Open Journal of Epidemiology, 2014, 4, 208-216
Published Online November 2014 in SciRes. http://www.scirp.org/journal/ojepi
http://dx.doi.org/10.4236/ojepi.2014.44027

Current Status of Antenatal Care Utilization in the Context of Data Conflict: The Case of Dembecha District, Northwest Ethiopia

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Received 10 August 2014; revised 10 September 2014; accepted 10 October 2014

Abstract

Good antenatal care (ANC) is one of the most important health care aspects known to reduce maternal mortality. In Ethiopia, regional and national data at times do not concur thus data from district to district level decision making are needed. The aim of this study was, therefore, to assess the prevalence and correlates of ANC service utilization. A community based cross-sectional study was conducted among pregnant women. Multistage sampling was used. Pre-tested structured questionnaire was data collection tool. Data were analyzed using SPSS version 16.0 for windows. Logistic regression was used to assess possible association among variables. Odds ratio at 95% confidence interval was used to measure strength, and statistical significance of associations. Prevalence of ANC service utilization was 57%. Of these, more than 80% of them received ANC for ≥4 times. This finding is more similar to the regional report (68%) than that of EDHS (2011) for Amhara Region (34%). Marital status, educational status and income were important predictors for ANC service utilization. The most outstanding finding of this study was that more than 20% and 60% of mothers received antennal care, and information about antenatal care from health extension workers. Antenatal care utilization is still low. Single, divorced, or separated mothers were less likely to utilize ANC while economically better off, and literate mothers were more likely to use ANC services than their counterparts. The finding of this study is in line with the annual reports from the Regional health bureau and disagrees with Ethiopian demographic health survey—EDHS-(2011). Therefore, districts should be encouraged to make decisions based on their own locally generated data than based on EDHS data which could at times be discouraging for districts with better performance. Further strengthening of Health Extension Program is recommended.

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How to cite this paper: Gedefaw, M., Muche, B. and Aychiluhem, M. (2014) Current Status of Antenatal Care Utilization in the Context of Data Conflict: The Case of Dembecha District, Northwest Ethiopia. *Open Journal of Epidemiology*, **4**, 208-216.
http://dx.doi.org/10.4236/ojepi.2014.44027

Keywords

Prevalence, Antenatal Care, Utilization, Associated Factors

1. Introduction

Antenatal care (ANC) is a care provided by skilled health personnel to a pregnant woman throughout her pregnancy [1]. Currently, it is regarded as a basic component of maternal health care on which the life of mothers and babies depend [2].

Women of reproductive age constitute more than one fifth of the world's population. They are repeatedly exposed to pregnancy related health risks. In spite of tangible national and global efforts to improve maternal health, more than half a million women die each year in middle and low income countries as a result of pregnancy and child birth related complications. The situation is even more serious for women in Sub-Saharan Africa where one in every 16 women dies because of pregnancy related causes [1] [3]. In fact, Sub Saharan Africa incurs 98% of maternal deaths [1].

In Ethiopia, an estimated 2.9 million women give birth every year. Of these, approximately 25000 women & girls die each year and more than 500,000 suffer from complications including obstetric fistula [1] [4]. As a result, Ethiopia has probably one of the highest and unacceptably high maternal mortality with 676 per 100,000 live births in the world [2].

The average fertility trend in recent years has shown significant decline from the 1990 level of 6.4 births per women to 5.4 births [5], an average of one birth drop per women in 15 years. The estimate also showed that there are marked variations in fertility trend among regions. Even though the overall population growth rate is 2.6%, this figure for Amhara National Regional State is 1.7% which is significantly lower than population replacement [5].

Evidences indicate also that utilization of services targeted to mothers is unbelievably low: Antenatal care coverage 68%, Clean and safe delivery 10.8%, Post natal care 34% [5]. According to EDHS (2011) [2], these figures were even lower than this: National ANC coverage 28% with (33.6% for Amhara, 50.1% for Tigray, 27.3% for Southern Nations and Nationalities peoples Region (SNNPR) and 31.3% for Oromia). These figures are very low even when compared to other countries in Sub Saharan Africa [6] [7].

Knowing this, the Government of the Federal Democratic Republic of Ethiopia considers maternal and neonatal mortality among the high ranking development, and health agendas of the nation. It strives to make maternal and neonatal care services such as ANC, Delivery, Postnatal and Abortion care services geographically and economically accessible to every pregnant woman throughout the nation. Unfortunately, however, the change in maternal mortality is disappointing. Therefore, it needs thorough investigation why women do not seize this golden opportunity.

