes D. Bitew² and Digsu N. Koye^{*3}

¹Dessie Zonal Health Department, Amhara National Regional State Health Bureau, Dessie, Ethiopia; ²Department of Environmental and Occupational Health and Safety, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia, and ³Department of Epidemiology and Biostatistics, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia

*For correspondence: E-mail: digsuneg@gmail.com; Phone: +251-918046171

Abstract

Antenatal care (ANC), which is given to pregnant women, is widely used for prevention, early diagnosis and treatment of general medical and pregnancy-related complications. This study assessed the prevalence of early ANC visit and associated factors among pregnant women attending ANC in Debre Berhan town. An institution based cross-sectional study design was used to collect data from pregnant mothers with a face to face interview technique. Bivariate and multivariate analyses were used to identify associated factors for early ANC visit. A total of 446 pregnant women were included in the study. One hundred seventeen (26.2%) pregnant mothers started their first ANC visit early. The multivariate analysis showed that mothers with no parity before (AOR = 3.65, 95%CI: 2.14, 6.24), had good knowledge on early ANC (AOR = 3.10, 95%CI: 1.80, 5.33) and planned pregnancy (AOR = 1.66, 95%CI: 1.06, 2.61) were significantly associated with early ANC visit. The prevalence of early ANC visit was low. Awareness creation on the importance of early ANC visit needs to be emphasized at the time of service provision as well as at community levels. (*Afr J Reprod Health* 2013; 17[4]: 130-136).

Keywords: Prevalence, Early ANC visit, Pregnant women, Ethiopia.

Résumé

Les soins prénatals (SP), que reçoivent les femmes enceintes, sont largement utilisés pour la prévention, le diagnostic précoce et le traitement des complications liées à la grossesse et à des conditions médicales générales. Cette étude a évalué la prévalence de début de consultation prénatale et les facteurs associés chez les femmes enceintes qui fréquentent les centres des SP dans la ville de Debre Berhan. Une conception de l'étude transversale basée dans une institution a été utilisée pour recueillir des données auprès des femmes enceintes à l'aide de la technique de l'interview face à face. Des analyses bivariées et multivariées ont été utilisées pour identifier les facteurs associés au début de la consultation prénatale. Au total, 446 femmes enceintes ont participé à l'étude. Cent dix-sept (26,2%) femmes enceintes ont commencé leur première consultation prénatale tôt. L'analyse multivariée a montré que les mères sans parité avant (AOR = 3,65, IC 95 % : 2,14, 6,24), étaient bien renseignées sur les SP précoce (AOR = 3,10, IC 95 % : 1,80, 5,33) et la grossesse planifiée (AOR = 1,66, IC 95 % : 1,06, 2,61) étaient significativement associées à la consultation prénatale précoce. La prévalence de la consultation natale précoce était faible. Il faut mettre l'accent sur la sensibilisation à l'importance de la consultation précoce des SP lors de la prestation de services aussi bien qu'au niveau de la communauté. (*Afr J Reprod Health* 2013; 17[4]: 130-136).

Mots clés : prévalence, consultation prénatale précoce, femmes enceintes, Ethiopie.

Introduction

Antenatal care, which is given to pregnant women, is widely used for prevention, early diagnosis and treatment of general medical and pregnancy related complications. The primary maternal outcome measured in ANC is a maternal morbidity

index which measures complications of pregnancy^{1,2}.

The utilization of ANC has been shown to predict several birth outcomes and a number of postpartum practices³. The new World Health Organization (WHO) ANC model states that every pregnant woman is at risk of complications and

recommends early ANC visit. The visit is used to segregate pregnant women into two groups based on previous history of pregnancy, current pregnancy state and general medical conditions. Those eligible to receive routine ANC (basic component) and those who need especial care based on their specific health conditions or risk factors on average account for 25% of all pregnant women initiating ANC².

The standard of care when evaluating a woman with a potentially complicated first trimester pregnancy is to take a detailed history of the risk factors and ascertain the clinical course³ because it will help to have enough time for essential diagnosis and treatment regimen⁴. But this will happen only if the women come to health institutions early in the first trimester. Low ANC coverage, few visits and late attendance at first antenatal visit are common problems throughout sub-Saharan Africa posing difficulty in accomplishing the WHO recommended ANC schedule⁵. According to the Ethiopian Demographic and Health Survey (EDHS) 2011 report, only 11.2% of mothers made their first ANC visit within the first four months of gestation⁶. A study in Addis Ababa showed that even though 40.0% of mothers booked in the first trimester, the timing ranges from the first to the ninth month of gestation⁷.

