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Maternal Healthcare Services Utilization and Associated Factors among Childbearing Age of Women in Liben District, East Borena Zone, Oromia Regional Health Bureau, Ethiopia

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Abstract

Background: Utilization of maternal healthcare services is a fundamental health intervention for preventing maternal morbidity and mortality. Despite its importance, the utilization of maternal healthcare services in Ethiopia is low, especially in rural pastoralist communities. Thus, this study aimed to assess maternal healthcare services utilizations and its associated factors in the Liben district of Guji zone, Oromia region, Southern Ethiopia.

Methods: A community-based cross-sectional study was conducted with 416 randomly identified mothers in Liben in September, 2020. The respondents were mothers who had given birth 12 months prior to the survey. The data were collected using interviewer administered questionnaires. The data were entered into Epi-data version 4.1 and analyzed using SPSS version 20. Descriptive, bivariate and multivariate logistic regression analyses were also performed.

Result: Sixty percent of mothers had received antenatal care at least once. In this study, only 21.2% and 17.5% of women had delivered their babies at health institutions and utilized early postnatal care services respectively. Maternal education [AOR=2.43(95%CI: 1.22–4.89)], decision making power [AOR=2.40(95% CI: 1.3–23.3)], perceived compassionate & respectful care [AOR=0.30(95%CI: 0.18–0.50)], and planned current pregnancy [AOR=0.22(95% CI: 0.12–0.37)] were significantly associated with utilization of antenatal care. Mother's age [AOR=3.73(95% CI: 1.53–6.04)], time to travel to health facilities [AOR=1.74(95% CI:1.02– 3.08)], knowledge of danger signs [AOR=3.77(95% CI:2.16–6.57)] and perceived compassionate and respectful care were significantly associated with institutional delivery, whereas recent antenatal care utilization [AOR=5.34(95%CI:1.96–8.65)], planned current pregnancy and knowledge of danger signs [AOR=2.93(95%CI:1.59–5.41)] were found to be significantly associated with postnatal care utilization.

Conclusion: Overall, the prevalence of maternal healthcare services utilization was far below the national and regional targets in the study area. Therefore, considering the identified associated factors and providing information and training on these issues to the community could improve and sustain maternal healthcare services utilization.

Keywords: liben district; maternal healthcare service utilization; antenatal care; institutional delivery; postnatal care

Introduction

Every year, an estimated 289,000 women die during pregnancy and, childbirth, or soon after worldwide, 2.6 million women suffer stillbirths and 2.9 million infants die in the first month of life. Developing countries account for 99% of global maternal deaths. Sub-Saharan Africa alone accounts for 62% of the global burden of maternal death. In less developed countries, poor women in remote areas are least likely to receive adequate maternal healthcare services. Although most maternal deaths are avoidable, African women face unequal risks of death or disability due to pregnancy and childbearing simply

because of where they live [1-4]. The large number of maternal deaths that occur during labor, delivery, and in the first couple of days after childbirth, specifically in low and middle-income countries, is due to the low level of maternal healthcare service utilization. Proper care during pregnancy and delivery is important for the health of both the mother and baby. The provision of skilled care during pregnancy, childbirth, and the postpartum period, preferably at a healthcare facility, is vital. For optimum safety, every woman, without exception, needs professional skilled care when giving birth in an appropriate environment that

is close to where she lives and respects her birthing culture [4-6].

The low utilization of maternal healthcare services is a great challenge in most low-resource settings, and Ethiopia is no exception. Despite the government's commitment to delivering healthcare facilities to the doorsteps of the common people through the Health Extension Service Package (HESP), the country has faced challenges in increasing utilization of good quality maternal healthcare services. Healthcare services and facilities are inadequate and poorly equipped in remote pastoral areas of Ethiopia. The few existing health centers are not adequately equipped with basic medicaments, equipment, and supplies [7-9]. A previous study clearly demonstrated that utilization of available maternal healthcare services is also very low in Brazil. According to a recent mini-Ethiopia Demographic Health Survey (EDHS) 2019 report, 70% of rural women received at least one antenatal care (ANC) visit from a skilled provider, including health extension workers. Only 40% and 29% of rural women delivered at health facilities and received early postnatal care, respectively [10]. In general, the utilization of maternal healthcare services is a complex behavioral phenomenon influenced by several factors at both individual and community levels. Therefore, to improve maternal and child health, barriers limiting the utilization of maternal healthcare services must be identified and addressed at all levels of the healthcare system. Thus, the purpose of this study was to understand the current status of the utilization of maternal health care services by elucidating the various factors influencing the use of these services in the study area.