In light of this keen interest of the government, generating evidences based on research is critical to help the government make informed decision. The major aim of this research was, therefore, to determine the prevalence and associated factors of antenatal care utilization among mothers in Denbecha District, Northwest Ethiopia in the context of conflicting reports-ANC coverage 68% [5] versus 33.6% [2]. The situation in this district is assumed to reflect the situation in major segment of Amhara National Regional State where more than 20 million people reside.

2. Methods and Materials

2.1. Design

A cross sectional community based study was conducted in Dembecha district in the Month of August, 2012. Dembecha District is one of the 167 districts of Amhara National Regional State, and located 350 kms Northwest of Addis Ababa, the capital city of Ethiopia (**Figure 1**).

According to bureau of finance and economic development (BOFED) (2011/12) population estimation, the district has a total population of 123,246. Of these 28,346 were women in reproductive age group (15 - 49 years).

Dembecha district has two urban and 25 rural *Kebeles*. There are five health centers and 25 heath posts rushing to satisfy the health care needs of people including antenatal care services. Target population of this study was women who were pregnant at the time of the survey.

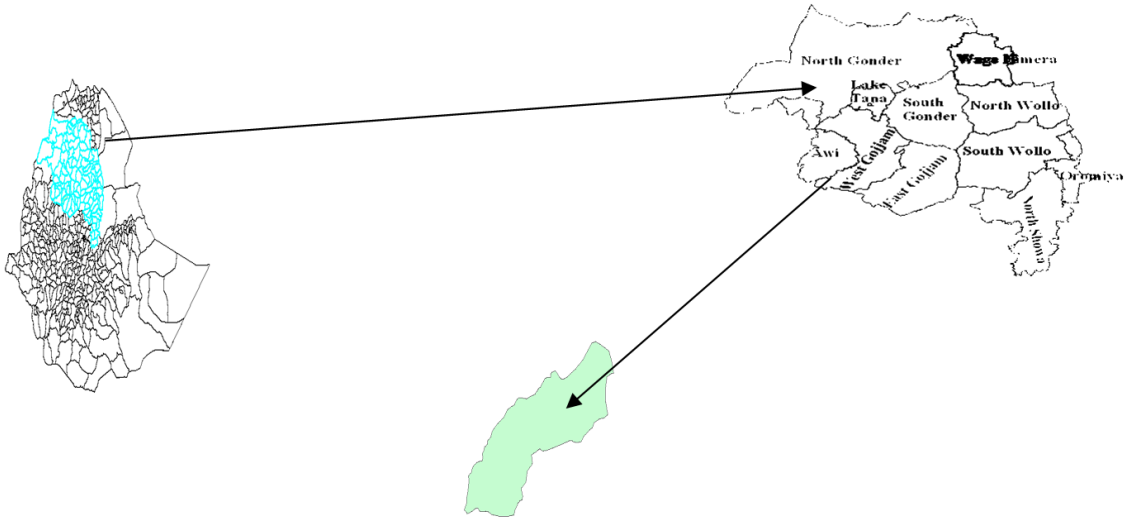

Figure 1. Location of Denbecha District, Northwest Ethiopia.

2.2. Sample Size Determination

The required sample size was determined using single population proportion formula with the following assumptions: n = the number of mothers to be interviewed; $(Z\ \alpha/2)^2$ = standardized normal distribution value for the 95% CI, which is P = Proportion of antenatal care service utilization in Ethiopia. P = 34% [2] d = margin of error taken as 5%, $n = (Z_{\alpha/2})^2 \times P(1-P)/d^2 = (1.96)^2 \times (0.34)(0.66)/(0.05)^2 = 345$.

Since multistage sampling technique was used, the sample size was multiplied by the design effect. By taking two as the design effect, the required sample size became 690. After 10% of non response was added, the final sample size was determined to be 759.

2.3. Sampling Procedure

One from urban and five from rural kebeles were selected by simple random sampling technique. Then households from selected kebeles were selected by systematic random sampling technique. In situations where more than one candidate was found in a household, one was selected by lottery method.

2.4. Data Collection Procedure

Sixteen data collectors with a minimum educational level of grade ten. Data collectors were non-health by profession in order to minimize the possible social desirability bias that women might introduce while interviewed by health workers who usually teach about the importance of ANC utilization. The supervisors were four and all were health workers with a minimum qualification of diploma and above.

