DETERMINANTS OF ANTENATAL CARE SERVICE UTILIZATION DURING THE FIRST TRIMESTER AMONG PREGNANT WOMEN IN BOKE WOREDA, ETHIOPIA: A FACILITY BASED UNMATCHED CASE CONTROL STUDY

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ABSTRACT

Antenatal Care (ANC) services utilization during the first trimester is very important for risk identification, and prevention and management of pregnancy-related diseases. However, the ANC services utilization during the first trimester in Ethiopia is very poor. Likewise, there has been no research conducted in Boke Woreda on determinants of ANC services utilization. Therefore, the aim of this study was to identify determinants of ANC services utilization during the first trimester in Boke Woreda, Ethiopia. A health facility based unmatched case-control study design was conducted in Boke Woreda, Ethiopia. The data was collected using pre-tested and structured questionnaires through interviews. Data analysis was done by SPSS for Windows Version 20.0. Bivariate and multivariate logistic regressions were conducted. P-value <0.05 was used to declare statistically significant variables. All selected pregnant women (339 participants) were interviewed with 100% response rate. ANC services utilization was associated with maternal age (AOR=3.87,95%CI:1.57,9.51), women's travelling time (AOR=3.26, 95% CI:1.46,7.26), number of pregnancy (AOR=5.01,95% CI:1.74,14.41), number of births (AOR=3.93,95% CI:1.35,11.41), and previous ANC service utilization history (AOR=2.52,95% CI:1.03,6.20). Besides, ANC service utilization was also positively associated with family support (AOR=3.28, 95%CI: 1.18, 9.06), service waiting time (AOR=6.17, 95% CI: 1.83, 20.73), and welcomed appreciation by health workers (AOR= 7.81, 95%CI: 3.19, 19.09). Maternal age, travelling time, client welcomed appreciation, maternal knowledge, previous service utilization, parity, gravidity, and service waiting time were found to be the determinants of antenatal care services at first trimester. Therefore; Policy makers and stakeholders in the area have to focus their intervention on these identified factors in order to improve the ANC service utilization in the first trimester.

Key Words: *Determinants, Antenatal care, first trimester, Boke Woreda*

INTRODUCTION

Antenatal Care (ANC) can be defined as the care provided by skilled health-care professionals to pregnant women and adolescent girls in order to ensure the best health conditions for both mother and baby during pregnancy and it is one of the pillars of maternal health services (1). The components of ANC include; risk identification, prevention and management of pregnancy-related or concurrent diseases and health education and promotion. The goal of ANC is to prevent health problems of pregnant women and to ensure that each newborn child has a good start(1, 2).

For provision of antenatal care services like tetanus toxoid immunization, intermittent preventive treatment of malaria, de-worming, iron and folic acid is very important before four months of pregnancies. In addition to this, pregnant women should be offered screening for HIV infection

and syphilis to reduce mother-to-child transmission. Other intervention that can be linked to early ANC include ultrasound screening to identify congenital abnormalities, provision of information about birth preparedness and complication readiness plan, nutrition, family planning, breastfeeding, and health benefits of delivery with the assistance of skilled health provider. Hence, early antenatal care booking is a strong predictor of positive pregnancy outcomes, and has a substantial impact on maternal and child mortality (1-3).

Globally, MMR is about 303,000 annually, developing regions account for approximately 99% (302,000) of the global maternal deaths in 2015, with sub-Saharan Africa alone accounting for roughly 66% (201,000), followed by Southern Asia 21%(66,000) (3). It has been estimated that 25 percent of maternal deaths occur during pregnancy, with variability between countries depending on the prevalence of unsafe abortion, violence, and disease in the area. Between a third and a half of maternal deaths are due to causes such as hypertension (pre-eclampsia and eclampsia) and ante partum hemorrhage, which are directly related to inadequate care during pregnancy (3, 5).

In Ethiopia many studies indicated that ANC utilization during the first trimester is low and most pregnant women who attend ANC come too late for their first ANC visit ranges from 40 to 60%(4, 6). According to Ethiopian EDHS report; the ANC service coverage was 41%, out of which 18 percent (38% urban and 14% rural) of pregnant women were attending ANC services during the first trimester (7).

Some studies reported that maternal education, younger age, marital status, first pregnancy, lower parity, planned pregnancy, history of still birth, previous early antenatal care visit, advice on early antenatal care visit were associated with early antenatal care booking (8-11). In contrary, there are studies which stated that maternal age, previous utilization of the services and travel time to the health facilities has no association with early antenatal care utilization(6, 12-14). So it needs further investigation in identifying the independent determinants of utilization of antenatal care services during the first trimester.

