Journal of Women's Health Care

OPEN ACCESS Freely available online

Research Article

Late Initiation of Antenatal Care and Associated Factors among Pregnant Women Attending Antenatal Care in Southeast Ethiopia

Tilahun Ermeko Wanamo[1]*, Abate Lette Wodera[1], Desalegn Bekele[2]

[1]Department of Public Health, Goba Referral Hospital, Madda Walabu University

ABSTRACT

Background: Antenatal care (ANC) also known as prenatal care given for women during pregnancy, and it is important for both maternal and fetal health. Pregnant women with late initiation of antenatal care are more likely to attain poor outcomes of pregnancy. Therefore; this study was conducted to determine the prevalence of late initiation of antenatal care and associated factors among pregnant women attending antenatal care unit in Goba town, southeast Ethiopia.

Methods: An institutional based cross-sectional study was conducted from April 1 to April 28/2018 among 379 pregnant women. Systematic sampling technique was used to select the study participants. Data were collected using interview based pre tested and structured questionnaire. The data was analyzed using SPSS version 20; bivariate and multivariable logistic regressions were used. Bivariate analysis was carried out to examine the relationship between dependent and independent variables of the study; in addition, multivariable logistic regression analysis was carried out to see independent effect of the predictor variables on the dependent variable by adjusting the effect of potential confounding variables. Adjusted Odds ratio with 95% CI was used to show strength of association between dependent and predictor variables.

Result: .Out of 379 pregnant mothers included in the study, 232(61.2%) pregnant women had started their first antenatal care (ANC) early in the first trimester, while the remaining 147(38.8%) pregnant mothers had started late. Educational level of respondents, monthly income, and obstetrics history of stillbirth were significantly associated with late initiation of first ANC among pregnant mothers.

Conclusion: In this study a high occurrence of late initiation of ANC was found among pregnant women compared other studies conducted in Ethiopia. Factors such as no formal education, monthly income of <= 400 EB, and no obstetrics history of stillbirth were significantly associated with higher level of late initiation of first ANC among pregnant women. So, timely strategic actions should be implemented by government as well non-governmental stake holders at predictors' of late early initiation of first ANC.

Key words: Antenatal care; Late initiation; Pregnant women; Maternal and fetal health

Abbreviations and Acronyms

ANC: Antenatal care; AOR: Adjusted Odd Ratio; COR: Crude Odd Ratio; EDHS: Ethiopian Demographic Healthy Survey; FANC: Focused Ante Natal Care; GRH: Goba Referral Hospital; HEW: Healthy Extension Workers; HC: Healthy Centers; MMR: Maternal Mortality Rate; PNC: Post Natal Care; SD: Standard Deviations; TDHS: Tanzanian Demographic Healthy Survey; UI: Uncertainty Levels

BACKGROUND

The first time a women attends health facility during pregnancy may be because of medical problem or because of she is in labor [1]. That means pregnant women are medically at high risk of morbidity and mortality [2]. Globally, 71% of women receive any ANC in industrialized countries more than 95% of pregnant women have access to ANC; and in sub- Sahara Africa 69%, and in south Asia 54% of pregnant women have had at least one ANC

***Correspondence to:** Tilahun Ermeko Wanamo, Department of Public Health, Goba Referral Hospital, Madda Walabu University, Ethiopia. Tel: 251921520868; E-mail: tilahunjimma@gmail.com ,

Received: May 21, 2021; **Accepted:** June 04, 2021; **Published:** June 11, 2021

Citation: Wanamo TE, Wodera AL, Bekele D (2021) Late Initiation of Antenatal Care and Associated Factors among Pregnant Women Attending Antenatal Care in Southeast Ethiopia. J Women's Health Care 10:535. doi:10.35248/2167-0420.21.10.535.

visit. However, coverage of at least Four ANC visit is lower at 44%, as shown on the country profile [4].

Attending ANC at clinic early in pregnancy is important for two reasons: First, if pregnant women attend the clinics in the first three months of their pregnancy, health professional can detect any medical complication and they can treat accordingly [5]. These help to keep the health of both mother and children [2, 3]. It also helps to support their own immune systems, which decrease the chance of infection before and after birth [5, 10]. Secondly; early attendances allow health professional to treat and manage other treatable health condition that the woman may develop during pregnancy [11, 12]. Such as congenital anomaly, syphilis, control hypertension, anemia, control HIV /AIDS transmitted from mother to child and prevention of malaria complication [3, 5]. The first visit is during first trimesters; the second, close to week 26; the third around 32; and the fourth and final visit b/n 36 and 38; while late attendance is visiting of pregnant women to ANC clinic at first time in the third trimester [2, 6, 38]. According to EDHS 2014, 82% of women made their first ANC visit after the fourth month of pregnancy in Ethiopia [4].

