Late Initiation of Antenatal Care Service and its Associated Factors in Southern Ethiopia: A Cross-sectional Study

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Abstract

The study assessed the prevalence of late initiation of antenatal care service and the influencing factors among pregnant women in the Wonago woreda (district) of Gedio Zone, Southern Ethiopia during June - July, 2017. The institution-based cross-sectional study design was used. Data originated from a total of 407 pregnant women who attended antenatal care in three health centers. Data were collected using- semi-structured questionnaire and analyzed with descriptive statistics and logistic regression. About 68% of the respondents commenced ANC service late (after 16 weeks of pregnancy). Multivariate analysis revealed that women with husbands who had primary, secondary and tertiary education were less likely to initiate late ANC by 58%, 69%, and 85%, respectively, compared to those who had no formal education. Women who had got a planned pregnancy also were 58% less likely to initiate late compared to unplanned pregnancy [AOR= 0.42, 95% CI (0.19, 0.94)]. It was found that mothers who had 1-2, and 3-4 times history of a pregnancy were 72% [AOR= 0. 28, 95% CI (0.14, 0.56)] and 50% [AOR= 0.50, 95% CI (0.24, 0.98)] less likely to initiate late compared to women with ≥5times of pregnancy, respectively. The majority of the respondents started their ANC later than the recommended time. Husband's education, planned pregnancy and the number of pregnancy significantly influenced late booking. Therefore it is recommended to improve the level of education of women, promote husband's involvement in pregnancy care, and strengthen family planning services.

Key words: Late antenatal care initiation; Public health centers; Wonago district; Gedio, Ethiopia

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INTRODUCTION

Antenatal care is the care given to pregnant women so that they have a safe pregnancy and a healthy baby. This care also promotes healthy lifestyles that benefit both mother and child. During follow-ups, pregnant women receive health information over maternal physiologic changes in pregnancy, biological changes, prenatal and postnatal nutrition (Wesse, 1999). World Health Organization (WHO) has recommended a minimum level of care to be four visits throughout the pregnancy. The first visit is expected to screen and treat anemia, syphilis, risk factors and medical conditions and initiate prophylaxis if required (e.g. for anemia and malaria) and this care is recommended to be held early before the end of fourth months of pregnancy. The second, third and fourth visits are scheduled at 24–28, 32 and 36 weeks, respectively (UNFPA, 2004).

Late initiation of ANC deters pregnant mothers to get enough time for essential diagnosis and treatment regimens of different disease conditions such as treatment of Sexually Transmitted Infection (STI). There is a need to change this condition due to the high risk related with late initiation of the ANC, i.e., complications such as premature rupture of membrane, hypertensive disease of pregnancy, anemia, Chorio-amnionitis, placental abruption, post-term pregnancy, premature births and intrauterine growth retardation (Ejigu, et al., 2013). In general, late initiation of Antenatal Care (ANC) may lead to undetected or late detection of maternal health problems and subsequently may lead to unmanageable complications in pregnant women and contributes to maternal morbidity and mortality (UNFPA, 2004).

Maternal Mortality Rate (MMR) is very high in Ethiopia and according to Ethiopian Demographic Health Survey (EDHS) was 412/100, 0000 live birth in 2016 (CSA and ICF, 2016). In Ethiopia, ANC services are given free of charge in all government health institutions. However, the EDHS report in 2016 indicated that 38% of the pregnant women did not receive any ANC for their last birth in the five years before the survey. Only 17% of pregnant women made their first prenatal care visit before the

fourth month of pregnancy (CSA and ICF, 2014). The Ethiopian Ministry of Health developed a plan to reduce maternal and newborn morbidity and mortality by 69% by improving access to and reinforcement of facility-based maternal and newborn services, and health sector development program (FDREMOH, 2014). However, the utilization of ANC in the recommended time is unacceptably low (CSA and ICF, 2016) and there is no sufficient information regarding ANC initiation time. Therefore determining the time of initiation and factors affecting it was the purpose of this study.

