Maternal Health Service Utilization and Associated Factors among Mothers with Children under one Year in Ambo District, West Shoa Zone, Central Ethiopia, 2018

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Research article

Keywords: Maternal health, service utilization, Antenatal care, Institutional delivery, postnatal care, Ambo District, Ethiopia

Posted Date: October 1st, 2019

DOI: https://doi.org/10.21203/rs.2.15427/v1

Abstract

Background: Maternal health service is the service provided to mothers during pregnancy, delivery and postpartum. It is a useful indicator in assessing women's health status and the accessibility, adequacy and effectiveness of a country's health service system. The aim of this study was to assess the proportion of maternal health service utilization and factors influence it in Ambo district, West Ethiopia.

Methods: Community based cross-sectional study design with quantitative and qualitative methods of data collection was employed place from 15 th August to15th October, 2018 at Ambo District among 561 women with children less than one year. Single population proportion formula was utilized to calculate the sample size and simple random sampling technique was employed to select the study subjects. Data were collected by trained data collectors using a pretested structured questionnaire. The data was entered into Epi Data version 3.1 and transported to SPSS version 21 for analysis. Bivariate and multivariate logistic regression was done at 95 % confident interval and variables with P value < 0.05 to shows significant association. Qualitative data was transcribed carefully and analyzed thematically.

Result: All 561 study subjects were participated in the survey and considered for analysis. The proportion of mothers who used ANC at least once was 89%., 64% of them delivered at health institutional and 47.2% of the mothers used early postnatal care. Mothers occupation [AOR=0.24(95% CI: 0.08-0.69)] and mother and her husband's decision making power [AOR=4.12(95% CI: 2.12-8.00)] were significantly associated with ANC use. Mother's education level [AOR=1.56(95% CI: 1.03-2.38)], time of traveling to health facilities, decision making power [AOR=5.91(95% CI: 3.79-9.22)] of both mother and husband, and having ANC follow up [AOR=14.54(95% CI: 6.23-33.96)] were factors significantly associated to institutional delivery whereas mothers age [AOR=2.65(95% CI: 1.29-5.46)], marital status [AOR=0.14(95% CI: 0.03-0.69)], attending ANC service [AOR=3.51(95% CI: 1.15-10.71)] and place of delivery [AOR=14.98(95% CI: 4.23-52.88)] were significantly associated factors for PNC utilization.

Conclusion: The prevalence of maternal health services utilization were far behind the national target to be achieved by the end of 2020. Therefore, much work is expected from stakeholders in order to achieve the national target.

Backgrounds

Globally, over 270,000 maternal deaths, 3.3 million neonatal deaths and 2.6 million third trimester stillbirths occur annually [1]. This is also continues to be a significant problem in low-income countries, despite a worldwide focus on the need to improve maternal health. An estimated of 99% of all maternal deaths occur in developing countries and more than half occur in sub-Saharan Africa (SSA) [2].

To reduce this burden, the World Health Organization (WHO) calls for effective utilization of antenatal care services, increase in the number of women who are attended by skilled healthcare personnel during child birth, and postpartum health services utilization [3–5].

Antenatal care is the care that a woman receives during pregnancy and it is a key entry point for pregnant women to receive a broad range of health promotion and preventive health service [6]. If it is from a skilled

provider, it is important to monitor pregnancy and reduce morbidity and mortality risks for the mother and child during pregnancy, delivery, and the postnatal period (within 42 days after delivery)[7]. It is a key indicator of the Sustainable Development Goal (SDG) 3, target 3.1, reducing the global maternal mortality ratio to less than 70 per 100,000 [8]. Evidences showed that worldwide over 70% of women, 98% of women in industrialized countries and 68% of women in Sub-Saharan Africa have at least one antenatal visit with a skilled provider during pregnancy [9].

The WHO recommends a minimum of four antenatal care visits during pregnancy to ensure the well-being of mothers and newborns. But, on average only 52% of pregnant women in the developing regions received the recommended number of antenatal care visits during pregnancy. Even this, coverage levels have stagnated over the past two decades, in sub-Saharan Africa countries with only a small increase from 47 to 49 per cent. [2]. In Ethiopia, 74 % of women received antenatal care from a skilled provider at least once for their last birth of which 43% had four or more ANC visits, for their most recent live birth [10, 11].

Delivery care utilization is a particularly critical time [12] and it is estimated that 42% of maternal deaths, 23% of neonatal deaths, and 32% of stillbirths are intra partum related [13]. Therefore, utilization of delivery services [5] and access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother, baby, or both [14,15]. In Ethiopia, the percentage of live births delivered by a skilled provider increases from 28 percent in 2016 to 50 percent in 2019.A similar trend is observed for the percentage of live births that occurred in a health facility which increased from 26 percent in the 2016 to 48 percent in the 2019 [16,17].