Methods

Study setting, design and population

A community-based, cross-sectional study was conducted among childbearing women who had given birth in the 12 months prior to the survey of residents of Liben district, Guji Zone, southern Ethiopia. The total population of the district is 191,494 people, of whom 95,195 are women. The estimated total number of women of reproductive age in the district is 19,990. Six health centers and 16 health posts are available in the district. This study was conducted from 15 to 23 September 2020.

Sample size and sampling technique

The required sample size of eligible mothers was determined using a single-population proportion formula. The following assumptions were made: the proportion of institutional delivery in the rural community of Oromia region, according to the mini-EDHS-2019 report, was 40% [10], with a 95% confidence level, a 5% margin of error, and an expected 10% non-response rate. The final sample size was calculated to be 416. The participants were selected using the following steps: first, six rural kebeles (the smallest administrative unit) were selected from the 16 kebeles in the district using a simple random sampling technique. The census was carried out in the selected kebeles to identify mothers who had given birth in the year prior to the survey. The proportional distribution of the sample size for each selected kebele was determined. Finally, mothers were selected using a systematic random sampling method.

Inclusion and exclusion criteria

Women who had given birth in the last 12 months and had been residents of the Liben district for at least six months were included. Mothers who were critically ill and unable to respond to interview were excluded.

Operational definition

Maternal healthcare services include antenatal, delivery, and postnatal care services.

Antenatal care: refers to care received from healthcare professionals at least once during pregnancy.

Institutional delivery refers to childbirth either in public or private healthcare facilities attended by skilled attendants such as midwives, nurses, doctors, and health officers.

Postnatal care refers to care given to mothers after childbirth by healthcare professionals in the first 48 hours after delivery at a health facility.

Data collection tool and method

Quantitative data were collected using a structured and semi-structured questionnaire. The questionnaire was based on a review of relevant previous studies and literature. Face-to-face interviews were conducted at respondents' homes. The main contents of the tool included socio-demographic characteristics, maternal obstetric characteristics, health facility-related factors, and maternal healthcare service utilization.

Data management and quality

After extensive revision, the final version of the English questionnaire was translated into the local language and then back into English for consistency. Then, the tool was pretested on 5% of a similar population in Hare-kello town, 25km from the actual study setting. Six diploma nurses who were fluent in speaking local languages were involved in data collection. Two BSc healthcare professionals were recruited as supervisors. All data collectors and supervisors were trained for two days during the data-collection process, based on the guide developed by the principal investigator. The principal investigators and supervisors monitored each activity closely and provided further clarification and support to the data collectors. The data were checked daily for missing information and inappropriate responses. Then, the data were cleaned and entered into Epi Data version 4.1 and analyzed using SPSS version 20.

Statistical analysis

Summary statistics of means and percentages were used to describe the study population. Bivariate and multivariate logistic regression analyses were performed to identify associations between independent and outcome variables. Variables with a p-value of ≤ 0.25 on bi-variable regression analysis were further entered into the multivariable binary logistic regression model to control for possible confounding

variables. The Hosmer–Lemes how test was used, and the model adequately fit the data at a p-value of >0.05 . Multi-collinearity between the independent variables was assessed using a variance inflation factor of <10 . Crude and adjusted odds ratios with 95% CI were used to determine the strength of association between the outcome variables and independent variables. Statistical significance was set at $p \leq 0.05$.

Results

Socio-demographic characteristics

A total of 416 women of reproductive age who had given birth in the year prior to the survey were interviewed, with a response rate 100%. Of these respondents, 261 (63%) were aged 20–34 years, with a mean ($\pm$ SD) age of 26.5($\pm$ 6.5) years. Of study participants, 399(96%) were married. The dominant ethnic group was Oromo, which accounted for 84% of total respondents; 60% were Wake-feta (the indigenous religion of Oromo people) and 32% were Muslim. More than two-thirds (78%) had never attended school and most (85%) were housewives. Regarding decision-making regarding maternal healthcare service utilization, the majority (61%) reported that such decisions were made jointly by husband and wife (Table 1).