MATERIALS AND METHODS

Study setting, design, and population

The study was conducted in Wonago Woreda (district) Gedio Zone of Southern Ethiopia. It is located 375 km away from Addis Ababa, and 118 km away from the regional capital, Hawassa. At the time of the study, the district had a total population of 145,635 people out of which 71,361 were male and 74,274 female making a 1:1 sex ratio. The district had six health centers and 20 health posts in the district with 100% potential health service coverage (Wonago Woreda Health Office, 2010). Woreda is the third-level administrative division of Ethiopia which is further subdivided into a number of kebeles, the smallest unit of local government.

An institution based cross-sectional study design was used to compare the time of initiation and contributing factors. Data were collected from June 25-July 13, 2017 from all pregnant women attending the ANC service in public health facilities and resided in the study area at least for six months.

Sample size determination and sampling procedure

A sample size of 370 was computed using single population proportion formula ($n = (Z\ \alpha/2)2\ P\ (1 - P)/d2$) with the inputs of 95% confidence level (z=1.96), 5% margin of error (d), 59.8% expected prevalence of late initiation of the ANC (Alemayehu, 2008; Gulema and Berhane, 2017) and 10% non-response rate.

Three health centers were selected among the six in the district using a simple random sampling technique. The monthly client flow was determined by taking ANC attendants from the last quarter prior to the study period. From the three selected health facilities, the average number of pregnant mothers in the ANC follow up clinic was taken to estimate the proportion of pregnant mothers to be recruited in the study from each health center. Then all the pregnant women who came in the health centers for antenatal care during the study period were enrolled continuously until the required sample size was achieved.

Data collection tool and procedure

Three qualified midwiferies who speak the local language and understand the local culture collected the data. A supervisor from each health center was selected. Both data collectors and supervisors were trained by the investigators for a day, before and one day after the pretest. The training included discussions on the objectives of the study and contents of the questionnaire, the methodology of the study and ethical issues of data collection. The trainees handled the whole process of data collection, checked and addressed to questions raised by the respondents. The investigators developed the close-ended data collection tools after reviewing related literature. The final version of the English language questionnaire was translated into Amharic language in which the data collectors were proficient. To ensure the validity of the instrument, a pretest was carried out in Gedio zone of Wonago woreda health center, which is not selected for this study, however, the client has similar socio-demographic characteristics and compared to the selected health centers for the study. The health workers interviewed the selected pregnant women in separate rooms to secure confidentiality.

Quality assurance

The collected data in each day were checked for completeness, accuracy and consistency. Supervision was carried out by the investigators throughout the data collection period.

Study variables

Time of antenatal care initiation was the dependent variable. Early ANC initiation refers to pregnancy related care received from a skilled health care professional within the first 16 weeks of pregnancy and late if it is initiated after 16 weeks of gestation (WHO, 2016).

The Independent variables were reproductive health information and socio-demographic variables including age, marital status, monthly income, family size, religion, educational status and ethnicity. Reproductive health information is about gravidity (number of pregnancy), parity (number of births), previous obstetric/ medical problems, knowledge of ANC, the advantage of ANC, knowledge of services in ANC, attitude towards ANC service, and past history of service utilization.

Knowledge about late initiation of the ANC was measured with answers to questions about the importance of ANC, time of initiation and the risk inherent during pregnancy and childbirth. The study used twenty-six multiple-choice questions, each of which scored one point for a correct response and zero for the incorrect. An overall knowledge score was calculated by adding up the scores for each respondent across all twenty-six questions. Study subjects who scored 13 (50%) and above were categorized as knowledgeable and those with lower scores as with poor knowledge.

Attitude towards ANC was measured using a 5-point Likert's scale ranging from strongly disagree (score 1) to strongly agree (score 5). When both positive and negative statements are scored, the positive answer will score 4 -5 points, neutral 3 and the negative answer 1-2 point. Following the Likert scale, an overall attitude score was determined for each respondent by adding up the scores across the nine attitude questions with maximum positive attitude score of 45 and a minimum negative score of nine. The scores 36-45 were taken as positive, 9-18 negative and 19-35 as neutral attitudes.