Postnatal care (PNC) is the care provided to women and newborn in the first six weeks after birth and enable health care providers to identify post delivery problems and provide treatments promptly [Charlotte et al, 2006]. It starts from the birth of the baby to six consecutive weeks with the recommended time of visit, that is, 6–24 hours, 3–6 days, and 6 weeks [18]. The postnatal period represents a vulnerable phase for mothers and newborns where both face increased risk of morbidity and death. WHO recommends postnatal care (PNC) for both mother and newborn which include a first contact within 24 hours following the birth of the Child. Most maternal and infant deaths occur in the first month after birth: almost half of postnatal maternal deaths occur within the first 24 hours, and 66% occur during the first week. In 2013, 2.8 million newborns died in their first month of life and one million of these newborns died on the first day. Postnatal care reaches even fewer women and newborns: less than half of women receive a postnatal care visit within 2 days of childbirth. An analysis of Demographic and Health Survey data from 23 sub-Saharan African countries found that only 13% of women who delivered at home received postnatal care within 2 days of birth [19]. Post natal care utilization is low in Ethiopia; only 5% of mothers received PNC within the critical time i.e, the first two days after delivery. Nationwide, 34.3% of mothers in Ethiopia receive PNC within the first 6 weeks after delivery [16].

Some of the explanatory factors mentioned for under-utilization of maternal health services include: young maternal age; low mother’s education levels; mothers in the low wealth quintile; parity (higher birth order were less likely to access antenatal

Services); lack of autonomy; poor familial support; lack of access to transport; and poor quality of maternal health services [20, 21–26].

Despite the fact that maternal health care utilization is essential for further improvement of maternal and child health little is known about the current magnitude of maternal health utilization and factors influencing the use of this service in the study area. Hence, this study is aimed to determine proportion of mother utilizing maternal care services and identify factors influencing maternal service in Ambo district.

Methods

A community based cross-sectional study was conducted among randomly selected 561 mothers of children aged less than one year from 15th August to 15th September 2018 in Ambo district. Ambo district is found in West Shoa Zone, Oromia regional state, at 114 Km in the Western direction from the capital of Ethiopia, Addis Ababa. The district has 33 rural kebeles and bordered with Dandi district in the East, Toke Kutaye on the west and Mida Kegni and Gindabarat on the north and a short stretch in the East where it shares a border with Elfata district, and South West Shoa Zone [27]. “Kebele” is the lowest administrative unit in Ethiopia which comprises at least 1000 households or population of 5000 people. According to the recent population projection the total population people living in the district is 138,176 (68, 804 male and 69, 372 female). Of the population, only 1% is urban inhabitants and the people are economically depend on farming [27]. Women of reproductive age (15–49 years) constitute approximately 30,579 (22.13%) of the population and the number of ANC 1st visit, skilled deliveries and PNC within 24 hours in 2017 was estimated to be 100%, 51% and 87% respectively. In the district, there are five health centers and 33 health posts.

The sample size was determined using the single population proportion formula using the assumption of 95% confidence level with marginal error of 5% and taking 51% of the prevalence of ANC service from skilled provider in Oromia Regional State [16] and 1.5 design effect. Thus,using the above assumption the calculated sample size was 576., However, since the source population is less than 10,000 the correction formula was used and adding 10% of non-response rate the final sample size for these study was 561. For the qualitative part, mothers with children aged less than 1 year living in the study and not participated in the quantitative interview were selected and focus group discussions until idea saturation is reached.

Sampling Technique

From 33 ‘kebeles’ of the district, 10 kebeles were selected by lottery method and lists of mothers with children aged less than one year were obtained from health extension workers registration books. The sample size was a probability proportionate to the population size in selected kebeles. The study participants were selected using systematic random sampling technique. The first woman was selected by lottery method and then every 3rdwomen were included in the study. For qualitative data, 6–8 mothers were selected purposively for each focus group discussion. The structured questionnaire which was adapted from Ethiopia national demographic health survey [16–17] and other literatures [7, 18, and 32] was used to collect the data. The questionnaires contains: the socio-demographic characteristics of respondents, the accessibility of health facility, source of information and service utilization of maternal health services during pregnancy, delivery

and after delivery. The interview guided through note taking and audio recording. The investigator was moderating the discussions with the help of two research assistants; one was for note taking and the other as time keeper. Only one FGD was conducted each day and each session lasted, on average, one and-a-half hour. FGD was conducted in appropriate place & sited in circular position. The discussion was conducted in Afan Oromo and translated back to English. Next completed transcription was compared with hand written notes to fill inaudible phrases or gaps in tapes. The trained data collectors and supervisors were involved in the data collection. Each questionnaire was checked for completeness and consistency by supervisors and finally cleaned and checked carefully before analyses.