Table 1: Socio-demographic Characteristics of the Study Participants in Liben District, Southern Ethiopia, September, 2020 (n=416).

Socio-demographic characteristics		Frequency	Percentage
Age of respondents	15 – 19 years	91	22
	20 – 34 years	261	63
	35- 49 years	64	15
Marriage Status	Currently Married	399	96
	Divorced & widowed	17	4
Religion	Wake-Feta	250	60
	Muslim	134	32
	Christian	32	8
Ethnicity	Oromo	322	83.7
	Somali	89	21
	Others	5	1.3
Women Education	No Education	330	78
	Primary & above	86	22
Husband education	No Education	270	65
	Primary& above	146	35
Women occupation	House Wife	352	84.6
	Merchant	35	8.4
	Civil Servant	17	5.1
	Students	12	2.9

	Poor	152	37.6
Family wealth index	Medium	133	32
	Rich	131	31.4
Family size	1-3	29	7
	4- 5	128	31
	6 & above	259	62
Decision maker for MHSU	Women alone	60	14
	Husband alone	101	25
	Jointly husband & wife	255	61
Travel time to health facility	< 1hour	210	51
	≥1hour	206	49
Access to emergency ambulance	Yes	142	34
	No	274	66

Table 2: Obstetric Characteristic of the Study Participants, Liben District, Southern Ethiopia, September, 2020, (n=416).

Variable	Frequency		Percentage (%)
Age at first pregnancy	≥18 Years	167	40
	19-24 Years	216	52
	≥25 Years	33	8
Gravidity	1	56	13
	2-4	149	36
	≥5	211	51
Stillbirth history	Yes	15	3.6
	No	401	96.4
Abortion history	Yes	11	2.6
	No	405	97.4
Planned current pregnancy	Yes	244	59
	No	172	41
Attended ANC in last pregnancy	Yes	249	60
	No	167	40
Frequency of antenatal care (n=249)	< 4 Visits	139	56
	≥4 Visits	110	44
First ANC Visit (n=249)	Before 16 Weeks	61	25
	16- 36 Weeks	178	69
	After 36 Weeks	10	4
Place of last delivery	Home	328	78.8
	Health Facility	88	21.2
Utilized Postnatal care with 48 hrs	Yes	73	17.5
	No	343	82.5
Know at least one danger signs	Yes	163	39
	No	253	61
Experienced severe illness in last pregnancy	Yes	105	25
	No	311	75
Felt Clients Privacy is maintained at HF	Yes	183	44
	No	233	56
Is working time of HF is convenient	Yes	331	80
	No	85	20
Felt Compassionate and respectful health care at HF	Yes	219	53
	No	197	47

Main reason for last home delivery (328)	Long Distance Of HF	156	47
	Wish To Deliver with Family	58	18
	Prefer TBAs	46	14
	Not Trust HF	39	12
	Others	29	9

Obstetric characteristics of respondents

Regarding obstetric history, 167 respondents (40%) became pregnant for the first time before the age of 19. Almost half (51%) had had five or more pregnancies. Fifteen women (3.6%) had experienced a stillbirth. For 244 respondents (59%), their most recent pregnancy was planned and intentional (Table 2).

Maternal healthcare services utilization

Of all respondents included in the study, 249(60%) had received at least one ANC service during their last pregnancy. Of these, 138 (55%) had received the service from health extension workers at healthcare clinics. Nearly 25% of the women made their first antenatal visit during the first 16 weeks of pregnancy. Among the ANC service users, 56% had made fewer than four antenatal visits (Table 2). Women cited different reasons for not attending ANC in their recent pregnancies. Little or no knowledge, a feeling

of healthiness, a long distance from home to healthcare facilities, work overload at home, and long waiting times for services at healthcare facilities were the major reasons reported for not attending ANC services (Figure 1). Among respondents, only 88(21.2%) were delivered of their baby at a healthcare center/hospital with the assistance of skilled healthcare workers. The majority (78.8%) delivered at home with the assistance of a traditional birth attendant (TBA) and relatives. Women cited different reasons for wanting to deliver at home, such as long distance to healthcare facilities, wish to deliver in the presence of family, preferring TBAs, and not trusting healthcare facilities (Table 2). Regarding postnatal care service utilization, only 73(17.5%) of respondents received postnatal care services within 48 hours of delivery at a healthcare facility (Table 2). ANC: antenatal care, PNC: postnatal care, HF: Health facility. (Figure.1).

