The Levels of utilization of reproductive, maternal and neonatal health services among women from pastoralist communities in Afar, Ethiopia: across-sectional survey

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Abstract

Background: Good-quality reproductive, maternal and neonatal health services, as well as their uptake, are key to preventing complications during pregnancy, in childbirth, and after a child is born. However, the uptake of reproductive, maternal and neonatal health services in the Afar region of Ethiopia is low.

Objective: The aim of this study to assess the extent to which reproductive, maternal and neonatal services are used by Afar women in pastoralist communities in Ethiopia, and to examine the reasons for the low uptake of these services.

Methods: A community-based cross-sectional study was conducted among 1,978 mothers with children up to the age of 24 months. Multistage sampling was employed to recruit the study participants. Multivariate logistic regression analysis was used to identify the effect of independent predictors on the utilization of reproductive, maternal and neonatal health services.

Results: The number of women who had four or more antenatal care visits, who had institutional deliveries, who had postnatal visits within seven days of giving birth, and who currently use family planning was 443(22.4%), 322(16.7%), 61(3.1%) and 107(5.4%), respectively. About one third of the women, 686 (34.7%),made good use of reproductive, maternal and neonatal health services. The incidence of using reproductive, maternal and neonatal health services was 2.8 times (AOR = 2.8; 95%CI: 2.0, 3.9) higher among educated women. Women with non-pastoralist husbands and women who could walk from their homes to the health facility within 30 minutes were 2.1 times (AOR = 2.1; 95% CI: 1.6, 2.9) and 2.6 times (AOR = 2.6; 95% CI: 2.1, 3.3), respectively, more likely to use the services than their counterparts.

Conclusions: The overall use of reproductive, maternal and neonatal health services was low. Lack of awareness about the importance of using reproductive, maternal and neonatal health services was deeply rooted in the study participants and largely accounts for the low coverage. Reproductive, maternal and neonatal health utilization was not uniform across all zones of the region, and varied depending on the educational status of women, husband's occupation and distance from the health facility. To increase the use of reproductive, maternal and neonatal health services, suggested measures include empowering women, sharing good experience and devising context-based community-based intervention. [*Ethiop. J. Health Dev.*2018;32(Special Issue):34-42]

Keywords: Reproductive, maternal and neonatal health, pastoralist, Afar, Ethiopia

Background

According to the Ethiopia Demographic and Health Survey (EDHS) 2016, the maternal mortality ratio (MMR) in Ethiopia is 412/100,000 live births, indicating that considerable numbers of Ethiopian women die as a result of complications during pregnancy and following childbirth (1).Most of these complications can be prevented by good-quality reproductive, maternal, and neonatal health (RMNH) services (2, 3). Unfortunately, women from pastoralist communities are disproportionately affected by complications during pregnancy and following childbirth. Moreover, access to and the use of RMNH services is remarkably low among women from pastoralist regions in Ethiopia, compared to women in agrarian regions of the country (4).

Based on EDHS 2016, the uptake by women of family planning (FP), four or more antenatal care (ANC) visits, institutional delivery (ID) and postnatal care (PNC) services is 11.6%, 20.6%, 14.7% and 11.6%, respectively (1).In addition, the total fertility rate (TFR) of women in the pastoralist communities of Afar is 5.5, which is above the national average of 4.6 (1). In addition to the low use of RMNH services (1), the region is characterized by food insecurity (5),negative attitudes of husbands to RMNH service utilization, a low level of education among women, risk of complications attributed to pregnancy (7, 8),low decision-making power of women, and harmful traditional practices such as female genital mutilation (9, 10). These factors could pose considerable challenges to efforts to improve the uptake of RMNH services in the pastoralist communities of Afar (11).

The World Health Organization (WHO) indicates that the socio-cultural barriers to the use of RMNH services are poverty, distance, lack of information, inadequate services, and cultural practices (2, 3). However, there is a paucity of adequate information on the socio-cultural barriers to RMNH service utilization among women in the pastoralist communities of Afar region. Accordingly, this study was conducted to assess the extent to which reproductive, maternal and neonatal services are used by Afar women in pastoralist communities in Ethiopia, and to examine the reasons for the low uptake of these services

Methods and materials

Study design: A community-based cross-sectional study was used to assess RMNH service utilization among pastoralist women in Afar region.