Data processing and Analysis

The cleaned data were entered into Epi Data version 3.1 and exported to SPSS Windows versions 21.0 for analyzed. Descriptive statistics, such as frequencies and percepts was computed. Both binary and multivariable logistic regression was computed to assess factors influencing the maternal health care utilization. Variables with P < 0.2 at 95 % CI in bivariate logistic regression were entered into multivariate logistic regression to control the confounding effect. Finally, P-Value of <0.05 and AOR with 95% CI was set as a cut-off point for the significance of the association between dependent and independent variables in multiple logistic regression analysis. The data obtained from FGD's was transcribed carefully by investigator word by word and arranged with the written notes taken at the time of discussion and interview. The information was translated into English. The data were grouped based on thematic areas. Concepts were extracted from themes and presented in narratives and analyzed thematically. Through this process, a verbatim quotation was used to illustrate responses on relevant issues and themes. The results were presented in narratives and triangulated with the quantitative information to answer the research question. Ethical approval to conduct the study was obtained from Ambo University, college of medical and health sciences research and ethical review committee and after full informed verbal consent was obtained from the study participants since the data collection process does not impose any harm on the study participants which was approved by ethical review committee.

Results

Socio-demographic characteristics

All of 561 women who had children less than one year old were responded to the questionnaire by making the response rate of 100%. Greater than half (59.2%) of the respondents were in the age group of 25–34 with a mean age of 28.53 ± 5.3 years. Nearly more than half (52%) of the participants had attended formal education and the rests were never attended formal education. About 42% of the respondents were orthodox religion followers, 98.8% of them were farmers in occupation and 87.9% were Oromo in ethnicity. Regarding number of children, half of the respondents had 1–3 children with the mean number of children 3.65 ± 0.967 and about 2/3 of the husbands were attended primary and above school respectively [Table: 1].

Accessibility of the health facilities and source of information

The nearest health facility takes the about 30–60 minutes per a trip, with the mean time of 57 + 44.5 minutes and almost 98% of the respondents went to the health facility on foot to get the maternal health services. Regarding sources of information about maternal health services, 91.8% about ANC, 64.2% about institutional delivery, 57.2% about PNC and 51.8% about family planning mothers were got Information. Their main sources of information (92.2%) were health workers (HEWs). The result of the FGD also supports this idea a 30 years old woman (who had 5 children and cannot read and write) said that: *"Most of the time I got maternal health service information from HEWs.*

Antenatal Care service Utilization

In this study, about 89% of the mothers had at least one antenatal care (ANC) visit during their last pregnancy, out of which 60% of them visit health center/hospital [Figure 4]. Among the antenatal care utilizes, 79% of them had less than four antenatal care visits during their last pregnancy and about 85% of mothers visited health facility to know their health and their baby health status. The FGD result also shows that almost all of the discussants said that "We seek maternal health services during pregnancy, delivery and for child vaccination. And also we seek maternal care for checkup of our own and child's health status. From all the discussants (n = 14), about 93% of them visited health facility greater or equal to three times for ANC check-up.

As one discussant (30 years old woman who had 5 children and cannot read and write) explained; *"I visited health institution four times for ANC follow up and the health provider gave me the appointment for delivery."*

Regarding the types of services given for ANC users, 97.2% had got tetanus injection, 71.2% got iron tablet/syrup supplementation, 65% had physical examination (including weight, blood pressure, heart rate measurement) and 57.6% had HIV/STD testing. Some of Reasons mentioned by Non-users of ANC services includes unplanned pregnancy (52%), distance of the health facility (25%) and thought that the service is unnecessary (23%).

One of the discussant (a woman aged 24 years having 3 children and completed grade one) said that, *"As I know most mothers were too busy to follow the ANC care. Additionally, lack of awareness, healthy problem of the mothers and interrupt the services leading to poor quality service utilization. For example, if you take these two women's previously told us they visited three times health facility for ANC visit. But, they delivered at home which was risky and visited health facility after one and half month for child vaccination" (Figure – 1.*

Institutional Delivery

Among the respondents, 64% were delivered at health center/hospital by health workers and the rest were delivered at home and on the way while travelling to health facility by assisted by the HEWs, TBA and relatives. The main reasons for home delivery were sudden onset of labour (75.5%) which was followed by transport problem (29.7%) [Figure 6, 7]. The result obtained from FGD also supported this result as one discussant (a 30 years old woman who had 5 children and cannot read and write) explained; *"I visited four*

times for ANC checkup and the health provider gave me the appointment for delivery. But, before the appointment time I delivered at home by TBA which found around my home due to sudden onset of labour. And also I know the risk of delivering at home; however, I had no chance to deliver at health facility due to lack of someone around who may support me at that time."

