Maternal Satisfaction and Predictors of Maternal Health Service Provided by Health Extension Workers in Darara District, Southern Ethiopia: A Community Based Mixed Methods

Amanuel Yoseph *, Mesfin Yohannes , Mehretu Belayineh

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Article

Maternal Satisfaction and Predictors of Maternal Health Service Provided by Health Extension Workers in Darara District, Southern Ethiopia: A Community Based Mixed Methods

Mesfin Yohannes [1], Amanuel Yoseph [2,*] and Mehretu Belayineh [2]

[1] Department of sanitation and hygiene, Motite Fura Hospital, Hawassa, Ethiopia
[2] School of Public Health, College of Medicine and Health Science, Hawassa University, Hawassa, Ethiopia
* Correspondence: amanuelyoseph45@gmail.com

Abstract: Introduction: Consistent utilization of institutional delivery service reduces maternal morbidity and mortality. However, service utilization could in turn influenced by the women's satisfaction with the service provided by the health care providers. In addition, their satisfactions with the institutional delivery service remains understudied. Assessment of the maternal satisfaction with maternal health service is a major input to improve maternal health services. **Objective:** To assess the maternal satisfaction with maternal health service and its predictors among the women who gave birth in last 12 months in Darara district, Southern Ethiopia. **Methods:** A community-based cross-sectional study was done using a mixed method among the sample of 520 women in Darara district, South Ethiopia from June 1-30, 2023. A systematic and purposive sampling procedure was utilized to choice the study subjects. A structured, validated and pretested interview-administrated questionnaire and in-depth interview were utilized to collect the data. The data were entered into Epi data version 3.1 and analyzed using SPSS version 25. The chi-square (X^2) test was utilized to determine the overall association between independent and dependent variables. Both bi-variable and multivariable binary logistic regression analyses were conducted. Important assumptions of the binary logistic regression were checked to be satisfied. The coding and analysis of the qualitative data were done using thematic content analysis technique by Atlas-Ti software and presented in narratives. **Results:** The total maternal satisfaction with maternal health service was 55.2% (95% CI = 50.8-59.4). The identified predictors of maternal satisfaction were distance from household to health post (AOR = 3.59; 95% CI= 1.71 - 7.55), absence of preparation of HEWs during procedure (AOR= 2.87; 95% CI = 1.74 - 4.74), acceptability of the HES by HHs (AOR= 2.18; 95% CI = 1.14 - 4.18), having a reliable communication method with HEWs (AOR = 3.47; 95% CI = 1.77 - 6.79) and received training on the model family (AOR= 2.48, 95% CI= 1.86 - 2.57). These quantitative results were supported by the individual, organizational, socio-demographic and cultural qualitative findings. **Conclusions:** This study indicated that 55.2% of women were satisfied with maternal service. Distance from household to health post, absence of preparation of HEWs during procedure, acceptability of the Health Extension Service (HES) by household, having a reliable communication method with HEWs and received training on the model family were significant predictors of maternal satisfaction. The interventions to increase maternal satisfaction with HES need to focus on household-based acceptability of them and their reliable communication method in planning and implementing the services. Similarly, expansion of training of model family in the community would increase maternal satisfaction levels.

Keywords: health extension workers; satisfaction; maternal health service; Darara district; Sidama regional state and Ethiopia

Introduction

Health Extension Service (HES) is a set of basic preventive, promotive and the curative health service directing households in a public to improve families' health [1]. In Ethiopia a HES was started in 2003 in the rural and urban communities as portion of the health sector development program

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(HSDP) through increasing physical health infrastructure and training and deploying a team of Health Extension Workers (HEWs) [2].

HES is consists of 4 core themes such as disease prevention and control, family health, hygiene and environmental sanitation and health education and communication [3]. The major aim of HES are to increase equity and access to basic health interventions at the community level by assuring ownership and involvement of the women, enhancing health awareness and skills in the women of reproductive age, increasing use of maternal health services and encouraging life styles which are favorable to good health [4,5].