There is also a gap in information among pregnant mothers in utilization of ANC at first trimester and there is no study conducted in the study area. Therefore, the purpose of this study was to identify determinants of ANC services utilization during the first trimesters in Boke Woreda, Oromia Region, Ethiopia.

RESEARCH METHODS

Study Area and Period

The study was conducted in Boke Woreda from February 15 - April 10/2017. Boke Woreda is found in Western Hararghe, Oromia Regional State, Ethiopia. It is located 375 kilometers to the East of Addis Ababa, the capital city of the country. The Woreda has an estimated total population of 141,829 of whom 69,496 are male and 72,333 are females. There are five health centers, 23 health posts, and four private clinics.

Study Design

Facility based unmatched case control study was conducted. Cases and controls were selected based on the eligibility criteria, whereby: cases involved pregnant women who visited ANC at less than four months of pregnancy; and controls were based on pregnant women who were attending ANC at greater than or equal to four months of pregnancy. In both cases and controls the first ANC visit was considered for current pregnancy.

Eligibility criteria

Inclusion criteria: For cases and controls - Pregnant women who had interest to respond the questionnaires and fulfilled the definition of cases and controls were included in the study.

Exclusion criteria: For cases and controls - Pregnant women who were unable to respond and who were not fulfilling the definition of cases and controls were excluded from the study.

Sample Size Determination and Sampling Procedure

The sample size was calculated by taking educational level of pregnant women as the major determinant of ANC services utilization which gives large sample size; 32.9% proportion of exposure among cases and 31.2% proportion of exposure among controls(8, 11). 2 odds ratio to detect case (OR), 80% power and 95% confidence level and ratio of cases to controls was 1:2 and 10% non-response rate. The calculated sample size was 339 (113 cases and 226 controls). Those women fulfilling the inclusion criteria were recruited until the required sample size was achieved. For each case two consecutive controls were selected among the pregnant women who were attending the ANC services during the first trimester of the last four months.

Data Quality Control

The questionnaires were translated from English into the local language (Afan-Oromo) & vice versa. A pre-test was conducted on 5% of the sample. Data collectors were trained on how to conduct the data. Daily supervision was held at all health centers by field supervisors and the investigator. Data collectors were enabled to rectify incomplete and inconsistent data by supervisors at the time of data collection. Supervisors used to check all procedures and completeness of formats randomly. The collected data were rechecked before data entry.

Data Collection Tools and Procedures

The data was collected using pre-tested structured questionnaire. The study subjects were selected in case to control (1:2) ratio. Five BSc degree holder nurses, who were not working in the department of maternity, were participated in the data collection. Two supervisors were participated from the adjacent woreda health office. Half a day orientation was given to the data collectors and supervisors on the data collection tools and procedures by the principal investigator.

Data Processing and Analysis

Data were edited, coded and entered in to Epi info version 3.5.1 and then exported to and analyzed by SPSS windows version 20. Frequencies and percentages of different variables were computed to summarize the data. Bivariate logistic regression model was fitted as a primary method of analysis. Based on the findings of bivariate analysis, variables having p <0.2 were entered into multivariate logistic regression analysis using the forward LR method. Finally, P<0.05 in multivariate analysis was used to identify confounding factors and determinants of early ANC utilization. The fitness of logistic regression models was assessed using the Hosmer-Lemeshow statistic and multicollinearity problem was also checked and the variables which had high multicollinearity problems were eliminated from the model.

RESEARCH RESULTS

Socio-demographic Characteristics

The total number of study participants was three hundred thirty nine (113 cases and 226 controls) with 100% response rate. The mean age for cases and controls were 22.4 (+SD4.15) and 28.04(+SD 5.08), respectively.

Reproductive Health Factors

Seventy four (65.5%) of cases and thirty nine (17.25%) of controls had less than or equal to two pregnancies while thirty nine (34.5%) of cases and 187(82.7%) of controls had three and more number of pregnancies prior to current pregnancies. Large proportion of cases and controls had no history of still births which is one hundred ten (97.3%) of cases and 196(86.7%) of controls respectively.

Reasons for attending ANC Services

From the total of antenatal care services attendants, forty-two (37.2%) of cases and fifty-three (23.45%) of controls responded as it was the right time to visit. On the other hand, thirty-one (27.4%) of cases and sixty (26.5%) of controls responded as they visited because of sickness whilst thirty-three (29.2%) of cases and 51(22.57%) of controls said it was for pregnancy checkup.