Another woman aged 20 years who had two children and completed grade six shared her experience regarding home delivery as follow; *"I saw my neighbor who delivered at home and her children were exposed to air during delivery. In addition, to these cord tying was inappropriate. And also most of the time her child was sick and exposes her to extra payment to treat the baby. So, as my opinion home delivery is not recommended and I advise my friends and neighbors to go health facility for delivery service."*

Additionally, a woman aged 24 years having three children and completed grade one said that; *"home delivery is forbidden because before there is a reason like cultural ceremony done at home while women delivered at home. But, know at health facilities there are different ceremonies that are culturally done at home for home delivered mothers. So, if there is such home like ceremonies at health facility what a mother need at home. Moreover, at health facility, service providers follow the delivered mothers timely until she leaves the facility."(Fgure –2)*

Early Postnatal care service utilization

Regarding the post natal care service utilization, 47.2% of the respondents received postnatal care services, of which 54% of them got the service within 24 hours. The reasons mentioned among the study participants for not receiving the postnatal care service were: not feeling ill (65%), giving delivered at home (34%) and 5.7% had no awareness about the services. After delivery, about 4% of the respondents had health problems during their last delivery which includes heavy vaginal bleeding (75%), fever (16.7%), smelly vaginal bleeding (12.5%) and unconsciousness (8.5%) and all of mothers with these health problems had got emergency care and referred for better treatment (Figure 3).

Services such as, physical examination (27.9%), counseling on breastfeeding (85.3%), use of contraceptives (73.2%), blood test for anemia (26.4%), nutritional supplements (54%) and provision of information on warning signs (38.1%) were delivered for respondents after delivery. The result of FGDs also supports this finding in which the majority of the discussants said that physical examination, counseling on breastfeeding, contraceptives, nutritional supplements and information on danger signs were among the post-natal services mentioned by the study participants..

About 13% of the respondents reported that they paid for maternal health services they got and about 69% of the decision making for maternal health services utilization was done by husband while the remaining decided by themselves to utilize the services (Figure 3).

Factors affecting maternal health services utilization .

On multiple logistic regression analysis, mothers who had occupation and own business were 24% less likely to utilize ANC service when compared to the reference category (Farmer) [AOR 0.24(0.08–0.69) (95% CI)]. The decision making power of both mothers and husband had positive influence to utilize ANC service. These means, mothers who decided with their husband had 4 times more likely to attend ANC visit than non-decision makers in collaboration with their husband [AOR 4.12(2.12–8.00) (95% CI)].

The likelihood of delivering at health facility (health center and hospital) was 1.6 times more likely for mothers who completed primary and above educational level than those who had no formal education [AOR 1.56(1.03–2.38) (95% CI)]. Regarding the time of traveling to the health facility, mothers who could reach the health facility within 30–60 minutes were 54% less likely in delivering at health facility (health center and Hospital) when compared to the reference category (> = 60 minutes) [AOR 0.54(0.31–0.95) (95% CI)].

Mothers who decided the place of delivery with their husband were 6 times more likely to deliver at health facilities (health center and Hospital) than who cannot decide with their husband [AOR 5.91 (3.79–9.22) (95% CI)]. Additionally, mothers who decided the place of delivery by advice of health workers were 2.75 times more delivered at health facility when compared to those who decided without interference of the health workers [AOR 2.75(1.67–4.55) (95% CI)]. Respondents who attended ANC visit had 14.5 times more in delivering at health institution (health center and Hospital) than the reference category (non-attendant of ANC) [AOR 14.54(6.23–33.96) (95% CI)].

Regarding the post natal care utilization, age of the respondents, marital status of the mothers, time of travelling to the nearest health facility, attending ANC services, place of delivery and experiencing any health problem after delivery obtained were among the variables that showed association with post natal care utilization.

Accordingly, mothers whose age were between 15–24 years were 2.65 times more likely for visiting/staying health facility for early PNC service after delivery than the reference category (> = 35 years) [AOR 2.65(1.29–5.46) (95% CI)]. Regarding marital status, being widowed and divorced had negative influence on PNC services utilization after delivery. These means, widowed and divorced mothers were 14% less likely to utilize early PNC service after delivery when compared to the reference category (married) [AOR 0.14(0.03–0.69) (95% CI)].

The probability to visit/stay at health facility after delivery for early PNC service utilization was 2.7 times more likely for mothers who travelled about 30–60 minutes to reach health facility when compared to those travelled greater than one hour [AOR 2.72(1.56–4.75) (95% CI)]. On the other hand, mothers who travelled only less than 30 minutes were 1.8 times more likely to visit/stay at health facility after delivery for early PNC service utilization when compared to those travelled greater than one hour [AOR 1.79(1.01–3.17) (95% CI)].