Antenatal care is a routine health control presumed healthy pregnant women without symptoms or screening, in order to diagnose disease or complication of obstetrics conditions without symptoms and to provide information about life styles, pregnancy and delivery [7, 8, 37]. The primary aim of ANC is to promote and protect health of pregnant women and their unborn babies during pregnancy; at the end of each pregnancy to achieve healthy mothers and healthy babies. So, all women should be advised to obtain regular checkup during pregnancy as an integral part of maternity. The visits classify the pregnant women in to two depending on previous history of pregnancy, current pregnancy state, and genera medical conditions [2, 8, 9]. In Ethiopia 41% of pregnant women who gave birth in the preceding five years received ANC from skilled providers, from doctors, nurses or midwifery, for their most recent birth 35% from nurses and midwifery and 6% from doctors, another 71% receiving ANC from health extension workers [4, 36].

METHODS

Study Design, Area and Period

An institutional based cross- sectional study was conducted in Goba town, southeast Ethiopia from April 01-28/2018. Goba town is found at a distance of 445 km from Addis Ababa. The total area of the town is 26,794 square kilometer; the town is surrounded by Sinja in the North, Aloshe in the east, Fasil Sura in the north and Gamma farmers in the west. The climate condition of the town is high land (Dega); the people are mainly engaged in trade activities, agricultural and government work.

Sample Size Determination, And Sampling Technique

The sample size was determined by using single population proportion formula, with the following assumptions: 95% confidence level, 5% margin errors, and taking 59.8% proportion of late initiation of ANC according to the study conducted in Addis Ababa town [38], by adding 10% non-response rate the final sample size calculated to be 407. **Sampling Procedures**

There were two health centers, one referral hospital, and eight health posts in the town. All health centers and the referral hospital were included in the study. All pregnant women who were received first ANC at health centers and referral hospital were included in the study.

The calculated sample size was first proportionally allocated in to two health centers and one referral hospital based on their previous ANC follow client number. Then, we used systematic sampling technique to select the study participants.

Data Collection Procedures and Instrument

The data was collected by face to face interview. Socio-demographic characteristics of both pregnant women and her husband, and obstetrics history such as education, occupation and residence and obstetrics characteristics such as gr avidity, parity and whether or not the present pregnancy planned, age of the pregnant women, family size and per capital household income were asked by using standardized questionnaire.

Data Processing and Analysis

Data were analyzed using SPSS version 20. Descriptive statistics such as frequencies, percentage, means and standard deviations were done for most of variables. Bivariate and multivariable logistic regression analyses were done; variables with a p-value<0.25 in the bivariate logistic regression entered into the multivariable logistic regression model. Then an adjusted odd ratio (AOR) with 95% CI calculated for the significant predictor variables, and statistical significance accepted at (P<0.05).

Data Quality Assurance

Training was given for the data collectors and supervisors for two days about data collection technique and way of interview. Pretesting of the questionnaire was conducted on 20 pregnant mothers who attended ANC at Bale Robe hospital before the study was conducted. The data that collected for pretest purpose were not included in the main study. According to the pretest result corrections were taken.

Operational Definition

Early attendant: it refers to pregnant women who initiated ANC check-up before or at the 16th week of gestation; otherwise it is late attendant [36].

Family support: obtaining support from parents of husband or her parent or by her husband or other nearby during pregnancy. It may be financial or sharing working in home [17].

Far distance: is a distance pregnant women walk to healthy facility about 60 minutes more; otherwise, it is near distance.

Healthy pregnant women: are those who pregnant women who are well meaning moving freely, oriented to time, place and person and being able to interview.

Skilled provider: person with midwifery skill (physician, health officers, nurses /midwives) who can manage normal deliveries and diagnose, manage or refer obstetric complication.