Determinants of ANC Service Utilization

The odds of pregnant women at less than 26 years old were about 4 times (AOR =3.86, 95%CI: 1.57,9.51) more likely to use ANC services during the first trimester than pregnant women who were at age greater than or equal to 26 years of age groups. Similarly, the odds of pregnant women travelling at lower than 30 minutes were 3 times (AOR =3.26, 95%CI: 1.46, 7.26) more likely to use ANC service during the first trimester than women who travel at 30 minutes and above.

The odds of ANC services use in the first trimester for pregnant women who recognized their current pregnancy within 1-3 months were 7 times (AOR=7.32, 95%CI: 2.65, 20.24) more likely than their counterparts. Besides, the odds of pregnant women who had good knowledge were 10 times (AOR =9.76, 95%CI: 3.80, 25.09) more likely to use ANC services during the first trimester than those who had poor knowledge about the importance of the services. The odds of pregnant women who had experiences of ANC utilization, on the other hand, were 3 times (AOR =2.52, 95%CI: 1.03-6.20) more likely to use ANC services than those who had no experiences.

The odds of pregnant women who supported by their families were 3 times (AOR =3.27, 95%CI: 1.18, 9.06) more likely to use ANC during first trimester than those who were not supported, where as the odds of pregnant women who wait services at less than 45 minutes were 6 times (AOR =6.17, 95%CI: 1.84, 20.73) higher to use ANC services than those who wait services for 45 minutes and more.

DISCUSSION

The study focused on the important determinants of ANC utilization during the first trimester. It revealed that maternal age was associated with the ANC service in first trimester. This finding is in line with the study findings in Ethiopia and Benin which revealed that ANC early utilization is about 2-4 times more common among age of less than 26 years than their counter parts (7, 8, 16,17). The possible reason may be existence of more fear in younger women for fist pregnancy and their better health seeking behavior due to their access to health information. However, this finding is inconsistent with the findings of a study in Hadiya zone, Ethiopia, and a finding from Meta-analysis in middle income countries (12, 18). The possible reasons may be lack of experiences in the use of ANC services among some younger women and cultural factors.

Women who traveled less distance to the health facility were more likely to use ANC at first trimester than those who traveled longer distance to the health facility. This finding is consistent with the findings from a cross sectional study in Assosa District, Ethiopia (19) whilst it is in contrast with a study finding in Kembata Tembaro Zone, Ethiopia (14, 20).

Gravidity and Parity also showed a strong association with antenatal care utilization. This finding is in line with the findings from cross sectional studies in Holeta town, Ethiopia, and Benin (9,16). This may be due to the fact that women with more pregnancy and parity prior to current pregnancies might have developed a better health seeking behavior for ANC service utilization in the first trimester.

Family support was found to be associated with ANC utilization. Accordingly, pregnant women who supported by their family were more likely to use ANC services during the first trimester than those who were not supported. This result is in line with the study findings in Holeta Town and Benishangul Gumuz, Ethiopia (9, 19).

Besides, waiting time and health care providers welcomed appreciation showed a significant association with ANC utilization. It revealed that pregnant women who spent less time get a

service were more likely to use ANC during the first trimester than those spent more time. This indicates that long waiting time for a service at the facilities is a barrier to initiate ANC utilization in recommended period. This finding is in line with a study conducted in Holeta town which revealed that waiting for a long time of the services may hinder early ANC service utilization (9). Pregnant women welcomed by health care providers, on the other hand, showed more likelihood of ANC utilization. This is in line with the study findings in Benin (16). This might indicate that pregnant women who were better welcomed and built positive relationship with the health care providers were more likely to use ANC services earlier.

CONCLUSIONS

The study revealed that age at pregnancy, travel time to the health facility, number of pregnancy, number of births, early recognition of current pregnancy, services waiting time, presence of family support, knowledge about the ANC services, previous antenatal care service use, and client welcomed appreciation were the most important determinants of antenatal care service utilization during the first trimester.

RECOMMENDATIONS

FMOH and RHB should design and implement specific behavioral change communication program to improve client-health care provider's relationship. Zonal and Woreda health offices should focus on improving women's knowledge on ANC service utilization in the first trimester through adult learning program. Health workers and Health extension workers should take an opportunity to encourage mothers to start their first antenatal care visit before four months of pregnancy. Health care providers should also carry out community based intervention to improve communication and support through facilitated participatory learning and actions cycles with women groups. Families should be welcomed to attend an ANC session with the pregnant woman. Community leaders should be capacitated and strengthen in participating of early antenatal care service utilization. Further study is needed to assess the effect of quality of the services on ANC utilization during the first trimester.

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