Those mothers attending ANC visit and delivered at health facility (health center and hospital) were 3.5 and 23.8 times more likely to utilize early PNC service after delivery when compared to non-attendances to ANC visit [AOR 3.51(1.15–10.71) (95% CI)] and home delivered [AOR 23.78(12.83–44.06) (95% CI)] respectively. The likelihood of utilizing early PNC service after experiencing health problem following delivery was 15

times more probable when compared to the healthy mothers after delivery [AOR 14.98(4.23–52.88) (95% CI)] (Table 2)

Discussion

This study showed that 89% of the mothers attended ANC visit at least once, 64% delivered at health facility (health center/ hospital) and only 47.2% of them visited/stayed at health facility after delivery. This finding is higher when compared to the studies done in Tigray which was 54% for at least one ANC visit and 3.6% for health center/institution?? delivery, Afar which was 63.8% for at least one ANC visit and 3.6% for health center/ hospital delivery, and 16.7% delivered at health facility), the Ethiopian national health survey done in 2016 which showed 62% for any ANC service utilization, 26% institutional delivery and 19% PNC service utilization respectively [16, 28–29].

On the other hand, the study done in India state show that 61.7% of the respondents used ANC at least once during their most recent pregnancy, 49.8% mothers were assisted by skilled personnel during delivery whereas only 37.4% women received PNC within two weeks of delivery, which is inconsistence with this study which may be due to geographical, sample size and level of analysis difference [30].

However, according to the studies done in Pakistan (35%, 41% and 17%), Congo (92.6%, 97.2% and 34.6%) and Zambia (69%, 57% and 29%), the prevalence receiving ANC at least once, delivered at health facility (health center/hospital) and PNC service respectively by indicating that utilization of the selected maternal services inconsistence when compared to this study [31–33]. This difference may be due to the difference in socio-demographic, sample size and respondent category of the sampling units.

This study also show that maternal health service utilization was associated with socio-demographic characteristics like mothers who were farmers utilized ANC service 23.7% times more than others, mothers who completed primary and above educational level were 1.6 times more likely to deliver at health facility and mothers with age 15–24 years old were 2.65 times more likely for visiting/staying at health facility for early PNC service. The studies done in Madhya Pradesh state of India, in rural Jhang of Pakistan and southern part of Ethiopia, Sidama Zone, are also in line with this study [30, 31 34].

This study also revealed that most of the mothers utilize the maternal health services to know their own and baby health status and being sick. This is indicated similarly by the studies done in Tigray region and Arsi zone of Ethiopia [28, 29, and 35]. This similarity may be due to the consistence of these communities to give priority for their health status during pregnancy and having the great concern for their baby health status.

There were reasons stated by respondents regarding the none utilizes of ANC service which includes unplanned pregnancy, distance of the health facility and thought unnecessarily of the service which account 52%, 25% and 23% respectively. This finding is similar with the studies done in Arsi zone and Afar region [29,35]. This might be due to poor utilization of modern family planning, accessibility of infrastructures and low awareness about the advantages of the maternal health services utilization throughout the country.

The FGD discussants result also said that maternal health services were useful for both mother and child to utilize; but mothers in the community cannot utilize these services due to lack of transportation, work load

and lack of awareness about freely deliverance of the services. One discussant explained that most of the time mothers were busy by work and does not follow the services accordingly. Additionally, due to lack of awareness and healthy problem mothers interrupt the services that lead poor quality services utilization.

This study show that antenatal care service utilization increases the utilization of institutional delivery and early PNC services which is similar with findings of EDHS 2016 (56% of births to mothers who attended more than four ANC visits were delivered in a health facility compared to 8% of births to mothers with no ANC visits) and Afar region [16, 29].

In this study, the reasons mentioned for delivering at home were sudden onset of labour (75.5%) and lack of transportation (29.7%). These mentioned reasons had similarity with findings of EDHS 2016, Tigray and Afar regions [16, 28–29]. This finding is supported by experience of one of the FGD discussant, that is, she gave birth at home by TBA while she knows the risk of giving birth at home due to sudden onset of labour and lack of someone around at that moment to take her to health facility.

Strength of the study

The study used a mixed study methods (quantitative and qualitative) to triangulate the findings to increase the validity of the study.

Limitations of the study

Since mothers were asked about their last birth prior to data collection having under one year children, recall bias might be occurred.

Conclusions

According to this study, the prevalence of maternal health services were far behind the national target by the end of 2020 which needs great attention.
Still high number of mothers delivered at home by TBAs (TBA, close relatives/friends and neighbors). The main reasons given by respondents for home delivery were sudden onset of labor and transport problem.
This study shows that the most important factors influencing the use of maternal health services in the study area were socio-demographic (such as mothers occupation and level of education, age of mothers, marital status), enabling factors (distance of the health facility and decision making power by both mother and their husband) and need-based factors such as attending ANC and experiencing any health problem after delivery.