Early ANC and regular follow up of service usually provide a range of opportunities for delivering health information and interventions that can significantly enhance the health of the mother and the fetus. Some of the benefits are giving early dietary and behavior advice, correcting the dating of the pregnancy and early detection of modifiable pre-existing medical conditions that may influence the course and outcome of pregnancy, such as congestive heart disease, diabetes mellitus, hypertensive disorders, down syndrome, ectopic pregnancy, miscarriage, syphilis, HIV/AIDS and severe anemia and others^{1,8-13}.

Studies on the prevalence of early ANC visit and associated factors are scanty in Ethiopia and unavailable in the study area. Therefore, this study aimed at giving information about the prevalence of early ANC visit and associated factors in order to help improve the health of mothers and their

fetus. The study thus set out to assess the prevalence of early ANC visit and associated factors among pregnant women attending ANC in Debre Berhan town, Ethiopia.

Methods

An institution-based cross-sectional study was carried out among pregnant women attending ANC services. The study was conducted in Debre Berhan town, North Shewa, Ethiopia, from April - May, 2012. Debre Berhan is the capital of North Shewa Zone. It is located 130 kilometers north of Addis Ababa, the capital city of Ethiopia. The town has 9 kebeles - the smallest administrative units in Ethiopia. There are two hospitals (one government and one private), two health centers, ten private clinics, nine health posts and one nongovernmental clinic (Marie Stops) in the town.

Study population, sample size and sampling technique

The study population consists of all pregnant women attending ANC services in Debre Berhan town health institutions. A single population proportion formula, $[n = (Z \alpha/2)^2 p (1-p) / d^2]$, was used to estimate the sample size. The following assumptions have been made (proportion of early ANC visit among pregnant women to be 40%⁷, 95% confidence interval, margin of error 5% ($d = 0.05$), and expected non-response rate 10%). Computing with the above formula gives a total sample size of 407. All health institutions in the town which provide ANC services and have well documented registration books were selected. Since the total number of pregnant mothers who visited the health institutions during the study period (April – May, 2012) was 465; all ANC clients attending the service at the time of the data collection were included in the study.

Data were entered into EPI info version 3.5.1 and transferred to Statistical Package for Social Science (SPSS) version 16.0 software for analysis. Descriptive and summary statistics were carried out. Bivariate and multivariate logistic regression analyses were used to identify variables associated

with early ANC visit. Variables with P- value of up to 0.2 in bivariate analysis were entered into the multivariate model. Backward logistic regression (LR) method was employed and variables with p value of ≤ 0.05 were considered as significantly associated with early ANC visit. Early ANC visit is considered if pregnant women started their first ANC visit within the first 12 weeks of gestation.

Ethical clearance was obtained from the Institutional Review Board of the Institute of Public Health, College of Medicine and Health Sciences, University of Gondar. A permission letter was obtained first from the Zonal Health Department, then from the administrators of all selected health institutions. A written informed consent was obtained from each participant. They were informed that they had the right to refuse or withdraw from the interview and that it will not have any effect on the services they will receive. The names of participants were not taken for reasons of confidentiality.

Results

Socio-demographic characteristics of the study participants

Out of the 465 pregnant mothers who attended the service, 446 participated with a response rate of 95.9%. The mean age of the participants was 26.0 years (± 5.5 years). More than half of participants, 267 (59.7%) were urban dwellers and 338 (75.8%) were married. Three hundred and forty two (76.4%) were Orthodox Christians; 176 (39.5%) had secondary school level in education and 130 (29.1%) were government employees (Table 1).

Obstetric characteristics of the participants

Of the total study participants, 114 (25.6%), women had no previous birth experience; 27 (8.1%) had history of last pregnancy complications, and 278 (62.3%) had good knowledge on early ANC visit. Two hundred and seventy three (61.2%) received advice as to when to start ANC visit for current pregnancy from husbands, close friends and other family members, and 241 (54.0%) had planned pregnancy. One hundred and seventeen mothers (26.2%) had pregnancy-related complications (diastolic blood

pressure greater than 90 mmHg, vaginal bleeding, and urinary tract infections) during the current pregnancy before they started the ANC service (Table 2).