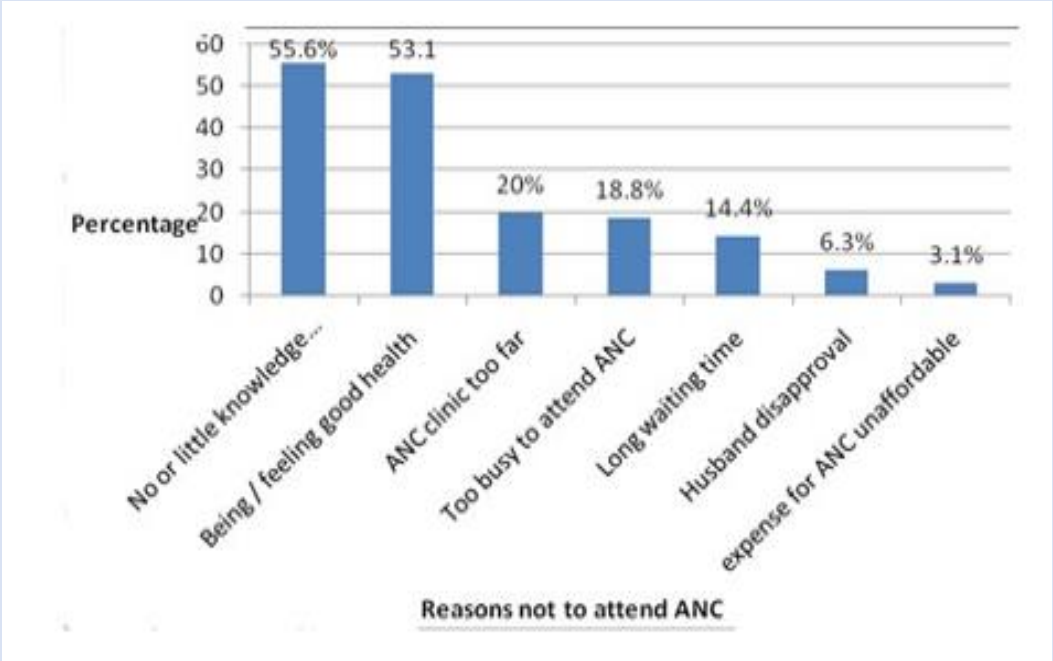


Figure 1: Reasons cited by the study participants for not attending ANC services, Liben district, Southern Ethiopia, September, 2020.

Table 2: Obstetric Characteristic of the Study Participants, Liben District, Southern Ethiopia, September, 2020, (n=416).

Variable	Frequency		Percentage (%)
Age at first pregnancy	>18 Years	167	40
	19-24 Years	216	52
	>25 Years	33	8
Gravidity	1	56	13
	02-Apr	149	36
Stillbirth history	>5	211	51
	Yes	15	3.6
	No	401	96.4
Abortion history	Yes	11	2.6
	No	405	97.4
Planned current pregnancy	Yes	244	59
	No	172	41
Attended ANC in last pregnancy	Yes	249	60
	No	167	40
Frequency of antenatal care (n=249)	< 4 Visits	139	56
	>4 Visits	110	44
First ANC Visit (n=249)	Before 16 Weeks	61	25
	16- 36 Weeks	178	69
	After 36 Weeks	10	4
Place of last delivery	Home	328	78.8
	Health Facility	88	21.2
Utilized Postnatal care with 48 hrs	Yes	73	17.5
	No	343	82.5
Know at least one danger signs	Yes	163	39
	No	253	61
Experienced severe illness in last pregnancy	Yes	105	25
	No	311	75
Felt Clients Privacy is maintained at HF	Yes	183	44
	No	233	56
Is working time of HF is convenient	Yes	331	80
	No	85	20
Felt Compassionate and respectful health care at HF	Yes	219	53
	No	197	47
Main reason For last home delivery (328)	Long Distance Of HF	156	47
	Wish To Deliver With Family	58	18
	Prefer TBAs	46	14
	Not Trust HF	39	12
	Others	29	9