To keep the quality of the data, a structured questionnaire was adopted from similar studies in English version and translated into Amharic and then back into English to maintain its consistency by independent language experts. Both the data collectors and supervisors were trained for one day on the study objective, data collection processes including questionnaires, interviewing techniques and importance of the confidentiality, privacy, obtaining informed consent and ethical consideration. Then pre-test was conducted in Jabi-Tahinan district and Finote Selam town to avoid contamination. Based on the pre-test, the questionnaires were revised and made ready for data collection. During data collection, questionnaires were checked for completeness and consistency on daily basis by supervisors.

The data were analyzed using SPSS version 16 for windows. Binary logistic regression model was fitted, and backward stepwise regression was run to determine possible association among variables. The strength of association and statistical significance was determined using odds ratio at 95% confidence interval.

2.5. Operational Definitions

Antenatal care utilization: If a woman received ANC at least once, antenatal care was said to be utilized.

Ethical Consideration: Was obtained from Ethical review board of Bahir Dar University.

3. Results

A total of 723 women were included in the study. The response rate was 95%. As shown in **Table 1**, majority (70%) of study participants were in the age group between 20 and 34 years, and lived in rural area (72%), married (80%), and could not read write (62%) (**Table 1**).

Table 2 displayed sources of information about antenatal care for mothers in Denbecha District. As shown in the table, of 723 study participants, 485/723 (67%) heard about antenatal care. The three most important sources of information were Health Extension Workers 62%, voluntary community health workers and Relatives (16%) (**Table 2**).

Table 3 shows antenatal care utilization. As shown in the table, about 60% pregnant women received at least one antenatal care by skilled health professionals. Of them more than 80% had four or more antenatal care visits. The major segment of mothers visited health facilities during the second trimester (**Table 3**).

Figure 2 displays reasons why mothers did not attend ANC in Dembecha district, Northwest Ethiopia, 2012. As shown in the figure, the three most important reasons why mothers did not attend antenatal care were the following: because they were apparently healthy, because they had low awareness or because they afraid of going o health institutions.

Table 4 displays factors associated with antenatal care utilization among mothers in Denbecha District. As shown in the table, mothers' age, mothers education, and income of the household were shown to have statistically significant association with antenatal care utilization. Those mothers aged less than 20 years, illiterate, and lived in a household whose annual income was less than 6000 Birr were less likely to utilize antenatal care. Those mothers aged between 20 to 40 years, with education attainment of primary and above, and lived in a house hold whose monthly income more than 6000 Birr per annum were 1.5 to 3 times more likely to utilize antenatal care than those who were younger than 20 years, illiterate and whose household earned less than 6000 Birr per annum. This study revealed also that single, divorced, widowed or separated women were less likely to utilize antenatal care than married ones (**Table 4**).

Table 1. Socio-demographic characteristic of study participants, Denbecha District.

Variable	Category	Frequency	Per cent
Age			
	15 - 19	26	3.6
	20 - 34	502	69.4
	35 - 49	195	27.0
Place of residence	Urban	204	28.2
	Rural	519	71.8
	Married	571	79.0
Marital status	Single	25	3.5
	Divorced	70	9.7
	Widowed	28	3.9
	separated	29	4.0
Education level	Cannot read and write	445	61.5
	Can Read and write	123	17.0
	Primary school	79	10.9
	Secondary and above	76	10.5
Family income	<6000 birr	242	33.5
	6000 - 12000	233	32.2
	12000+	248	34.3

Table 2. Sources of information for women about antenatal care services in Denbecha District, 2012.

Variable	Frequency	Per cent
Health extension workers	301	62.1
Voluntary community health workers	1102	21.1
Traditional birth attendants	10	2.1
Relatives	80	16.4
Health education through campaign	52	10.7
Radio/TV/News paper	20	4.1
Community conversation	34	6.5

Table 3. Antenatal care service utilization of Respondents at their Last pregnancy, Northwest Ethiopia, April 2012.