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Study population: Women of reproductive age (15-49 years) who had children under the age of 24 months were the study population. Women who were critically ill during the data collection were excluded.

Setting: Afar is one of the nine regional states in Ethiopia, with a total surface area of 97,256km^2. It extends from Eritrea and Tigray in the north to Oromia regional state in the south, and is bounded on the east by Djibouti and by Amhara regional state in the west. It is classified as a'desert and semi-desert' agro-ecological zone. The region is divided into five zones, 32 districts, five town administrations and 404 kebeles (sub districts), and has an estimated population of 1,816,304, 44% of whom (799,174)are women. Eighty-seven percent of the population is estimated to be rural and about 85% are pastoralists or agro-pastoralists. The majority religion of both pastoralists and agro-pastoralists is Islam (11).The pastoralist communities are characterized by clan-based and patriarchal ways of life, indicating that women are disfavored and have low decision-making power, which ultimately has an influence on the uptake of RMNH services. According to the Afar Health Bureau report, the region has one regional hospital, six zonal hospitals, 78 health centers and 379 health posts (12).

Sample size and sampling procedure: The sample size, using a double proportion formula, was calculated with assumptions on the proportion of women who gave birth at health care facility in Afar region (6.8%) (13);a confidence level of 95%; a 5% degree of precision; 80% power of a test: ratio of exposed to unexposed of 1:1; the use of RMNH services being two times higher among., educated women than non-educated; and a design effect of 2. Adding a 10% non-response rate, the total sample size was 1,978.

Multi-stage sampling was used to select the study subjects. In the first stage, two districts were randomly selected from each zone. As a result, those selected were Ada'ar and Chifra from zone 1, Megalle and Erebti from zone 2, Dulecha and Gele'alo from zone 3, Yaloand Gulina from zone 4, and Dalifage and Simurobi from zone 5. In the second stage, five kebeles were randomly selected from each of the ten 10 districts. A total of 40 households with women who have children under the age of 24 months were selected from each kebele, using systematic random sampling. A spinning technique was used to select the households included in the study. If a woman did not satisfy the inclusion criteria, the next household was considered.

Data collection procedures and data quality control: The quantitative questionnaire was adapted from the EDHS 2011 tool (13). The preliminary findings from a qualitative study were used to design and incorporate context-specific questions in the questionnaire. The questionnaire contained information on socio-demographic and economic characteristics, reproductive history, ANC, childbirth services, PNC and FP. It was initially prepared in English and then, to ensure consistency, translated into Amharic and back translated to English. To check the plausibility of the tool, the length of time an interview would take and to ensure the questions would be understood by interviewees, a test was carried out on 5% (98) of study participants who reside outside the selected district to avoid contamination of information. Face-to-face interviews were employed to collect information from the study subjects. Ten experienced nurses with diplomas and degrees were recruited as data collectors. Six health professionals with BSc degrees were assigned as supervisors to control the overall activity of the data collection procedure. Training was given to the data collectors and supervisors for two consecutive days. Silent, comfortable locations and convenient times were selected and arranged to conduct the interviews. The purpose and importance of the study were explained to study participants, and they were encouraged to give honest answers to the questions. Completed questionnaires were checked daily by supervisors deployed with the data collectors. Households that submitted incomplete questionnaires were revisited so that the questionnaires could be completed. Epi Data version 3.1 software was used to enter the data.

Measurement of variables: RMNH service utilization was measured by four indicators: four or more ANC visits; institutional delivery (ID); PNC visit within seven days of giving birth; and current use of FP. Good utilization of RMNH services was ascribed to women who used any one of the above services. Poor RMNH service utilization was applied to women who had one, two or three ANC visits; had delivered their last child at home; had PNC visitsafter seven or more days of giving birth; orwere not current users of FP. Based on the response of women the perceived distance from home to a nearby health facility was collected. Accordingly, the distance to health facility from home, was classifiedas either' no health facility in the kebele'(no presence of health facility at their catchment kebele), 'close to health facility' or 'far from health facility'.