Abbreviations

ANC.....Antenatal Care
CI..... Confidence Interval

EDHS..... Ethiopian Demographic Health Survey
FMoH.....Federal Ministry of Health
MHC.....Maternal Health Care
MMR.....Maternal Mortality rate
PNC.....Postnatal Care
SBA.....Skill Birth Attendances
WHO.....World health Organization

Declarations

Ethics approval and consent to participate

This study was approved by the ethical review board of College of Medicine and Health Sciences, Ambo University. Informed consent to participate in the study was obtained from all participants.

Consent to publication: Not applicable

Availability of data and material

The datasets during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

Funding for the research was provided by Ambo university research, consultancy and community service director office. Besides, financial support, the funding body had no role in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

Authors' contributions

1. **MM:** contributed to the conception ,Prepared the proposal, interpreted the ,manuscript preparation and supervised data collection
2. **TB**: Participated in research design and supervision of data collection
3. **HO**: participated in data coding, clearing and analysis
4. **AB**: participated in data analysis, interpretation and manuscript preparation

Acknowledgements

The Authors would like to thank AU for allocating fund to conduct the study. We would also like to express our deepest appreciation to all individuals who supported us during this research work for their indispensable contributions. Last but absolutely not the least, the contribution of the study participants is greatly appreciated.

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Tables

Table 1: Socio-demographics characteristics of Participants in Ambo District, West Shoa Zone, Oromia Regional state, Centeral Ethiopia 2018(n=561)

Characteristics	Category	Frequency	Percent
Age	15-24	135	24.1
	25-34	332	59.2
	>=35	94	16.8
Marital status	Married	486	86.6
	single	56	10.0
	Divorced and separated	19	3.4
Mothers Educational	No formal school	267	47.6
	Primary and above school	294	52.4
Women occupation	Farmer	493	87.9
	Housewives	45	8.0
	Private sector and daily labour	23	4.1
Household Average monthly Income(ETB)	Below 500	396	71
	501-1000	120	21
	Above 1001	45	8
Parity	1-3	280	49.9
	4-5	192	34.2
	>=5	89	15.9
Religion of the women	Orthodox	236	42.1
	Wakefata	164	29.2
	protestant	142	25.3
	Others	19	3.4
Ethnicity	Oromo	554	98.8
	Amhara	7	1.2
Husband Occupation (n=561)	Farmer	495	88.2
	Unemployed	28	5
	own business	20	3.6
	Private sector and daily labour	18	3.2
Distance of health facility from their House(n=561)	<30	114	20
	30-60	314	56
	>60	133	24

Table 2 : Multivariate Analysis of selected factors among mothers with having under 1 year children received ANC service, Institutional delivery and Early PNC service Utilization In

Ambo district , West Shoa Zone, Oromia Regional state, Central Ethiopia, 2018(n=561)

rs Associated with ANC service Utilization In Ambo Districts (n=561)						
ble	Category	Received ANC services [# (%)]		COR 95% CI	AOR 95% CI	P-value
		Yes	No			
rs ation	Farmer	450(91.3)	43(8.7)	1	1	
	Housewife	34(75.6)	11(24.4)	0.30(0.14-0.62)	0.47(0.18-1.22))	
	Other (+)	15(65.2)	8(34.8)	0.18(0.07-0.45)	0.24(0.08-0.69)	0.01*
al status	Married	45(80.4)	11(19.6)	1	1	
	single	440(90.5)	46(9.5)	2.34(1.13-4.83)	1.34(0.44-4.05)	
	Others (++)	14(73.7)	5(26.3)	0.68(0.20-2.31)	0.34(0.08-1.48)	
decision g power hers	Yes	362(93.5)	25(6.5)	3.97(2.30-6.84)	4.12(2.12-8.00)	0.000*
	No	135(78.5)	37(21.5)	1	1	

rs associated with Institutional Delivery in Ambo District (n=561)						
ble	Category	Place of delivery [# (%)]		COR 95% CI	AOR 95% CI	P-value
		Inst. delivery	Home			
ers tion	No education	163(61)	104(39)	1	1	
	Primary and above	197(67)	97(33)	1.30(0.92-1.83)	1.56(1.03-2.38)	0.04*
o the e	<30	115(59.6)	78(40.4)	0.55(0.34-0.88)	0.62(0.35-1.11)	
	30-60	148(63)	87(37)	0.63(0.40-1.01)	0.54(0.31-0.95)	0.03*
	>60	97(72.9)	36(27.1)	1	1	
led check-	Yes	352(70.5)	147(29.5)	16.16(7.51-34.81)	14.54(6.23-33.96)	0.000*
	No	8(12.9)	54(87.1)	1	1	
couple d of cy	Yes	298(77)	89(23)	6.25(4.23-9.26)	5.91(3.79-9.22)	0.01*
	No	60(34.9)	112(65.1)	1	1	
n sional d of	Yes	91(80.5)	22(19.5)	2.75(1.67-4.55)	2.48(1.26-4.89)	0.000*
	No	269(60)	179(40)	1	1	