Factors Associated with Maternal Healthcare Services Utilization

According to the multivariate logistic regression analysis, maternal education, decision-making power regarding maternal healthcare service utilization, perceived compassionate and respectful care at healthcare facilities, and planned current pregnancy were significantly associated with the utilization of

ANC. Mothers who had completed primary and above education were 3.7 times more likely to utilize ANC services when compared to women with no education (AOR=3.69; 95% CI: 2.05, 6.62). Mothers who could decide on maternal healthcare services utilization with their husband were 2.4 times more likely to attend ANC visits than women who could not (AOR=2.4; 95%CI: 1.32, 3.34). Furthermore, women who perceived no compassionate and

respectful care at healthcare facilities were 70% less likely to utilize ANC services than women who perceived compassionate and respectful care (AOR=0.30; 95% CI: 0.18, 0.50). Respondents who

had unplanned current pregnancies were 68% less likely to utilize ANC services when compared those who had planned their pregnancies (AOR=0.78; 95% CI: 0.12, 0.37) (Table 3).

Table 3: Bi-variable and Multivariable Analysis Results of Maternal Healthcare Service Utilization and its Associated Factors among Childbearing Age of Women in Liben District, September, 2020.

Factors Associated with ANC Utilization					
		Antenatal Care Utilized		COR & 95% CI	AOR & 95% CI
		Yes (n=249)	No n=167)		
Mother Education	No education	179	151	1.00+	1.00+
	Primary& above	70	16	3.69[2.05,6.62]*	2.43[1.21,4.89]*
Decision maker for MHSU	Women alone	47	13	5.07[2.44,5.54]*	4.91[1.93,6.56]*
	Both Partners	160	95	2.36[1.47,3.78]*	2.40[1.32,3.34]*
Planned current pregnancy	Husband alone	42	59	1.00+	1.00+
	Yes	184	60	1.00+	1.00+
Compassionate & Respectful care	No	65	107	0.19[0.13,0.30]*	0.22[0.12,0.37]*
	Yes	168	51	1.00+	1.00+
	No	81	116	0.21[0.14,0.32]*	0.30[0.18,0.50]*
Factors Associated with Institutional Delivery					
		Institutional Delivery		COR & 95% CI	AOR & 95% CI
		Yes (n=88)	No (n=328)		
Maternal age	15 – 19 years	35	56	3.01[1.38,6.53] *	3.73[1.53,6.04]*
	20 – 34 years	42	219	0.92[0.44,1.91]	0.88[0.39,1.98]
	35- 49 years	11	53	1.00+	1.00+
Travel time to HF	<1hr	55	155	1.86[1.14,3.01]*	1.74[1.02,3.08] *
	≥1hrs	33	173	1.00+	1.00+
Compassionate & Respectful care	Yes	67	152	3.69[2.16,6.11] *	2.93[1.58,4.40] *
	No	21	176	1.00+	1.00+
Knowledge of danger signs	Yes	60	103	4.68[2.82,7.12] *	3.77[2.16,6.57] *
	No	28	225	1.00+	1.00+
Factors Associated with Early PNC Utilization					
		Postnatal Care Utilized		COR & 95% CI	AOR & 95% CI
		Yes(n=73)	No(n=343)		
Recent ANC utilization	Yes	68	181	12.1[3.51,19.6]*	5.34[1.96,8.65]*
	No	5	162	1.00+	1.00+
Planned current pregnancy	Yes	56	188	2.71[1.51,4.86]*	2.19[1.07,4.41]*
	No	17	155	1.00+	1.00+
knowledge of danger signs	Yes	52	111	5.17[2.97,6.01]*	2.93[1.59,5.41]*
	No	21	232	1.00+	1.00+

COR, crude odds ratio; AOR: Adjusted odds ratio; CI, confidence interval; MHSU, maternal healthcare service utilization; HF, health facility. *Significant at p-value < 0.05, 1.00+ Reference category.

The likelihood of delivering at a healthcare institution (health center and hospital) was 3.7 times more likely for mothers aged between 15–19 years than for those aged between 35–49 years (AOR=3.73;95% CI: 1.53,6.04). Regarding time to travel to a healthcare facility, mothers who could reach one within an hour were 1.74 times more likely to deliver there (a healthcare center or hospital) compared to those who live further away (AOR=1.74;95% CI: 1.02,3.08).