Data analysis: Data were entered into Epi Data version 3.1 and cleaned, exported and analyzed using SPSS version 20. Descriptive analysis was used to report frequencies and percentages. Bivariate logistic regression analysis was used to select candidate variables for multi-variable logistic regression models. Those variables found significant at a p-value of less than 0.2 were analyzed for their relative effect using the final multivariable logistic regression model. The effect sizes of the samples were described using adjusted odds ratio (AOR) and 95% CI. A p-value less than 0.05 wereset to declare statistical significance. A test was done to checkcollinearityamong the independent variables.

Ethical clearance: The ethical review committee of Mekelle University, College of Health Sciences. Approved the study protocol, as well as the verbal consent form for the participants. Informed verbal consent was obtained from study participants after the

purposes of the study were explained to them. The right of the respondents to withdraw from the interview was assured. Data were coded anonymously.

Results

Socio-demographic and reproductive health characteristics of respondents: A total of 1,978 women participated in the study. The mean (sd) age of the study participants was 26.4 (±5.5) years. The mean (sd) age at first marriage, pregnancy and delivery was were 15.8(±1.2), 16.9(±1.8) and 17.7(±2.1), respectively. Islam, Afar and pastoralism were the dominant religion, ethnicity and occupation, respectively. Lack of formal education was the defining feature of the majority of women – 1,800(91%)– and husbands – 1,690(85.4%)(see Table 1).

Table 1: **Socio-demographic characteristics of women from pastoralist communities of Afar region, Ethiopia, 2016 (n = 1,978)**

Variables	Categories	N (%)
Zone	1	394 (19.1)
	2	406 (20.5)
	3	391 (19.8)
	4	403 (20.4)
	5	384 (19.4)
Age of mothers	15-19	145 (7.3)
	20-24	543 (27.5)
	25-29	630 (31.9)
	30-34	461 (23.3)
	35 and above	199 (10.1)
Marital status	Single/widowed/separated	57(3)
	Married	1,921 (97%)
Education of women	No education	1,800 (91)
	Primary	164 (8.3)
	Secondary and above	14 (0.7)
Husband's education	No education	1,690 (85.4)
	Primary	205(10.4)
	Secondary and above	83(4.2)
Husband's occupation (n = 1,921)	Pastoralist	1,675 (87.2)
	Others	246 (12.8)
Travel time (walking) to health facility	< 30 minutes	734 (37.6)
	30–60 minutes	360 (18.5)
	> 60 minutes	856 (43.9)
Household asset availability	Domestic animals	1,944 (98.3)
	Mobile phone	994 (50.3)
	Radio	296 (15)
Number of wives	One	1529(79.6)
	Two	325 (16.9)
	Three and above	67(3.5)
Want more children?	Yes	1,865 (94.3)
	No	81 (4.1)
	Not decided	32 (1.6)
History of abortion	Yes	470 (23.8)
	No	1,508 (76.2)
Number of induced/spontaneous abortions (n = 470)	One	312 (66.4)
	Two	110 (23.4)
	Three and above	48 (10.2)
Under age (< 18 years) reproductive history	First marriage	1,871 (94.7)
	First pregnancy	1,649 (83.4)
	First delivery	1,455 (73.6)

RMNH service utilization: One thousand five hundred and thirty-three (77.5%) women visited health care facilities during their last pregnancy. Only 443(22.4%), 322 (16.7%) and 461(23.3%) women had four or more ANC visits, gave their last birth at a health facility, and had PNC visits, respectively. The number of women who had used contraceptives at least once in the past totaled 150(9.3%).Those who currently use contraceptives totaled 107(5.5%).The overall RMNH service utilization was good for 686(34.7%) women and poor for 1,292(65.3%) women, respectively (see Table 2).