Table 1: Socio-demographic characteristics of pregnant mothers attending ANC service in Debre Berhan town, April 2012

Variables	Frequency (%)
Age	
15-19	41 (9.2)
20-24	164 (36.8)
25-29	139 (31.2)
30-34	61 (13.7)
35-39	28 (6.3)
40+	13 (2.9)
Residence	
Rural	179 (40.1)
Urban	267 (59.9)
Marital status	
Married	338 (75.8)
Single	84 (18.8)
Divorced	19 (4.3)
Widowed	5 (1.1)
Religion	
Orthodox Christian	342 (76.7)
Muslim	66 (14.8)
Protestant	38 (8.5)
Educational status	
No formal education	89 (20.0)
Primary school (1-8)	100 (22.4)
Secondary school (9-12)	176 (39.5)
Above secondary school	81 (18.1)
Occupational status	
Government employee	130 (29.1)
Private worker	126 (28.3)
House wife	139 (31.2)
Student	51 (11.4)
Family monthly income in ETB	
≤ 400	143 (32.1)
401-600	86 (19.3)
601-1000	109 (24.4)
>1000	108 (24.2)
Educational status of husband	
No formal education	53 (11.9)
Primary school(1-8)	140 (31.4)
Secondary school(9-12)	105 (23.5)
Above secondary school	148 (33.2)
Occupational status of husband	
Government employee	203 (47.5)
Private worker	205 (48)
Others	17 (4.5)

Table 2: Obstetric characteristics of pregnant mothers attending ANC service in Debre Berhan town, April 2012

Variables	Frequency (%)
Parity	
Nullipara	114 (25.6)
≥ 1	332 (74.4)
Number of alive children n=300	
1-2children	252 (84.0)
>2 children	48 (16.0)
History of abortion n=332	
Yes	56 (16.9)
No	276 (83.1)
History of still birth n=332	
Yes	20 (6.0)
No	312 (94)
Had last pregnancy complication n=332	
Yes	27 (8.1)
No	305 (91.9)
Have knowledge on time of first ANC	
Yes	278 (62.3)
No	168 (37.7)
Had ANC visit for last pregnancy n=332	
Yes	236 (71.1)
No	96 (28.9)
Get advice when to start ANC for current pregnancy	
Yes	273 (61.2)
No	173 (38.8)
Pregnancy planned	
Yes	241 (54.0)
No	205 (46.0)
Pregnancy wanted	
Yes	292 (65.5)
No	154 (34.5)
Pregnancy related complications for current pregnancy	
Yes	117 (26.2)
No	329 (73.8)
Means of approving pregnancy	
Missed period	232 (52.0)
By urine test	214 (48.0)

Prevalence of early ANC visit

Out of 446 pregnant mothers included in this study, 117 (26.2%) pregnant mothers started their first ANC visit early while the rest, 329 (73.8%)

started ANC late. The mean time of ANC visit was 17.0 weeks (\pm 7.5 weeks).

Factors associated with early ANC visit

Results from the multivariate analysis showed that pregnant mothers who had good knowledge on early ANC visit, mothers with planned pregnancy, and nulliparous mothers were significantly and independently associated with early ANC visit. However, educational status, pregnancy-related complications for current pregnancy, history of abortion and still birth, previous utilization of service, monthly income, number of children alive, and means of approving pregnancy were not significantly associated with early ANC visit.

Accordingly, pregnant mothers who had good knowledge on timing of the first ANC were about three times more likely to start their first ANC visit early (AOR = 3.10, 95% CI: 1.80, 5.33) as compared to their counterparts. Mothers with planned pregnancy were 1.66 (AOR = 1.66, 95% CI: 1.06, 2.61) times more likely to start first ANC visit early as compared to those who had unplanned pregnancy. Nulliparous mothers were 3.65 times more likely to start first ANC visit early (AOR = 3.65, 95% CI: 2.14, 6.24) as compared to those who had at least one history of birth.

Discussion

Improving maternal health care, particularly providing antenatal and delivery care, are important mechanisms identified to reduce maternal mortality and as such facilitate the attainment of the Millennium Development Goals on maternal health¹⁴. The antenatal period clearly presents opportunities for reaching pregnant women with a number of interventions that may be vital to their and their infant's health and well-being¹⁵. The focused ANC model recognizes that every pregnant woman is at risk of complications and recommends the first visit to be early in the first trimester.