The data were entered using Epi info version 7 into a computer and data exported into SPSS version 20.0 for analysis. Data were summarized with descriptive statistics.

The association between the dependent and independent variables were assessed using logistic regression. The outputs were presented using crude and adjusted odds ratios.

For this study, the bivariate logistic regression model was fitted as a primary method of analysis. Odds ratios (OR) were computed with the 95% confidence interval (CI) to see the ANC time of initiation in relation to the considered associated factors in this research. Independent factors, with a P-value <0.25 in the bivariate logistic regression were entered into the multivariate logistic regression models. Consequently, the most important associated factors were identified using the multivariate logistic regression analysis. Then adjusted odds ratios (AOR) with 95% confidence interval were calculated for the significant predictive variables, and statistical significance was accepted at P< 0.05.

Ethical Considerations

Ethical clearance was obtained from Hawassa University, College of Medicine and Health Science Review Board and the concerned officials in the district at each level were formally communicated. Consent was asked from the study participants by ensuring anonymity and confidentiality and explaining the objective of the study. The pregnant women were informed that they have a full right to participate or discontinue at any time during the study.

RESULTS

A total of 407 pregnant mothers participated in the study among which about 5% of the participants were young, 15 to 19 years old, while the majority (82.5%) were between 20 and 34 years of age (Table 1). The majority of pregnant women under the study (81.3%) resided in rural areas. About 35% of the pregnant women had no formal education while 37% had primary level education, and 40% of them had husbands with primary level education (Table 1).

Reproductive health profile

Out the study subjects, 37.3% were pregnant 3-4 times in their lifetime, 45.2% had 1-2 live births in the past, and 9.3% had stillbirth for 1-2 times (Table2).

The timing of the first ANC visit

Only 31.7% of pregnant mothers started their first ANC visit early (16 weeks and less) while the majority of pregnant mothers (68.3%) started the ANC late in either second or third trimester (Fig. 1). About half of the pregnant women (51.8%) got health information for ANC follows up from health institutes followed by family/ friends (27.7%), and 16.3% from television/radio and books/newspaper/posters and the rest (4.2%) from religious leaders.

Knowledge and attitudes towards ANC

About half of the respondents (48.9%) had high knowledge about the ANC, while the remaining (51.1%) low knowledge. Positive attitude to ANC was shown by 13.7% of respondents and negative by 25.8% of the respondents. Most of the respondents (60.4%) had a neutral attitude towards the ANC. The mean attitude score for all respondents was 25.47 out of a possible 36 points (SD =4.52).

Table 1: Socio-demographic profile of pregnant women respondents in Wonago district, Southern Ethiopia July 2017.

Variables (N=407)	Frequency	Percentage
Age		
15-19	20	4.9
20-24	94	23.1
25-29	147	36.1
30-34	95	23.3
35 and above	51	12.5
Women's level of education		
No formal education	143	35.1
Primary education (1-8)	151	37.1
Secondary education (9-12)	78	19.2
Tertiary education (diploma and above)	35	8.6
Religion		
Orthodox	110	27
Muslim	62	15.2
Protestant	202	49.6
Catholic	25	6.1
Others	8	2
Ethnicity		
Gedeo	205	50.4
Oromo	73	17.9
Tigre	12	2.9
Guragie	41	10.1
Amhara	45	11.1
Others	31	7.6
Monthly income (Ethiopian birr)		
<1000	206	50.6
1001-2000	139	34.2
2001-3000	38	9.3
3001-4000	11	2.7
4001-5000	12	2.9
>5000	1	0.2
Woman's occupation		
Housewife	219	53.8
Self employed	83	20.4
Government employee	49	12
Daily worker	28	6.9
NGO/private sector employee	6	1.5
Other	22	6.1
Marital status		
Single (never married)	15	3.7
Married/live together currently	314	77.1
Separated/divorced/ widowed	78	19.2
Husband's level of education		
No formal education	83	20.4
Primary education (1-	163	40
Secondary education (9-12)	76	18.7
Tertiary education (diploma and above)	85	20.9
Husband's occupation		
Self employed	185	45.5
Government employee	92	22.6
Daily worker	81	19.9
NGO/private sector employee	24	5.9
Other	25	6.1
Residence		
Urban	76	18.7
Rural	331	81.3