Table 2: **Use of RMNH services among women from the pastoralist communities of Afar region, Ethiopia, 2016 (n = 1,978)**

Variables	Categories	N (%)
Health facility visit during last pregnancy	No	445 (22.5)
	Yes	1,533 (77.5)
Number of ANC visits	0	531 (26.8)
	1–3	1,005 (50.8)
	4 and above	443 (22.4)
Health facilities visited	Health post	419 (27.3)
	Health center	1,057 (69)
	Government hospital	113 (7.4)
	NGO health facility	8 (0.5)
	Private health facility	12 (0.8)
Institutional delivery for the last birth	No	1,656 (83.7)
	Yes	322 (16.7)
Postnatal visit	No	1,517 (76.7)
	Yes	461 (23.3)
Timing of PNC (n = 461)	First PNC within 7 days	61 (3.1)
	Second PNC within 42 days	88 (5.5)
Health facility of PNC attendance	Health post	102 (22.2)
	Health center	312 (67.7)
	Hospital	46 (910)
Type of professional who provides the PNC services	HEW	39 (8.5)
	Nurse/midwives	187 (40.8)
	I do not know	237 (51.4)
Ever heard about FP	Heard about FP	1,614 (81.6)
	I do not know	364 (18.4)
Most common contraceptives known	Pill	1483(91.9)
	Injectable	1,563 (96.8)
	Implant	450(22.7)
Purpose of FP	Spacing birth	1,362 (84.4)
	Limiting birth	788 (48.8)
	Therapy	62 (3.8)
	Prevent STI/HIV/AIDS	162 (11.3)
FP utilization	Ever	150 (9.3)
	Current	107 (5.4)
Type of current contraceptive use by women (n= 108)	Pill	26 (24.1)
	Injectable	81 (75)
Overall RMNH service utilization	Good	686 (34.7)
	Poor	1,292 (65.3)
Number of prior experiences of RMNH service utilization	None	1,292 (65.3)
	One	487 (24.7)
	Two	150 (7.6)
	Three	44 (2.2)
	Four	3 (0.2)

Motivating factors for using RMNH services: The facilitators for having four or more ANC visits and ID were sickness, husband's approval and counselling from traditional birth attendants (TBAs). Knowledge about the benefits of the services and sickness were the main reasons for the uptake of PNC visits within the first seven days of giving birth and FP (see Table 3).

Barriers to using RMNH services: The most common barriers to women having four or more ANC visits were failure to provide food by the health facilities (349 women, 78.4%); long travel distance (230 women, 51.7%); and absence of health workers during the working hours of the health facilities (230 women, 51.7%). The main barriers to ID were healthy pregnancy (1,364 women, 82.4%); long travel distance (821 women, 49.6%); and lack of ambulance service (649 women, 39.2%). Moreover, healthy pregnancy (1,314 women, 86.6%), work overload at home (632 women, 41.7%) and lack of ambulance service (638, 42.1%) were found to be the most common barriers to PNC visits within the first seven days of giving birth. And the main barriers to the uptake of FP services were religious beliefs (1,446 women, 96%); opposition from husbands (816 women, 54.2%); and lack of awareness with regard to the benefits of FP (359 women, 23.8%) (see Table 4).

Table 3: **Motivating factors for using RMNH services among women from the pastoralist communities of Afar region, Ethiopia, 2016 (n = 1,978)**