Variable	Frequency	Percent
Have you attended ANC for your last pregnancy?		
Yes	413	57.1
No	310	42.9
Total	723	100
For how many times did you attend ANC?		
1	32	7.7
2 - 3	44	10.7
≥4	337	81.6
total	413	100
Why did you attend ANC service?		
Health workers counseled/advised me	100	24.1
To take vaccination	177	42.8
To take iron	7	1.6
For check up	176	42.6
To have healthy child	304	73.6
To be counseled and tested for HIV/AIDS	53	12.8
Felt discomfort/illness	124	30.0
At what gestational age did you start attending ANC service?		
≤4	24	5.8
4 - 5	92	22.3
6 - 7	226	54.7
≥8	71	17.2
Total	413	100
Which sex do you prefer to give you ANC service?		
Male	180	43.6
Female	233	56.4
	413	100

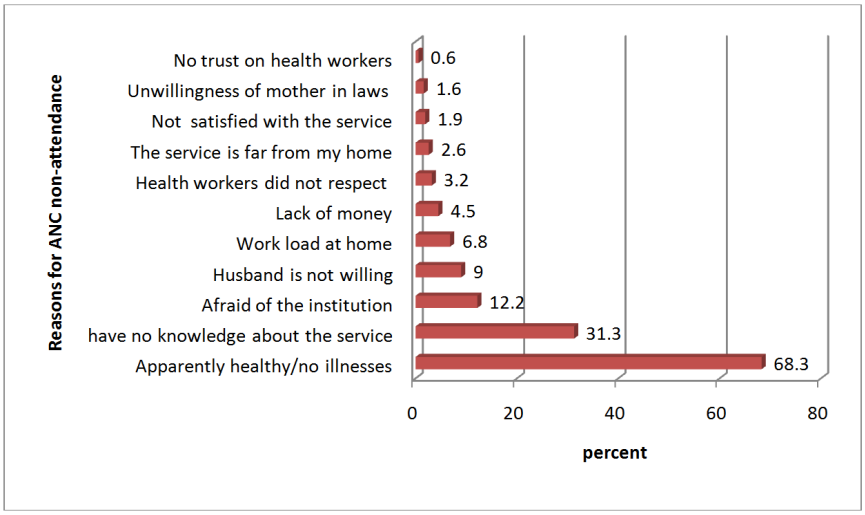

Figure 2. Reasons why mothers did not attend ANC services in Dembecha District, Northwest Ethiopia, 2012.

Table 4. Factors associated with antenatal care utilization among mothers in Denbecha District, Northwest Ethiopia, 2012.

Variable	Frequency		COR (95% CI)	AOR (95% CI)
	Yes	No		
Age				
15 - 19	10	16	1	1
20 - 34	305	197	2.477 (1.102 - 5.569)	2.544 (0.984 - 6.581)
35 - 49	98	97	1.616 (0.699 - 3.739)	1.856 (0.694 - 4.965)
Marital status				
Married	334	237	1	1
Single	8	17	0.334 (0.142 - 0768)	0.151 (0.29 - 0.794)*
Divorced	38	32	0.843 (0.512 - 1.388)	0.311 (0.065 - 1.486)
Widowed	15	13	0.819 (0.382 - 1.758)	0.336 (0.061 - 1.868)
Separated	18	11	1.161 (0.539 - 2.504)	0.546 (0.220 - 1.354)
Mothers level of education				
Illiterate	219	226	1	1
Read and write	77	46	1.727 (1.147 - 2.602)	1.585 (1.021 - 2.323)
Primary	62	17	3.764 (2.133 - 6.641)	2.968 (1.566 - 5.624)
Secondary and above	55	21	2.703 (1.581 - 4.620)	1.546 (0.724 - 3.300)
Family income				
<6000	199	123	1	1
6000 - 12000	135	98	1.424 (0.991 - 2.045)	1.569 (1.069 - 2.323)**
12000+	159	89	1.847 (1.286 - 2.651)	1.531 (1.022 - 2.294)**

COR: crude odds ratio; AOR: adjusted odds ratio; 95% CI: confidence interval.

4. Discussion

The main objective of this study was to investigate the prevalence and factors associated with ANC service utilization of mothers in Dembecha. The finding of this study showed that about 57% of women used at least one

ANC service by skilled providers for their last pregnancy. This finding is consistent with the survey report (54%) of John Snow Institute which runs a project known as Last 10 Kilometer in Amhara National Regional State [8]. This finding is also consistent with a study conducted in Metekel Zone (2009) where (49.8%) of the respondents had at least one antenatal care visit during their last pregnancy [9].

A study done in Yem especial Zone (2009) [10] and Jima town (2007) [11] of southwest Ethiopia revealed that antenatal care utilization rate was 28.5%, and 76.7%, respectively. These findings were not in agreement with ours. This might be partly explained by possible differences in sample size, socio-cultural differences, and time gap between study periods.

The finding of this study is also not consistent with the reports of EDHS 2011 [2]. The report of EDHS 11 [2] for Amhara National Regional State was 33.6%. This difference might be partly explained by the fact that EDHS covered remote areas in the region while the study area for this study is located not far away from the main street connecting central Ethiopia with Northwest parts of the country.