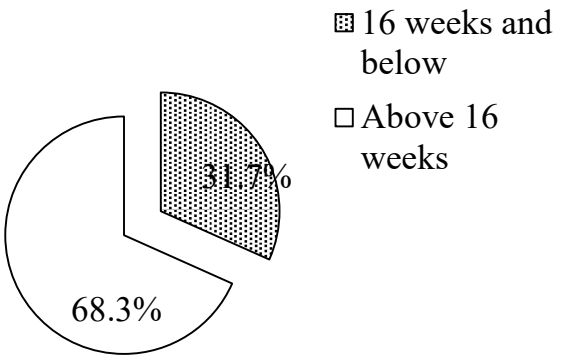

Figure 1: Proportion of late initiation of ANC among pregnant women in Wonago woreda, Gedio Zone public health centers, July, 2017.

Main reasons for late initiation of the first ANC

Out of the total number of women who did not use ANC service on time an attempt was made to know the possible reasons for the late use of the service. Most frequently responded reason was lack of appropriate information about ANC (34.2%), followed by negligence (22.6%) and distance from health facility (14.5%) (Fig. 2).

Inquiry in the past history of ANC service utilization indicated that 71.5% of the respondents had attended ANC services. However, only 17.2% of these respondents started ANC service within the first three months of pregnancy while the remaining 64.3% after 12 weeks of gestation.