Variables	4 or more ANC visits	Institutional delivery	PNC visit within 7 days	Currently use family planning
	N (%)	N (%)	N (%)	N (%)
I know its benefit	625 (31.6)	139 (43.3)	159 (34.5)	43 (39.8)
I felt sick	1,267 (82.6)	253 (78.8)	398 (86.3)	33 (30.6)
TBAs counsel me to go/use	571 (37.2)	182 (56.7)	98 (21.3)	3 (2.8)
Husband allows me to go/use	805 (52.5)	200 (62.3)	125 (27.1)	33 (30.6)
My religion supports me to go	112 (7.3)	29 (9)	18 (3.9)	-
My clan leader supports me to go	106 (6.9)	29 (9)	11 (2.4)	-
Family/peer influence makes me go	521 (34)	144 (44.9)	64 (13.9)	12 (11.1)
Health facility nearby	444 (29)	163 (50.8)	83 (18)	22 (20.4)
Living in a fixed/settlement area	221 (14.4)	74 (23.1)	33 (7.2)	5 (4.6)
Road infrastructure is good	328 (21.4)	114 (35.5)	81 (17.6)	19 (17.6)
Cost of transport is cheap	87 (5.7)	43 (13.4)	11 (2.4)	2 (1.9)
Service is free of charge	350 (22.8)	113 (35.2)	69 (15)	24 (22.2)
Presence of trained health professionals	191 (12.5)	104 (32.4)	53 (11.5)	23 (21.3)
Health professionals can speak Afarigna	176 (11.5)	54 (16.8)	32 (6.9)	14 (13)
Approach of the health professionals is good	278 (18.1)	66 (20.6)	26 (5.6)	18 (16.7)
Health professionals can be found at time of arrival	148 (9.7)	50 (15.6)	31 (6.7)	14 (13)
Health professionals keep our privacy	81 (5.3)	30 (9.3)	-	-
Health professionals provide me with counselling	482 (31.4)	122 (38)	-	26 (24.1)
Presence of female midwives	195 (12.7)	65 (20.2)	29 (6.3)	14 (13)
Having good past experience	70 (4.6)	10 (3.1)	6 (1.3)	-
Health facility always open	218 (14.2)	56 (17.4)	27 (5.9)	11 (10.2)
Health facility has maternity waiting home	127 (8.3)	46 (14.3)	21 (4.6)	-

Table 4: **Barriers to using RMNH services among women from the pastoralist communities of Afar region, Ethiopia, 2016 (n = 1,978)**

Variables	4 or more ANC visits	Institutional delivery	PNC visit within 7 days	Currently use family planning
	N (%)	N (%)	N (%)	N (%)
I did not feel sick	-	1,364 (82.4)	1,314 (86.6)	-
Health facility did not provide us with food and other support	349 (78.4)	29 (1.8)	179 (11.8)	-
Lack of awareness about its benefits	183 (41.1)	496 (30)	573 (37.8)	359 (23.8)
Negligence	-	268 (16.2)	245 (16.2)	-
Work overload at home	-	672 (40.6)	632 (41.7)	82 (5.4)
TBA did not allow me to go	37 (8.3)	149 (9)	172 (11.3)	-
Husband did not allow me to go/use	35 (7.9)	134 (8.1)	161 (10.6)	816 (54.2)
My religion did not support me to go/use	3 (0.7)	26 (1.6)	43 (2.8)	1,446 (96)
My clan leader did not support me to go/use	10 (2.2)	20 (1.6)	26 (1.7)	-
Long distance to health facility	230 (51.7)	821 (49.6)	-	-
Not living in a fixed/settlement area	112 (25.1)	387 (23.4)	285 (18.8)	55 (3.7)
Road infrastructure is poor	165 (37.1)	472 (28.5)	457 (30.1)	78 (5.2)
High cost of transport	144 (32.4)	418 (25.2)	347 (22.9)	46 (3.1)
Fear of service charge	107 (2.4)	334 (20.2)	247 (16.3)	49 (3.3)
Lack of support from husband	18 (4)	256 (15.5)	208 (13.7)	-
Absence of trained health professionals	22 (4.9)	649 (39.2)	99 (6.5)	-
Health professionals cannot speak Afarigna	24 (5.4)	116 (7)	101 (6.7)	-
Approach of the health professionals is not good	33 (7.4)	70 (4.2)	63 (4.2)	-
Health professionals cannot be found at time of arrival	230 (51.7)	118 (7.1)	176 (11.6)	-
No ambulance service	-	649 (39.2)	638 (42.1)	-
No health facility nearby	159 (35.7)	458 (27.7)	372 (24.5)	102 (6.8)
Don't want to have pelvic examination	81.8)	51 (3.1)	-	-
Absences of female midwives	32 (7.2)	207 (12.5)	255 (16.8)	-
Bad past experience	-	60 (3.6)	68 (4.5)	-
Not customary within our culture	9 (2)	293 (17.7)	87 (5.7)	-
Health facility did not allow for cultural ceremonies	-	29 (1.8)	-	-
No supplies of water, electricity and food in health facility	-	320 (19.3)	-	-
No maternity waiting home	-	220 (13.3)	-	-
Desire to have cultural ceremonies at home	-	75 (4.5)	55 (3.7)	-
Fear of infertility if family planning used	-	-	-	241 (16)