ry for
rs

rs Associated with early PNC services Utilization In Ambo district (n=561)						
ble	Category	Received PNC services [# (%)]		COR 95% CI	AOR 95% CI	P-value
		Yes	No			
of the ident	15-24	80(59.3)	50(40.7)	2.24(1.31-3.84)	2.65(1.29-5.46)	0.01*
	25-34	148(44.6)	184(55.4)	1.24(0.78-1.98)	1.23(0.67-2.23)	0.506
	>=35	37(39.4)	57(60.6)	1	1	
al	Married	29(51.8)	27(48.2)	1	1	
	Single	231(47.5)	255(52.5)	0.84(0.49-1.47)	0.64(0.27-1.47)	0.288
	Others (++)	5(26.3)	14(73.7)	0.33(0.11-1.05)	0.14(0.03-0.69)	0.02*
to the	<30	83(43)	110(57)	0.98(0.63-1.52)	1.79(1.01-3.17)	0.04*
y in e	30-60	124(52.8)	111(47.2)	1.45(0.94-2.22)	2.72(1.56-4.75)	0.000*
	>60	58(43.6)	75(56.4)	1	1	
led check-	Yes	260(52.1)	239(47.9)	0.08(0.03-0.21)	3.51(1.15-10.71)	0.03*
	No	5(8.1)	57(91.9)	1	1	
of ry	Home	20(10)	181(90)	1	1	
	Inst. delivery	245(68.1)	115(31.9)	19.28(11.55-32.18)	23.78(12.83-44.06)	0.000*
ienced em	Yes	16(66.7)	8(33.3)	2.31(0.97-5.48)	14.98(4.23-52.88)	0.000*
ry	No	249(46.5)	287(53.5)	1	1	
ficantly associated at p-value < 0.05						

(+) === Government Worker, private sector, own business (++) ==

Figures

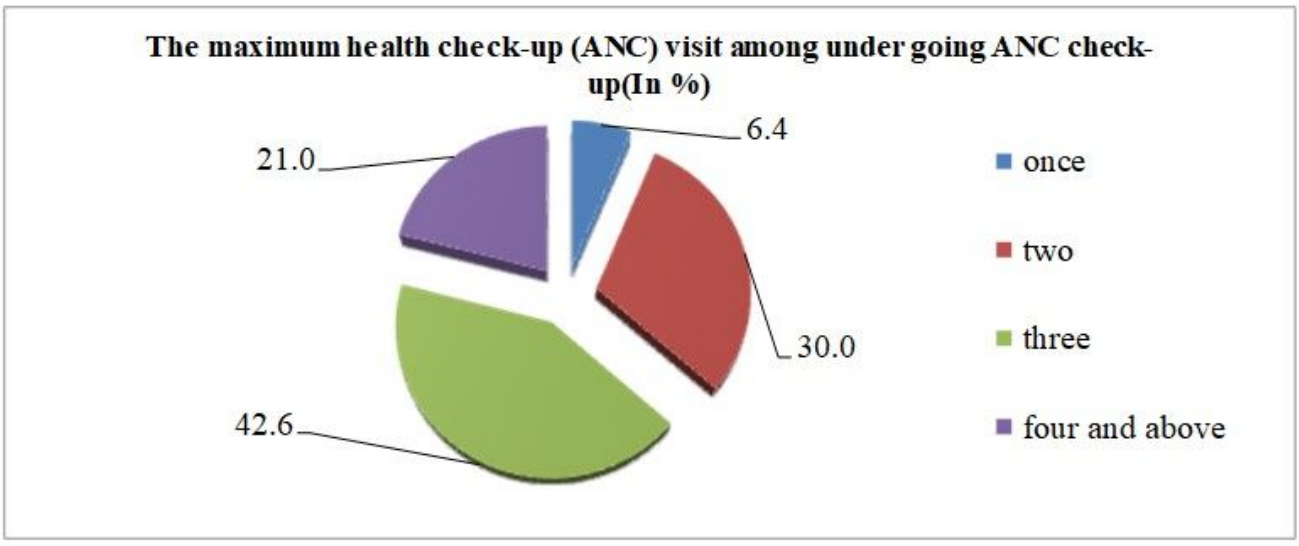

Figure 1

The maximum ANC check-up visit during last pregnancy at Ambo district, West Shoa Zone, Oromia Regional state, 2018 (n=500)