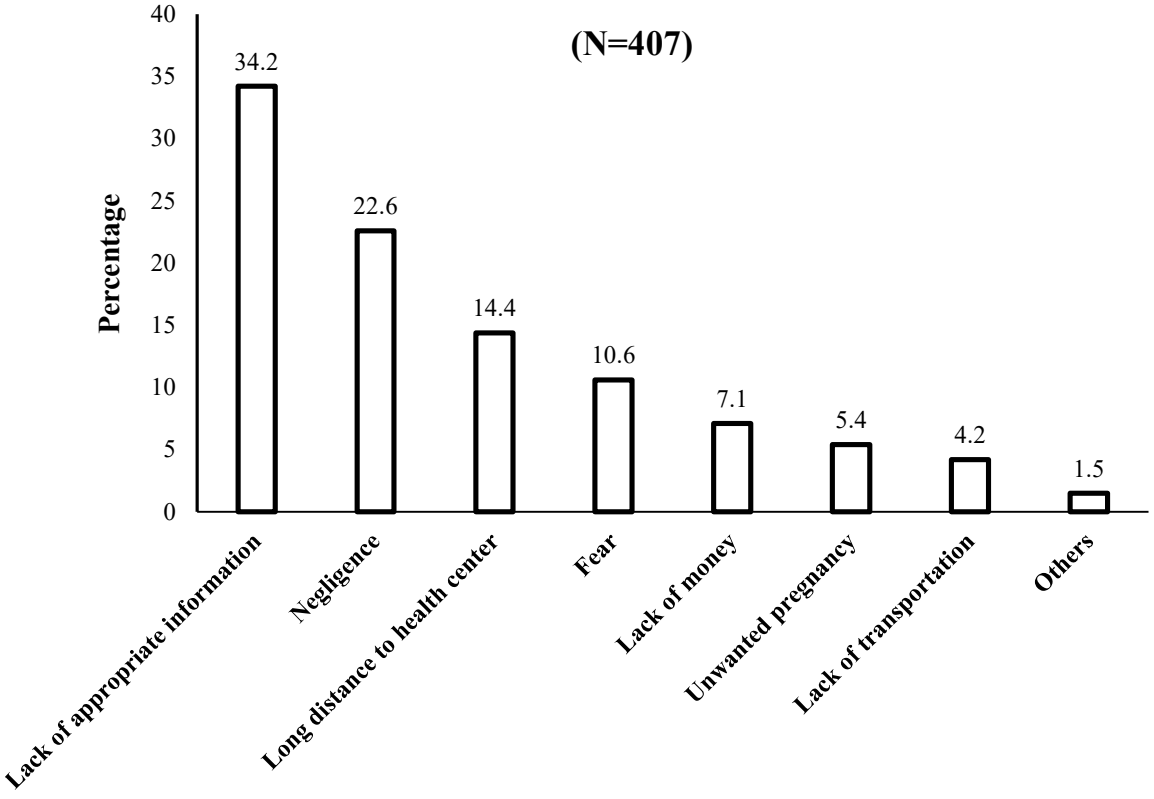

Figure 2. Reasons for late initiation of ANC among pregnant mothers in Wonago Woreda, Gedio Zone, July 2017.

Determinants of late initiation of ANC visit

In this study, husband education, planned pregnancy and number of pregnancies were significantly associated with the time of initiation of the first ANC during pregnancy (Table 3). A husband with primary education was by 58% [AOR= 0.42, 95% CI (0.19, 0.95)], secondary education by 69% [AOR= 0.31, 95% CI (0.12, 0.79)] and tertiary education by 85% [AOR= 0.15, 95% CI (0.06, 0.39)] was less likely to initiate late ANC compared to those who had no formal education. Women who had got a planned pregnancy also 58% less likely to initiate late ANC compared to those who had unplanned pregnancy [AOR= 0.42, 95% CI (0.19, 0.94)]. Those mothers who had a history of 1-2 times pregnancy were 72% [AOR= 0. 28, 95% CI (0.14, 0.56)] and 3-4 pregnancy 50% [AOR= 0.50, 95% CI (0.24, 0.98)] less likely to initiate ANC late compared to women with the number of pregnancy ≥5 times (Table 3).

Table 2. Reproductive health profile of the pregnant women respondents in Wonago district, Southern Ethiopia July, 2017

Variable (N=407)	Frequency	Percentage
Gravidity		
1-2	151	37.1
3-4	152	37.3
5 and above	104	25.6
Parity (N=329)		
1-2	184	55.9
3-4	106	32.2
5 and above	39	11.9
History of Stillbirth		
Yes	38	11.5
No	369	88.5
Inter pregnancy interval (N=344)		
Up to twelve months	40	11.6
One to three years	208	60.5
Three to six years	76	22.1
More than six years	20	5.8
Time of initiation of ANC		
≤16 weeks of gestation	129	31.7
17-20 weeks of gestation	57	14
21-24 weeks of gestation	48	11.8
25-27 weeks of gestation	35	8.6
28-42 weeks of gestation	138	33.9
Husband supports for the ANC		
Yes	325	79.9
No	82	20.1
Negative influence of others in the household not to use ANC		
Yes	60	14.7
NO	347	85.3
Current pregnancy Planned		
Yes	346	85. 0
No	61	15.0

Table 3. Factors affecting late initiation of ANC visits among pregnant women in Wonago woreda, Gedio Zone, 2017.