Ethical Consideration

Ethical clearance was obtained from ethical review committee of Madda Walabu University and permission letter were obtained from Bale zone health department and Goba town health office. Verbal consent was obtained from each study participant after the objective of the study was explained. Participation of the respondent strictly made on voluntary basis; they could withdraw from the interview if they unhappy during interview. Confidentiality of response was maintained throughout the research process no names used; however, the questionnaires have serial number for the purpose of data encoding.

RESULTS

Sociodemographics characteristics

In this study, 379 (93.12%) pregnant women were participated. About half of the study participants, 184(48%) were in age group of 25-34. Regarding the ethnic group of the respondents Oromo was the predominant 356 (93.9%). Muslim religion was the majority 226(59.6%) (Table1).

Timing of First Anc Visit

The majority, 232(61.2%) of the pregnant women started their first ANC early while the remaining 147(38.8%) pregnant mothers started ANC late in either second or third trimesters. In both cases the timing of the first ANC booking ranges from four weeks to thirty two weeks of gestation (Figure 1).

Obstetrics History of Late Initiation of Anc

One hundred forty four (38%) of pregnant women were Gravidity two. Two thirds of the mothers were gave birth; and half of them gave birth once. Two thirds of the babies were born alive. Regarding birth intervals about forty percent of them had > 2. Still birth were happened on 26(6.9) of the mothers (Table 2).

Factors Associated With Late Initiation of Anc

Pregnant mothers who had no formal education were 10.8 times more likely (AOR=10.8, 95% CI, 4.770, 24.653) initiate lately their ANC1compared with mothers who had finished diploma and above; and mothers joined in formal education were 3.1 times more likely (AOR=3.1, 95% CI, 1.881, 9.830) practice lately their ANC1 when compared with the reference group. Mothers who had monthly income of <= 400 EB were 4.7 times more likely (AOR=4.69, 95% CI, 1.804, 12.194) practice late initiation of ANC1 visit due to their income is not enough to fulfill their basic needs. Pregnant women who have obstetrics history of stillbirth had by 0.084 fold less likely (AOR=0.084, 95%CI, 0.009-0.809) practice late initiation of ANC1 due to fear of repetition of complication of pregnancy and arousal to having baby (Table 3).

AOR: adjusted for age of pregnant women, educational level of husband, residence, occupation of pregnant women, distance from health institution, gravidity, parity, any pregnancy related illness.

Table 1: Socio-demographics characteristics of pregnant women of Goba town, April 2018.

Variable n=379	Frequency	Percent
Age of pregnant women		
15-24	160	42.2
25-34	182	48
35-49	37	9.8
Marital status		
Single	9	2.4
Married	343	90.5
Cohabitation	13	3.4
Separated /divorced/widowed	14	3.7
Residence		
Urban	253	66.8
Rural	126	33.2
Religion		
Orthodox	146	38.5
Muslim	226	59.6
Protestant	5	1.3
Others	2	0.5
Ethnicity		
Oromo	356	93.9
Ahmara	16	4.2
Others	7	1.8
Occupation of pregnant women		
House wife	258	68.1
Government employee	49	12.9
Private employee	66	17.4
Farmers	3	0.8
Others	3	0.8
Educational levels of pregnant women		
Not joined formal school	44	11.6
Joined formal school	13	3.4
Primary school	170	44.9
Secondary school	85	22.4

Diploma and above	67	17.7
House hold income per month		
<400	74	19.5
401-1000	94	24.8
>1000	211	55.7
Distance from health institution		
<= 60 minutes	281	74.1
>60 minutes	98	25.9
Family size		
=<5	322	85
>5	57	15
Educational level of husband		
Can`t read and write	36	9.5
Able read and write	39	10.3
Primary	108	28.5
Secondary	84	22.5
Diploma and above	112	29.6
Occupation of husband		
Farmers	139	36.7
Government employee	114	30.1
Private employee	117	30.9
Others	9	2.4