In this study, the proportion of pregnant women who made first ANC visit early was only

Table 3: Multivariate logistic regression analysis result for variables associated with early ANC visit among pregnant mothers attending ANC service in Debre Berhan town, April 2012

Variables	Early ANC visit		Crude OR (95% CI)	Adjusted OR (95% CI)
	Yes n (%)	No n (%)		
Had knowledge on ANC				
Yes	86 (73.5)	192 (58.4)	1.98 (1.24, 3.15)	3.10 (1.80, 5.33)
No	31 (26.5)	137 (41.6)	1.00	1.00
Educational status				
No formal education	17 (14.5)	72 (21.9)	0.45 (0.22, 0.89)	*
Primary school (1-8)	24 (20.5)	76 (23.1)	0.59 (0.31, 1.10)	*
Secondary school (9-12)	48 (41.1)	128 (38.9)	0.71 (0.40, 1.25)	*
Above secondary school	28 (23.9)	53 (16.1)	1.00	
Parity				
Nulliparous	44 (37.6)	70 (21.3)	2.23 (1.41, 3.53)	3.65 (2.14, 6.24)
Para one and above	73 (62.4)	259 (78.7)	1.00	1.00
Pregnancy planned				
Yes	74 (63.2)	167 (50.8)	1.67 (1.08, 2.57)	1.66 (1.06, 2.61)
No	43 (36.8)	162 (49.2)	1.00	1.00

*non significant from the multivariate logistic regression (Backward LR method)

26.2%. This is low as per the recommendation of WHO which states that each and every pregnant woman should start the first ANC within the first trimester of pregnancy².

This finding is lower compared to a study done in Addis Ababa in which 40.0% of pregnant women started ANC visit early in 2008⁷. This gap might be because of differences in the study population, that is this study included both urban and rural residents whereas the former one was done on urban residents. Even though residence had no significant association in this study, the 2011 EDHS report showed that mothers from urban areas were more likely to initiate ANC early than rural ones⁶.

This finding is higher than that of studies done in Hadiya Zone (8.7%) and Yem (12.5%) in Southern Ethiopia in 2009^{16,17}. This might be due to the current national emphasis given to the focused ANC which includes the up-to-date trainings of health professionals on the importance of early ANC visit and the health education the professionals give to clients. Time gap might also be the other reason. It is however in line with that of a study done in Lao People's Democratic Republic which reported a proportion of 28% timely booking of first ANC visit¹⁸. But it is higher than those of studies done in some African counties, like Central Uganda (2008),

South Western Nigeria (2008), and rural Western Kenya (2006), in which proportions of timely ANC visit ranged from 14% to 17.4%^{4,18,19}. This might also be due to time variation.

The result of this study showed that parity was a factor for early ANC visit. Mothers who had no previous birth experience were about 3.65 times more likely to start first ANC visit early compared to those with a parity of one and above. This finding was similar with those of studies done in Addis Ababa - Ethiopia and Nigeria^{7,10}. This might be because young women with their first pregnancy and childbirth are more careful about their pregnancy and therefore require institutional care more than multigravid women. In addition, younger women tend to be more educated than older ones¹⁶.

In this study, mothers with planned pregnancy were more likely to start ANC visit earlier than the unplanned ones. This finding was in line with studies done in Addis Ababa and Ibadan, Nigeria^{7,20}. If a pregnancy is planned, mothers might be prepared and can communicate with significant others so that they can start ANC early.

Mothers who had good knowledge on early ANC visit were more likely to make the visit. This finding was supported by studies done in Addis Ababa⁷ and the Niger Delta, Nigeria,

which showed that the major reason for late ANC visit was misconception about early ANC visit²¹.

Limitations

As this is a cross-sectional study, the associations observed may not be causal enough and since this study is institution based, it may suffer from lack generalizability.

Conclusions

This study demonstrated a low prevalence of early ANC visit. Maternal knowledge on early ANC visit, planned pregnancy and parity were factors associated with early ANC visit. So, awareness creation on the importance of early ANC visit needs to be emphasized at the time of service provision as well as at community levels. Those with unplanned pregnancy, multipara and less knowledgeable about early ANC should get special attention.

Contribution of Authors

AMZ designed the study, performed the statistical analysis and drafted the manuscript. DNK and BDB participated in the study design, statistical analysis and implementation of the study. All authors contributed to the data analysis, read and approved the final manuscript.

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