Additionally, mothers who recognized at least one danger sign in pregnancy were 3.7 times more likely to deliver at a healthcare facility (healthcare center or hospital) compared to those who did not (AOR=3.77;95% CI: 2.16,6.57). Regarding early postnatal care utilization, attending antenatal services in recent pregnancy, planned pregnancy, and knowledge of danger signs in pregnancy were variables that showed an association with postnatal care

utilization. Accordingly, those mothers who had attended an ANC visit in their last pregnancy were 5.3 times more likely to utilize early postnatal care services than those who had not (AOR=5.34; 95% CI: 1.96, 8.65). The likelihood of utilizing early postnatal care services was 2.2 times more likely for mothers who had planned their pregnancy than for those who had not (AOR=2.19; 95% CI: 1.07, 4.41).

Discussion

This study aimed to assess the level of maternal healthcare service utilization and its associated factors in Liben district, Oromia region, Southern Ethiopia. Evidence from the present study found that utilization of ANC was 60%. This finding is in agreement with a study conducted in Womberma district (64%) [13]. In contrast to the present findings, a study conducted in Enderta district (70%) and Kombolcha district (86%) reported higher utilization of ANC [11,20]. In this study, utilization of institutional delivery care was 21.2%. The majority of women (78.8%) delivered at home with the assistance of TBAs and relatives. This finding is consistent with the study conducted in rural Kombolcha (20.9%) [20]; however, this percentage is lower than the findings of studies conducted in Enderta district (38%), Holeta (61%), and Goba (47%) [11,16, 24]. The study also revealed that utilization of early PNC was very low (17.5%). This finding is in agreement with that of a study conducted in the rural Jabitena district (20%) [22]. However, it is lower when compared to similar community-based studies conducted in Enderta district [11] and Hossana town [17], where 47% and 51% of women received early PNC, respectively. In general, this discrepancy could be due to the time gap between these studies, variation in study settings, and socio-demographic characteristics of the study area. Moreover, this study was conducted in a rural pastoralist district, where women's education and decision-making power could be major predictors of maternal healthcare service utilization. The number of healthcare facilities in most rural communities is limited and uneven. This study revealed that maternal healthcare service utilization is associated with socio-demographic characteristics such as maternal education and age. The odds of ANC utilization were 2.4 times higher in women who had completed primary education and above than in those who had no formal education.

Furthermore, mothers aged 15–19 years were 3.7 times more likely to utilize institutional delivery than mothers between 35–49 years of age. This finding is consistent with previous studies conducted in Enderta, South Omo, and Tigre regions [11, 12, 19]. Furthermore, mothers who could make decisions alone or jointly with their husbands were more likely to utilize ANC than those whose husbands made decisions alone. This result is consistent with studies conducted in Enderta district and Holeta town [11,16]. A possible explanation for this might be that women's education is a crucial factor in both economic self-sufficiency and ability to make decisions regarding maternal healthcare services, which in turn improves their knowledge of fundamental healthcare services and promotes health-seeking behaviors. We found that women with planned pregnancies were more likely to utilize ANC and PNC, presumably because they were more concerned about their pregnancy and the child's welfare than those whose pregnancy was not planned. This finding is consistent with those from studies conducted in Wombera, Debre Tabor town and Abuna-Gindeberet [13,14,23].

This study also showed that the odds of ANC utilization and delivery in a healthcare facility were higher in mothers who perceived compassionate and respectful care provided by health workers than in those who did not. These results are consistent with those in Kombolcha and Ambo districts [20, 25]. This implies that the attitude of healthcare providers towards women's healthcare has a major influence on women's decision to use or not use a particular type of maternal healthcare service. In this study, knowledge of obstetric danger signs was a strong predictor of institutional delivery and PNC use. Mothers who were knowledgeable about at least one obstetric danger sign were more likely to use institutional delivery and PNC services than those who did not spontaneously mention any obstetric danger signs. This finding is in agreement with studies conducted in rural Jabitena district [22]. This can be explained by the fact that awareness of obstetric danger signs is an important factor in motivating women and their families to attend healthcare services at the earliest opportunity, with the intention of prevention, early detection, and management of obstetric danger signs. The current study revealed that mothers who could reach the health facility within one hour were 1.74 times more likely to utilize