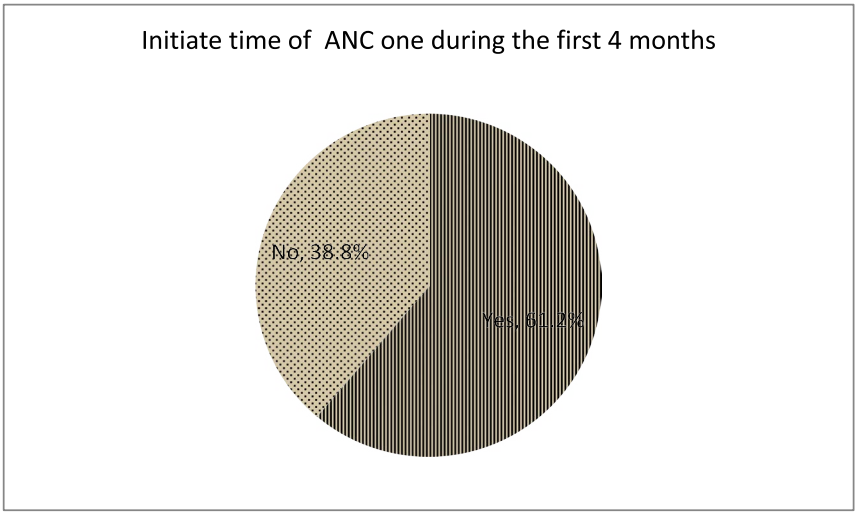

Figure 1: Time of first ANC visit in Goba town, April 2018.

Table 2: Obstetrics history among pregnant women in Goba town, April 2018.

Variable	Frequency	Percent
Gravidity n=379		
One	135	35.6
Two	144	38
Three	100	26.4
Parity(do you given birth)		
Yes	231	60.9
No	80	21.1
How many times do you give birth n=238		
Once	117	30,9
Twice	121	31.9
Baby born alive		
Yes	231	60.9

No	80	21.1
Birth interval		
1-2	95	25.1
>2	140	36.9
Still birth		
Yes	26	6.9
No	222	58.6
Do you have abortion		
Yes	50	13.2
No	329	86.8
If yes, which type		
Spontaneous abortion	33	66
Induced abortion	17	34
Any pregnancy related illness		
Yes	95	25.1
No	284	74.9
Means of confirm pregnancy = 379		
Missed period	282	74.4
Urine test (Hcg)	80	21.1
Others	17	4.5
Any one advice to start ANC =379		
Yes	195	51.5
No	184	48.5
If yes who advice to start =195		
HEW	69	18.2
Mass media	23	6.1
Husband	40	10.6
Family	59	15.6
Others specific	4	1
Reason for specific time of 1st ANC follow up		
My family advise me	81	21.4
From previous experience	229	63.1
I don`t know if I am pregnant	24	6.3
I don`t know right time and its purpose	32	8.4
Others	3	0.8

Table 3: Factors associated with late initiation of ANC follow up among pregnant women in Goba town, April 2018.

Variable	Category	Late ANC initiation		COR (95% CI)	AOR (95% CI)
		Yes	No		
Educational level of mothers	No formal school	29	15	11.1(5.653, 19.475)	10.8(4.770, 24.653)
	Formal school	6	7	7.3(3.908, 11.007)	3.1(1.881, 9.830)
	Primery school	78	92	6.1(3.772, 14.092)	7.0(0.872, 6.057)
	Secondary school	31	54	8.5(0.512, 6.018)	12.0(0.510, 8.934)
	Diploma & above	3	64	1.00	1.00
Monthly income	<400	46	28	2.222(1.943,5.235)	4.69(1.804,12.194)
	401-1000	99	112	2.53(0.182,0.661)	4.66(0.804,7.167)
	>1000	2	92	1.00	1.00
History of stillbirth	Yes	1	25	4.679(0.614,35.667)	0.084(0.009,0.809)
	No	146	76	1.00	1.00

DISCUSSION

This study revealed 147(38.8%) of late initiation of first antenatal care among pregnant women. The study was low compared with the study conducted in Malaysia (56.2%) [12], south-eastern Tanzania (71.1%) [17], Zambia (72%) [28], In Central Ethiopia, Debreberhan town (73.8%) [18], south Ethiopia, Arbaminch town (82.6%), and Kambata Tambaro zone (68.6%), [24, 30]. This study was also in line with the study conducted in western Sydney, Australia (41%) [19], and in Dila town, Ethiopia (49.7%) [31]. The difference may be due to awareness on the importance of early initiation for ANC or education level among study populations, or differences in time and methods of data collection or study area.

In this study educational level of mothers showed significant association to late initiation of first ANC. Pregnant mothers with no formal education were 10.8 times more likely (AOR=10.8, 95% CI, 4.770, 24.653) practice late initiation of first ANC visit compared with mothers who completed diploma and above; in addition, the mothers who joined in formal education were 3.1 times more likely (AOR=3.1, 95% CI, 1.881, 9.830) exercise it when compared with those who finished diploma and above. This study was in line with the study conducted in Nigeria [20, 21], and Myanmar [12]. It is because education will change the knowledge when to start ANC awareness of the mothers to start and follow the health services appropriately. So, especially rural mothers need knowledge to initiate first ANC and should educate to receive the benefits of ANC visit [24].