Though the first antenatal visit is recommended to occur within the first three months of pregnancy, only 5.8% of pregnant women had their first antenatal visits before the fourth month of their pregnancy. This is consistent with EDHS 2011 report. Optimal antenatal care should begin in the first three months of pregnancy and continues until delivery so as to contribute for safe maternal and child health [12].

Ethiopian antenatal care coverage figures remain low even among Sub Saharan African countries. Studies conducted in Gambia [13], and Kassala, Eastern Sudan [6] revealed that more than (90%) of mothers in these countries experienced at least one antenatal care visit.

Surprisingly, the finding of our study was consistent with findings from Nigeria where only 60% of mothers reported to attended at least one antenatal care visit during their last pregnancy [14]. This could be partly explained by the fact that these two nations are highly populated nations of Africa; therefore, it is likely that they faced similar challenges in providing health care to their people because of several factors.

Our study revealed that health extension workers provided antenatal care services for more than 20% of mothers. It showed that deploying health extension workers in almost each *kebele* the lowest administrative level with about 1000 households-made antenatal care service accessible to mothers. According to EDHS 2011 [2] nationally 9% of women receive antenatal care from health extension workers and 7% for Amhara National Regional State. This could be attributed to the fact that EDHS covers more remote areas where distance from health institution could be a major predictor of ANC service utilization. It is also important to note the difference in sampling techniques and sample size.

With regard to the determinants of ANC service utilization; our study revealed that ANC service utilization is significantly influenced by mother's education, and family income. Most of these findings were consistent with previous studies done in Ethiopia and elsewhere [15]-[19].

This study illustrated that there was a wide variation in ANC service utilization between educated and illiterate mothers. Mothers who attended primary levels of education were about 3 times more likely to use ANC service than those who were illiterate. These finding concur with report of EDHS 2011 [2]. It is also consistent with research reports from Ethiopia findings from Metekel (Ethiopia) [9], and other middle and low income countries such as Nigeria [18], Karachi (India) [15], Sindh (Pakistan) [19].

Marital status is another socio demographic variable found to be significantly affecting ANC service utilization. Mothers who were single were 6.6 times less likely to attend ANC service than mothers who were married. This finding is not consistent with study done in Hadya zone [20].

Mothers who lived in a household whose family yearly income was Birr 12,000 and above were 1.5 times more likely to utilize antenatal care service than those mothers whose family annual income was less than Birr 6,000). This is also consistent with findings from other studies done in Karachi (India) [15], and Ethiopia [20]. This could be because of the fact that better income increases the ability to pay for transportation and other costs.

This study revealed that more than 20% of antenatal care service was provided by health extension workers, and more than 60% of women claimed that they heard about the service by health extension workers. This is an important finding because it heralds that mothers have trust on health extension workers. This is very critical again for the success of health extension package program on which the health system of the nation depends on to make changes at the grass root level.

Impact and challenges of health extension program have been reported recently by Hailom Banteyerga, 2011 [21]. According his report, the program has had a tangible effect on the thinking and practices of rural people

regarding disease prevention, family health, hygiene and environmental sanitation.

The major limitation of this study was that the findings of this study cannot be generalized to pregnant mothers residing in Amhara National Regional State as a whole because of its limited scope in geographical coverage as well as potential differences in socio-cultural aspects, and potential differences in access to antenatal care services. However, because of full implementation of health extension packages in almost all kebeles in the region, and specially because the antenatal care is provided in each kebele by young women born and grew up in the respective similar setups and culture, the difficulty of generalizing the data to most women in the region can hopefully be ameliorated so that the finding of this study might reflect the current antennal care utilization in the region for which data discrepancy had been observed.

5. Conclusion

Antenatal care service utilization is low even to the context of Sub Saharan Africa. Single, divorced, or separated mothers were less likely to utilize ANC while economically better off, and literate mothers were likely to use ANC services than their counterparts. The finding of this study is in line with the annual reports from the Regional health bureau, and disagrees with EDHS, 2011. Therefore, districts should be encouraged to make decisions based on their own locally generated data than based on EDHS data which could at times be discouraging especially for districts with high performance. Further strengthening of Health Extension Program is recommended. Besides, quality of ANC needs to be assessed.

Acknowledgements

Authors of this article would like to appreciate Bahir Dar University and GAMBY College of Medical Sciences for taking the initiative to open joint MPH program which encouraged us to conduct researches as a requirement of academic credential, and academic promotion.

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