Possible solutions to enhance the use of RMNH services: The women proposed various solutions that would enhance their use of RMNH services. To improve ANC visits, 282 women (63.4%), 159 women (35.7%) and 139 women (31.2%) suggested building a health facility nearby, availing an ambulance service, and improving basic infrastructure (water, road, electricity), respectively. For ID, these same solutions were proposed by 850 women (51.3%) 854 women (51.6%), and 527 women (31.8%). To improve the number of PNC visits within seven days of giving birth, some women (626, 41.3%) suggested building a health facility nearby, 473 (31.2%) proposed making an ambulance service available, and497 (32.8%) advised teaching them about the importance of such visits. For FP, the women's proposed solutions to increasing the number of users were: husband should be trained about its importance (401 women, 44.6%), teaching women about its importance (329 women, 36.6%), and educating religious leaders(240 women, 26.7%) (see Table 5).

Table 5: **Possible factors for enhancing the use of RMNH services suggested by pastoralist women of Afar region, 2016 (n = 1,978)**

Variables	4 or more ANC visits	Institutional delivery	PNC visit within 7 days	Currently use family planning
	N (%)	N (%)	N (%)	N (%)
Teaching us about their importance	135 (30.3)	285 (17.2)	497 (32.8)	329 (36.6)
TBAs should be trained about their importance	18 (4)	55 (3.3)	159 (10.5)	112 (12.5)
Husbands should be trained about their importance	27 (6.1)	63 (3.8)	146 (9.6)	401 (44.6)
Religious leaders should be trained about their importance	19 (4.3)	43 (2.6)	121 (8)	240 (26.7)
Clan leader should be trained about their importance	18 (4)	42 (2.5)	133 (8.8)	123 (13.7)
Ambulance service should be available	159 (35.7)	854 (51.6)	473 (31.2)	-
Health facility should be built nearby	282 (63.4)	850 (51.3)	626 (41.3)	103 (11.4)
People should live in a fixed/settlement area	9 (2)	24 (1.4)	10 (0.7)	-
Basic infrastructure should be improved	139 (31.2)	527 (31.8)	324 (21.4)	-
The cost of transportation should be cheap	108 (24.3)	268 (16.2)	199 (13.1)	-
Service should be free of charge	59 (13.3)	151 (9.1)	149 (9.8)	40 (4.4)
Health professionals should be trained	88 (19.8)	202 (12.2)	165 (10.9)	-
Health professionals should be Afarigna speakers	11 (2.5)	45 (2.7)	34 (2.2)	-
Health professionals should have a good approach	8 (1.8)	33 (2)	24 (1.6)	-
Health professional must always be available at time of arrival	16 (3.6)	69 (4.2)	54 (3.6)	-
Health professional should keep our privacy	2 (0.4)	32 (1.9)	44 (2.9)	-
Health facility must be always open	29 (6.5)	52 (3.1)	96 (6.3)	-
Health facility must have maternity waiting home	6 (1.3)	287 (17.3)	626 (41.3)	-
Health facility should provide us with food and other support	16 (3.6)	749 (45.2)	-	-