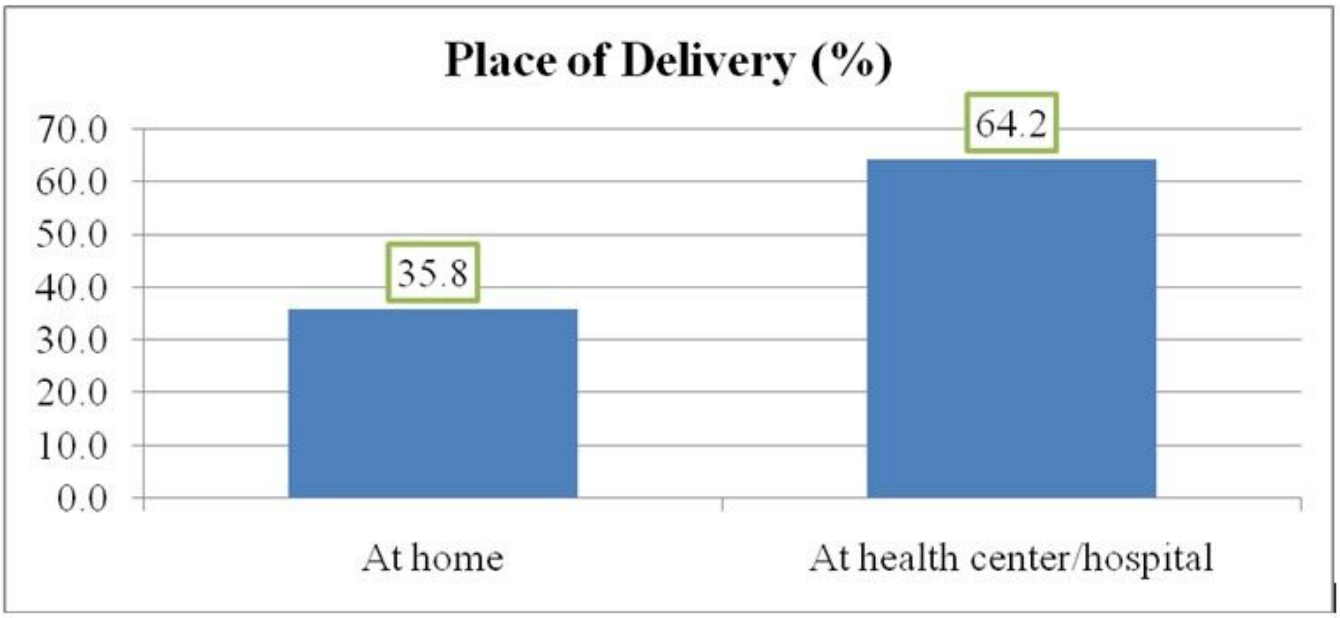

Figure 2

Place of delivery of Respondents in Ambo District, West Shoa Zone, Oromia Regional state, 2018(n=561)

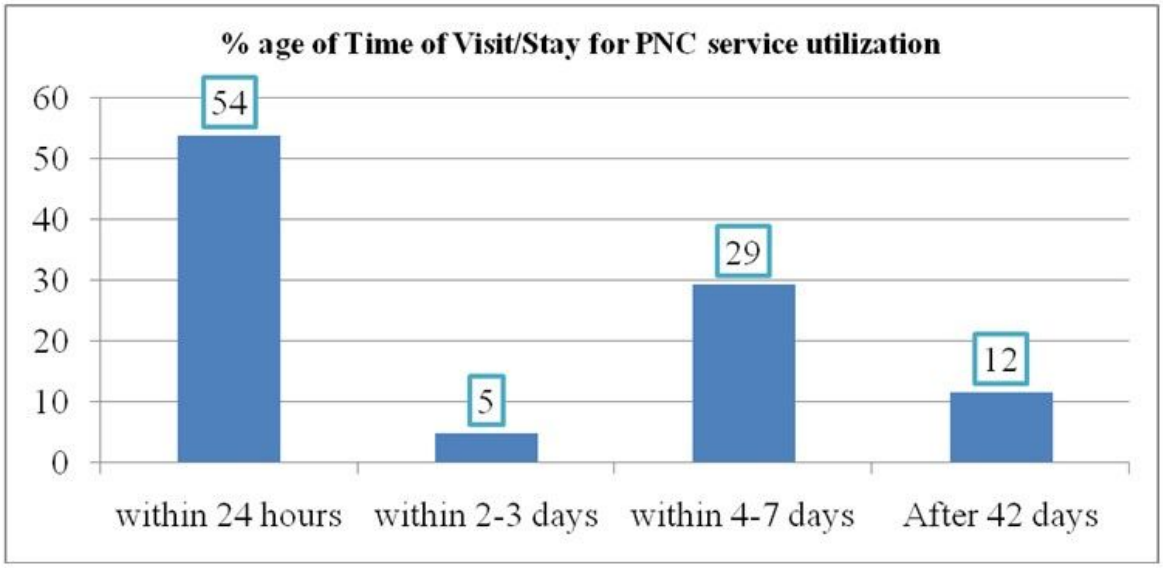

Figure 3

PNC service utilization of respondents in Ambo district, West Shoa Zone, Oromia Regional state, 2018 (n=265)