Mothers have monthly income of <= 400 EB were 4.7 times more likely (AOR=4.69, 95% CI, 1.804, 12.194) late initiation of ANC follow-up due to their income is not enough to fulfill their basic needs. In south eastern Tanzania mothers in particular not possessing money in cash when attending the ANC clinic negatively associated with the timing of ANC initiation. Accordingly, women who had no money in hand attended on average about one week later and women who felt not economically and socially supported by their husband attended almost three weeks later than who did receive such supports [17]. In addition to, a study conducted in Arba Minch town showed that low monthly income and household food insecurity were the factors that linked with late ANC attendance [24].

Pregnant women who have obstetrics history of stillbirth had by 0.084 fold less likely (AOR=0.084, 95%CI, 0.009-0.809) practice late initiation of ANC1 visit due to fear of repetition of complication of pregnancy and arousal to having baby. A study conducted in Adigrat town, Ethiopia showed that respondent with history of still birth know the time of appointment for ANC visit , who had attend to the health center were more likely to book ANC within the recommended time compared to others. However, those who do not have obstetric problem, and those who were booked timely for previous pregnancy preceding the current were less likely to book early within the recommended time [35].

Limitation of the Study

The governmental public health centers have been preferred to conduct this study due to their accessibility to majority of the community of the district; however, there might have been pregnant women who attended in private clinics and hospitals. Therefore, this study has lacked to address the pregnant women who attended in private clinics and private hospitals.

CONCLUSION

In this study a high prevalence of late initiation of first ANC was predicted with factors like educational level of the mothers, monthly income, and obstetrics history of stillbirth were significantly associated with late initiation of first ANC among pregnant women. So, timely strategic actions should be implemented by government as well non-governmental stake holders at predictors' of late early initiation of ANC1.

Ethics Approval and Consent To Participate

The study was done by interviewing the pregnant mothers after an ethical consent was obtained from Madda Walabu University ethical clearance committee and individual verbal consent was obtained from the study participants. This manuscript has never been submitted and deliberated for publication to any other journal or book.

Consent for Publication

Not applicable.

Availability of Supporting Data

Data will be available upon request.

Competing Interests

The authors have no any competing interest.

Funding

This study hadn't specific fund.

Authors' Contributions

All authors': developed the concept, developed method, collect data and analyzed it and draft and edit the manuscript. All authors critically reviewed the manuscript, read and approved the final manuscript.

Acknowledgments

Authors are grateful to Madda Walabu University for supporting this study. We are also very grateful to mothers and data collectors for their cooperation to undertake this study.

REFERENCES

1. Maternal and Child health Advocacy International (MCAI), June 2014.
2. Villar J, Bergsjø P. New WHO antenatal care model: Randomized trial. World Health Organization. Geneva: WHO. 2002.
3. http://www.who.int/pmnch/media/publications/aonsectionIII_2.pdf.
4. Ethiopia Mini Demographic and Health Survey, August 2014.
5. Anja Smith. Why women are not accessing antenatal care early in their pregnancies, 2016.
6. McCaw-Binns A, La Grenade J, Ashley D. Under-users of antenatal care: a comparison of non-attenders and late attenders for antenatal care, with early attenders. Social Sci Med. 199540(7):1003-12.
7. Child trends Data bank. A Late or no prenatal care, 2015.
8. 28. Rowe RE, Garcia JO. Social class, ethnicity and attendance for antenatal care in the United Kingdom: a systematic review. J of Pub Health. 2003;25(2):113-9.
9. Njim TN. Late pregnancy outcomes among women who attended and women who did not attend first trimester antenatal care visits in a suburban regional hospital in Cameroon. Int J of Mch And Aids. 2016;5(1):14.

10. Cresswell JA, Yu G, Hatherall B, Morris J, Jamal F, et al. Predictors of the timing of initiation of antenatal care in an ethnically diverse urban cohort in the UK. Bmc Pregnancy and Childbirth. 2013;13(1):1-8.