Predictors of RMNH service utilization: After adjusting for other variables, the odds of RMNH service utilization were2.8 times (AOR 2.8; 95% CI:2.01, 3.95) higher among women who were able to read and write compared to those who were not able to read and write. Similarly, women residing in zones 1, 2 and 4 had 2.0 (AOR 2.0; 95% CI: 1.43, 2.85),2.3 (AOR 2.3; 95% CI: 1.69, 3.36) and 4.1(AOR 4.1; 95% CI: 2.93, 5.74) times higher odds, respectively, of RMNH service utilization, compared to women who resided in zone 5.Furthermore, 'husband's occupation' and 'distance to the nearest health facility' were significant predictors of RMNH service utilization. The odds of using RMNH services was2.1 (AOR 2.1; 95% CI:1.56, 2.85) times higher among women with husbands who had 'other' occupations, compared to those women with husbands who were pastoralists. The odds of RMNH service utilization were2.6 (AOR 2.6; 95% CI: 2.07, 3.32) and 1.9 (AOR 1.9; 95% CI: 1.44, 2.55) times higher among women living within a walking time of 30 and 30-60 minutes, respectively, from health facilities, compared to those living within a walking time of more than 60minutes (see Table 6).

Table 6: **Predictors of the use of RMNH services among women from the pastoralist communities of Afar region, Ethiopia, 2016 (n = 1,978)**

Variables	RMNH service utilization		COR (95%)	AOR (95%)
	Poor N (%)	Good N (%)		
Educational status of women				
Able to read and write	83 (43.9)	106 (56.1)	2.6 (1.96, 3.6)	2.8 (2.01, 3.95)
Not able to read and write	1,209 (67.6)	580 (32.4)	1	1
Husband's occupation				
Pastoralist	1,146 (68.4)	529 (31.6)	1	1
Other	106 (43.1)	140 (56.9)	2.8 (2.17, 3.75)	2.1 (1.56, 2.85)
Zone				
Zone 1	256 (65)	138 (35)	2.0 (1.46, 2.77)	2.0 (1.43, 2.85)
Zone 2	240 (59.1)	166 (40.9)	2.5 (1.88, 3.54)	2.3 (1.69, 3.36)
Zone 3	309 (79)	82 (21)	0.9 (0.70, 1.4)	0.8 (0.57, 1.21)
Zone 4	184 (45.7)	219 (54.3)	4.4 (3.25, 6.09)	4.1 (2.93, 5.74)
Zone 5	303 (78.9)	81 (21.1)	1	1
Travel time to health facility				
Less than 30 minutes	398 (54.2)	336 (45.8)	2.7 (2.23, 3.43)	2.6 (2.07, 3.32)
30–60 minutes	223 (61.9)	137 (38.1)	2.0 (1.54, 2.62)	1.9 (1.44, 2.55)
Greater than 60 minutes	656 (76.6)	200 (23.4)	1	1

Discussion

The uptake of RMNH services by women from the pastoralist communities of Afar was low. Less than a quarter of the women (22%) had four or more ANC visits, and only 17% delivered their last child in a health facility. Similarly, 23% had PNC visits within the first seven days after delivery and the current users of contraceptives totalled only 6%. Overall, about 35% and 65% of the women was good and poor RMNH service users, respectively. The findings further revealed that maternal education, residence (zone), husband's occupation and distance from a health facility were the independent predictors of RMNH service utilization.

The study revealed that around a third of the women made good use of RMNH services. This is in line with a study conducted in Tigray region, where 37% of women had good maternal health service utilization[14]. However, the parameter used to denote good use of RMNH services in the current study was four or more ANC visits, ID, PNC visit within seven days and current use of FP. A total of six measures were used in the study from Tigray, which also included HIV testing and iodized salt utilization. In addition, the two study settings are quite different, as Afar is a pastoralist area and Tigray is an agrarian community.

About 83% of the women from the study communities delivered their last child at home, which is similar to the EDHS 2016 report, which indicates that about 85% of women from Afar have home deliveries (1). The results of this study suggest that many deliveries are still handled by TBAs, who are unskilled and unable to recognize pregnancy and delivery-related complications (15).

The current study reveals that only 5.4% of the women are current users of FP services. This is low compared to the 12% reported in EDHS 2016 and a study done in Afar (1, 16). The uptake of contraceptives in predominantly Muslim countries such as Jordan and Eastern Turkey, where 53-54.8% of women use FP services, is much higher than our findings (17, 18). This may indicate that contra captive useisstill influenced by complex religious and cultural influences espoused by husbands, TBAs and religious leaders.