institutional delivery. This finding is in line with that of a study by Enderta and Butajira [11,21]. Women in labor have less time to reach a hospital than those seeking ANC. Moreover, increased distance from health facilities may be associated with a lack of public transportation and transportation costs. Another significant result of the current study revealed that recent ANC utilization increases utilization of PNC, which is similar to the findings in Hossana, Holeta town and Ambo district [16, 17, 25]. This finding implies that ANC is a key entry point for other maternal healthcare services. Women who attend antenatal care services are provided with full information about necessary pregnancy follow-up, as well as the advantages of institutional delivery and early postnatal care. However, none of the mothers who had received antenatal care visits used PNC.

Strengths and limitations of the study

As the data collection method was interviewer-administered, it contributed to the accuracy of the data collected by explaining unclear points to the respondents. Only the quantitative data collection method was used, and qualitative data collection methods were not triangulated. Therefore, researchers interested in this topic are advised to include qualitative methods.

Conclusion

The overall utilization of maternal healthcare services was far below the targeted health sector growth and transformation plans in the study area. The low utilization of maternal healthcare services in the study area indicates that much work remains to be done to improve women's health. The study also demonstrated that maternal education, decision-making power, perceived compassionate and respectful care, and current planned pregnancy were significantly associated with ANC utilization. Mothers' age, time to travel to health facilities, knowledge of danger signs, and perceived compassionate and respectful care were associated with institutional delivery, whereas recent antenatal care utilization, planned current pregnancy, and knowledge of danger signs were significantly associated with PNC utilization. Therefore, considering these identified associated factors and providing information and training on these issues to the community could improve and sustain maternal healthcare service utilization.

Declaration

Ethical considerations

Ethical clearance and approval were obtained from the Ethical Committee of Research and Community Service of the Educational Development Center (EDC) of the Negele Health Science College. Permission was obtained from the district health office. Oral informed consent was obtained from all participants. Confidentiality and anonymity were ensured. The participants were informed that their participation was voluntary.

Author contributions

MD conceived and designed the study MD and SM analyzed the data and interpreted the results. MD prepared the manuscript and assisted with analysis. MD and SM critically reviewed the manuscript. Both authors contributed to the data analysis, drafting, and revision of the article, approved the final version to be published, and agreed to be accountable for all aspects of the work. AG project manager, and corresponding author

Conflicting of interests

The authors declare no potential conflicts of interest with respect to the research, authorship, or publication of this article.

Ethical approval and consent to participate

Ethical clearance and approval were obtained from the Ethical Committee of the Research and Community Service of the Educational Development Center (EDC) of the Negele Health Science College. Permission was obtained from the district health office. Oral informed consent was obtained from all participants. Confidentiality and anonymity were ensured. The participants were informed that their participation was voluntary.

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Informed consent

Verbal informed consent was obtained from all subjects before the study, and written informed consent was obtained from legally authorized representatives before the study.

Availability of data and materials

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

Supplemental material

Supplemental material for this article is available online.