Variable	Late initiation of ANC		COR (95%CI)	AOR (95% CI)
	Yes	No		
Maternal Education				
No formal education	115(80.4%)	28(19.6%)	1	1
Primary education	94(62.3%)	57(37.7%)	0.402(0.23,0.68)	0.69(0.38,1.27)
Secondary education,	48(61.5%)	30(38.5%)	0.39(0.21,0.72)	1 (0.5,2.19)
Tertiary education	21(60%)	14(40%)	0.36(0.16,0.8)	1.45(0.54,3.8)
Husband's education:				
No formal education	74(89.2%)	9(10.8%)	1	1
Primary education	115(70.6%)	48(29.4%)	0.291(0.13,0.62)	0.421(0.19,0.95)*
Secondary education	48(63.2%)	28(36.8%)	0.2(0.09,0.48)	0.31(0.12,0.79)*
Tertiary education (Diploma and above)	41(48.2%)	44(51.8%)	0.113(0.05,0.25)	0.15(0.06,0.39)*
Number of pregnancy				
1-2	84(55.6%)	67(44.4%)	0,18(0.09,0.35)*	0,28(0.14,0.56)*
3-4	104(68%)	49(32%)	.31(0.15,0.6)*	.50(0.24,0.98)*
>=5	90(87.4%)	13(12.6%)	1	1
Planned pregnancy				
Yes	226(65.3%)	120(34.7%)	0.32(0.15,0.68)*	0.42(0.19,0.94)*
No	52(85.2%)	9(14.8%)	1	1

COR: Crude Odds Ratio, AOR: Adjusted Odds Ratio CI: Confidence Interval, * significant at p <0.05

DISCUSSION

In this study, nearly two-thirds of the respondents started ANC visit late after16 weeks of gestation, which is not in line with the WHO recommended time for developing countries (WHO, 2016). The finding is higher compared to the 2014 EDHS when one-fourth of the women made a late first ANC visit and this is not aligned either with a study done in Kembata Zone found in the same region or with the current study (Tekelab and Berhanu 2012). The result is, however, similar to a study done in Hadiya Zone (Zeine, et al., 2010). The discrepancy in ANC initiation might be because of differences in the setting and the majority of the mothers were not exposed to formal education that could have helped them improve their use of the available health services.

The current finding is comparable to a study in Debre Berhan where majority of the pregnant women started ANC visit late and reported that lack of appropriate information about ANC and the benefits of ANC services, negligence, distance to the health facility, and fear of public exposure were among the different reasons for ANC services late attendance mentioned by the majority of women (Zegeye, et al., 2013).

Women with a husband who attended formal education were less likely to delay their first

antenatal visit as compared to those women whose husband had never attended formal education. This finding agrees with EDHS 2011 report in which education was a strong predictor in the use of antenatal care services. Studies done in Addis Ababa and Hadiya also are in line with the current finding and state that education has a positive effect for maternal health service utilization (Zeine, et al., 2010; EDHS, 2014; Achia and Mageto, 2015; Gebrekidan and Worku, 2017). Educated husbands are better informed and are likely to support their wives to make the decision to start ANC service earlier.

Further analysis showed that women with less than five times pregnancies are likely to initiate ANC earlier than women with five or more pregnancies. This might be because those women with less number of children are eager to have more and therefore give more attention to their pregnancy for better outcome. The finding is also in line with studies done in Wolaita Soddo town (Hussen, et al., 2016) and the central zone of Tigray (Gebreamlak. et al., 2017).

The current study showed that women with a planned pregnancy less likely initiated ANC late compared to those who had an unplanned pregnancy. Because the pregnancy is desired, the women give due attention and care for the fetus as well as own health. These women most likely detect their pregnancy earlier. This finding is in line with studies done in Addis Ababa (Gulema and Berhane, 2017), Adigerat (Lerebo, et al., 2015), Kembata Tembaro (Tekelab and Berhanu, 2012), Arbaminch (Feleke, et al., 2015) and Dilla (Girum, 2016).

This study has some limitation since it considered only pregnant women attending ANC at the government health institutions. However, according to the 2010 Woreda Health Office report, more than 90% of eligible pregnant women have used governmental health facilities.

CONCLUSIONS AND RECOMMENDATIONS

The majority of pregnant women in the study area did not use ANC services timely as recommended by the World Health Organization (WHO). Education is an important factor for the timely utilization of ANC services. The number of pregnancy and planned pregnancy encouraged pregnant mothers to attend ANC services timely. Hence, actions should be taken to improve education, promote husband's involvement in pregnancy care, strengthen family planning services for planned pregnancy and desired family size.

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