This study reveals that maternal education is positively associated with the use of RMNH services. Thisis consistent with other studies and reports carried out on ANC (6, 19), FP[20] and ID (12). This implies that maternal education could influence women's overall empowerment by improving their access to information, establishing conducive environments for behavioural change, participating in decision-making, and financial freedom to get services, without constraints in accessing and paying for transport. Besides, lack of awareness about its importance was the most common reason for inhibiting the use of RMNH services, as stated by the majority of the participants. These could enable mothers to use RMNH services with a full understanding of their purpose, and these mothers could influence other women to use the services.

Long travel distance was negatively associated with the use of RMNH services. A considerable number of women mentioned that long travel distance to a health facility, poor road infrastructure and high transport costs are barriers to using RMNH services. This is in line with other studies (21, 22). It implies that there is a need to design and foster the current settlement of the communities in such a way that they have better access to RMNH services. Moreover, building a health facility nearby, improving the infrastructure, including roads, and making an ambulance service available, are clearly described by the study participants as possible solutions to enhance the use of RMNH services.

Zone of residence was found to be a significant predictor of RMNH service utilization in Afar region. Women from zone4 were generally found to make good use of RMNH services. This might be due to existing interventions such as Maternal and Neonatal Health in Ethiopia Partnership (MaNHEP) and other non-governmental organizations, which mainly work on behavioural change communication and tackling barriers by improving the contact/interaction between frontline health workers and the mother and her new-born (23, 24). Given the success of these interventions, the government should consider rolling out best practice acrossthezones in the region, bearing in mind their different contexts.

This study highlights that Afar women with husbands who are pastoralists have a low utilization of RMNH services. It was supported by Sudan study[24].Pastoralist communities are highly mobile, which makes the provision of RMNH services difficult. Pastoralist mothers are unable to visit health facilities as per the recommended schedule. Strategies such as outreach services and mobile health clinics or services, in addition to the resettlement of the community, should be introduced to address the RMNH needs of the community.

Even though the study enrolled a large number of women, it was subject to the following limitations. First, it focused solely on women with children up to the age of 24 months, and not all women of reproductive age. Hence, FP utilization and its barriers were not well assessed in this study, and it may be that most of the women prefer breastfeeding, instead of contraceptives, to delay pregnancy. Besides, the women in very remote areas and within a walking time of one hour or more from the selected kebeles might not be well represented by the sampling procedure followed in this study. For the outcome variable, different indicators – namely the use of ANC, ID, PNC and FP– were combined to give one composite measure. However, this may underestimate the true value, since we omitted women who had between one and three ANC visits. In addition, women with children under 24 months may not use contraceptives to prevent pregnancy and, instead, prefer to use breastfeeding. Besides, cluster-level analysis was not considered during the analysis of the result.

Conclusion:

The overall use of RMNH services was low. About 78% of the women failed to adhere to the recommended four or more ANC visits, and 83% of the women delivered their latest birth at home. Equally, 77% had no PNC visits within the first seven days after delivery, and 94% of the women were not users of contraceptives at the time of data collection. Maternal education, residence (zone), husband's occupation and distance from health facilities were the independent predictors of RMNH service utilization among women from these pastoralist communities.

Recommendation

Based on the study findings, the following recommendations are made to enhance the use of RMNH services.

- Creating awareness about the importance of these services.
- Empowering women to make their own decisions.
- Taking good experience from well-performing zones to other zones.
- Improving roads, infrastructure, water supply and electric facilities.
- Resettlement of the community.
- Introducing outreach and mobile health services.
- Enhancing the current ambulance service provision in the study setting.
- Health professionals should focus on counseling the women to adhere to the recommended use of the services.
- Devising context-specific community-based interventions (e.g., women development army or Faema; which is a community structure which helps to share marriage, mourn and saving and credit schemes) to enhance the health-seeking behavior of pastoralist women.

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