11. Yego F, D'este C, Byles J, Williams JS, Nyongesa P. Risk factors for maternal mortality in a Tertiary Hospital in Kenya: a case control study. BMC Pregnancy and Childbirth. 2014;14(1):1-9..

12. Aung TZ, Oo WM, Khaing W, Lwin N, Dar HT. Late initiation of antenatal care and its determinants: a hospital based cross-sectional study. Int J Community Med and Pub Health. 2017;3(4):900-5.

13. http://www.wchn.sa.gov.au/library/WCHN_Annual_Report_2013-14.pdf .

14. Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Trends in Maternal Mortality: 1990 to 2015,

15. Govender T, Reddy P, Ghuman, S. The impact of access to antenatal care on maternal health outcomes among young adolescents on the North coast of KwaZulu-Natal, South Africa, 2015.

16. Ren Z. Utilisation of antenatal care in four counties in Ningxia, China. Midwifery. 2011;27(6):e260-6.

17. Gross K, Alba S, Glass TR, Schellenberg JA, Obrist B. Timing of antenatal care for adolescent and adult pregnant women in south-eastern Tanzania. BMC pregnancy and childbirth. 2012;12(1):1-2.

18. Tekelab T, Berhanu B. Factors associated with late initiation of antenatal care among pregnant women attending antenatal Clinic at Public Health Centers in Kembata Tembaro zone, southern Ethiopia. Science, Technology and Arts Res J. 2014;3(1):108-15.

19. Trinh LT, Rubin G. Late entry to antenatal care in New South Wales, Australia. Reproductive Health. 2006; 3(1):1-8.

20. Adekanle DA, Isawumi AI. Late antenatal care booking and its predictors among pregnant women in South Western Nigeria. Online J Health and Allied Sci. 2008;7(1).

21. Salih IM. Factors Influencing Utilization of Antenatal Care Services among Pregnant Women in Eldaow Hagog Health Center 2016 (Doctoral dissertation, Mohammed Jaber Eldar Abu Anga).

22. Lerebo W, Kidanu A, Tsadik M. Magnitude and associated factors of late booking for antenatal care in public health centers of Adigrat town, Tigray, Ethiopia. Clinics in Mother and Child Health. 2015;12(1).

23. 23Belayneh T, Adefris M, Andargie G. Previous early antenatal service utilization improves timely booking: cross-sectional study at university of Gondar hospital, northwest Ethiopia. Journal of Pregnancy. 2014.

24. 24. Gebremeskel F, Dibaba Y, Admassu B. Timing of first antenatal care attendance and associated factors among pregnant women in Arba Minch Town and Arba Minch District, Gamo Gofa Zone, South Ethiopia. Journal of Environ and Pub Health. 2015.

25. 25. Titaley CR, Dibley MJ, Roberts CL. Factors associated with underutilization of antenatal care services in Indonesia: results of Indonesia Demographic and Health Survey 2002/2003 and 2007. BMC Public Health. 2010; 10(1):1-0.

26. 26. Edgard-Marius O, Charles SJ, Jacques S, Justine GC, Virginie MA, Ibrahim MA, Laurent O. Determinants of low antenatal care services utilization during the first trimester of pregnancy in southern Benin rural setting. Universal J Pub Health. 2015;3(5):220-228.

27. 27. Prusty RK, Buoy S, Kumar P, Pradhan MR. Factors associated with utilization of antenatal care services in Cambodia. Journal of Public Health. 2015;23(5):297-310.

28. 28. Banda I, Michelo C, Hazemba A. Factors associated with late antenatal care attendance in selected rural and urban communities of the copperbelt province of Zambia. Med J of Zambia. 2012;39(3):29-36.

29. 29. Muyunda B, Makasa M, Jacobs C, Musonda P, Michelo C. Higher educational attainment associated with optimal antenatal care visits among childbearing women in Zambia. Frontiers in Public Health. 2016;4:127.

30. 30. Zegeye AM, Bitew BD, Koye DN. Prevalence and determinants of early antenatal care visit among pregnant women attending antenatal care in Debre Berhan Health Institutions, Central Ethiopia. African J of Reprod Health. 2013;17(4).

31. 31. Abuka T, Alemu A, Birhanu B. Assessment of timing of first antenatal care booking and associated factors among pregnant women who attend antenatal Care at Health Facilities in Dilla town, Gedeo zone, southern nations, nationalities and peoples region, Ethiopia, 2014. J Preg Child Health. 2016;3(258):2.