References

1. World Health organization (WHO). (2016). Maternal, Child and Adolescent Health Care, WHO, Geneva. Switzerland.
2. World Health Organization (WHO). (2015). Trends in Maternal Mortality: 1990 to 2015, World Health Organization, Geneva. Switzerland.
3. WHO. (2009). Monitoring Emergency Obstetric Care: A Handbook, WHO, UNICEF, UNFPA and AMDD: World Health Organization.
4. world health Organization [WHO]. (2018). Maternal Mortality Factsheet, 2018, Geneva.
5. Graham WJ, Ahmed S, Stanton C, Abou-Zahr CL, Campbell OMR. (2008). Measuring maternal mortality: An overview of opportunities, and options for developing countries. *BMC Medicine*, 6(1).
6. Nair M, Ariana P, Webster P. (2015). Influences The Decision To Undergo Institutional Delivery By Skilled Birth Attendants In Rural Andhra Pradesh, India. *Internatinal Electron J Rural Remote Heal*, 1-11.
7. Olayinka A, Joel A, Bukola D. (2012). Factors influencing utilization of antenatal care services among pregnant women in Ife Central Lga. *Osun State Nigeria National Hospital Abuja*, 3(3):1309-1315.
8. Fikre and Demissie. (2012). Prevalence of institutional delivery and associated factors in Dodota Woreda, Oromia regional state, Ethiopia. *Reproductive Health*, 9:33.
9. Central Statistical Agency (Ethiopia) and ICF International. (2012). Ethiopian Demographic and Health Survey: Addis Ababa. *Ethiopia, Calverton, Maryland and USA*.
10. Central Statistical Agency. (Ethiopia). (2019). Ethiopia Mini Demographic and Health Survey 2019. *Addis Ababa*.
11. Aregay A. (2014). Factors Associated with Maternal Health Care Services in Enderta District, Tigray, Northern Ethiopia: *Am J Nurs Sci*. 3(6):117.
12. Ergano K, Getachew M, Seyum D, Negash K. (2015). Determinants of Community Based Maternal Health Care Service Utilization in South Omo Pastoral Areas Of. *J Med Med Sci*, 3(2):112-121.
13. Mulat G, Kassaw T, Aychiluhim M. (2015). Antenatal Care Service Utilization and Its Associated Factors Among Mothers Who Gave Live Birth in The Past One Year in Womberma Woreda. *Ethiop J Heal Sci*, 1-10.
14. T. W. Ayalew and A. M. (2017). Nigatu, Focused antenatal care utilization and associated factors in Debre Tabor Town, northwest Ethiopia. *BMC Journal*, 11(1).
15. Nair M, Ariana P, Webster P. (2015). Influences The Decision to Undergo Institutional Delivery by Skilled Birth Attendants in Rural Andhra Pradesh, India. *International Electron J Rural Remote Heal*, 1-11.
16. Birmeta K, and et al. (2013). Determinants Of Maternal Health Care Utilization in Holeta Town, Central Ethiopia. *BMC Health Serv Res*, 13(256):1-10.
17. Dutamo Z, and et al. (2015). Maternal Health Care Use among Married Women in Hossaina. Ethiopia. *BMC Health Serv Res*, 1-9.
18. Biza N. (2016). Institutional Delivery Service Utilization among Pastoralists of Dubti District. *Sholar J Appl Med Sci*, 4:189-195
19. Gebrehiwot TG, and et al. (2015). The Health Extension Program and Its Association with Change in Utilization of Selected Maternal Health Services in Tigray Region. *A Segmented Linear Regression Analysis*, 1-15.
20. D. Z. Ayele, B. Belayihun, K. Teji, and D. (2014). Admassu Ayana, Factors affecting utilization of maternal health Care Services in Kombolcha District, eastern Hararghe zone, Oromia regional state, eastern Ethiopia. *International Scholarly Research Notices*.
21. S. D. Hagos, M. Assegid, A. Mekonen, M. A. (2016). Fantahun, and S. Ahmed, Utilization of institutional delivery service at Wukro and Butajera districts in the northern and South-Central Ethiopia. *BMC Pregnancy Childbirth*, 14:178.
22. Y. Gebeyehu and D. W. Hailu. (2014). Factors affecting utilization of postnatal care service in

- Jabitena district, Amhara region, Ethiopia, *Science Journal of Public Health*, 2:3169-176.
23. Birhanu Darega Gela, Nagasa Dida Bedada, Fikru Tafese Jaleta, Shimeles Ololo Sinkie. (2014). Antenatal Care Utilization and Associated Factors from Rural Health Extension Workers in Abuna Gindeberet District, West Shewa, Oromiya Region, Ethiopia. *American Journal of Health Research*, 2(4):113-117.
24. Daniel Bogale Odo, Desalegn Markos Shifti. (2014). Institutional Delivery Service Utilization and Associated Factors among Child Bearing Age Women in Goba Woreda, Ethiopia. *Journal of Gynecology and Obstetrics*, 2(4):63-70.
25. Mulugeta Mengistu and et al. (2018). Maternal Health Service Utilization and Associated Factors among Mothers with Children under one Year in Ambo District, West Shoa Zone. *Central Ethiopia*.
26. S. Weldemariam, A. Kiros, and M. Welday. (2018). Utilization of institutional delivery service and associated factors among mothers in North West Ethiopian. *BMC Research Notes*, 11:194.

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