To sustain the quality and equity of maternal health service provided by HEWs the consistent follow up, capacity building, mentorship, supportive supervisions and getting feedback from clients is vital [6]. Also, mothers are the basic component of interventions in health extension service (HES) and their satisfaction implicates the quality of service provided by the HEWs [3].

A previous study conducted in South Sudan, Egypt, Jimma zone in Ethiopia indicated that overall maternal satisfaction with maternal health service were 22%, 90% and 71.5% among women of the reproductive age who visited health post, respectively [7–9].

Different studies reported that type of care, availability of medical supplies, equipment and infrastructure, poor quality and condition of health post, low skill of HEWs, waiting time, attitude of care provider and assessment of weight of pregnant women were predictors of maternal satisfaction [7]. All these can be categorized as socio-demographic, institutional, behavioral and service quality related factors which might be positively or negatively affect maternal satisfaction with the service [7–9].

In general, the clear understanding on the degree of maternal satisfaction have two principal objectives: Finding areas of improvement in the quality and access of services provided and underlining the requirement for corrective actions when clients' expectations surpass what the institution can afford to provide or what a specific program is meant to provide [10]. In addition, evidence has revealed that in the mind of all health service delivery system has a positive relationship between clients and providers and in fact, it is probable to remain true for the predictable future [11].

More significantly, such obligatory aspect of care is obviously basic in the future of care where health promotion and health education activities are more relevant and the prime units of interventions are households. Similarly, mothers are the primary target group for HES, their ratification with the service remains understudied in Ethiopia. This is shown by the evidence that the majority of studies related to HES were mainly focused on implementation status of the service [12], effectiveness of HEWs [13], working situations and experiences of HEWs [14], access to information and continuing education [15], and effects of the service [16]. However, there is limited evidence in Ethiopia to ascertain degree of maternal satisfaction with maternal health care service provided by HEWs. Thus, we aimed to assess maternal satisfaction and predictors of maternal health care service provided by HEWs among the women of reproductive age who gave birth in last 12 months in Darara district, South Ethiopia, 2020.

Methods and materials

Study area

This study was done in Darara district, Sidama regional state, Southern Ethiopia. Darara district is located 319 km from Addis Ababa, the capital city of Ethiopia. The district has consisted of 2 urban and 17 rural kebeles (the lowest administrative unit of Ethiopia with an approximate 1,000 households). The potential physical health service coverage of the district by public health facility was 95%. Based on district health office, the district consists of 4 public health centers, 14 health posts, 4 private medium clinics and 5 private drug stores [17]. Based on the central statistical agency report of country, the total population of the district was projected to be 117,440 of which 57,898 (49.3%) were males and the remaining were females [18].

Study design and population

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A community based prospective cross-sectional study was conducted in Darara district, Southern Ethiopia from June 1-30, 2023. The source and study population were all women of reproductive age who were gave birth in last 12 months and all systematically selected women who were visited health post in district during the study period. Those mothers, who were critically ill, mentally ill and those who are not able to speak and hear were excluded from the study.

Sample size estimation

The sample size for the first objective was calculated using a single population proportion formula by bearing in mind the following assumptions: 5% margin of error, 95% confidence level and 68.8% proportion of mothers' satisfied with maternal health service was taken from the previous study done in Jimma zone Southwest Ethiopia [19]. Furthermore, we have considered a 10% compensation for expected non-response rate. Accordingly, the determined sample size was 545. Likewise, the sample size for second objective was determined using EPI info TM version 7.1 statistical packages with the following inputs: 2.62 adjusted odds ratio (AOR) was received from the previous study [19], 95 confidence level, 80% power of study and 1:1 among the exposed and unexposed groups. Based on these inputs, the estimated sample size was 544. Hence, we used a sample size obtained from the first objective due to it was the maximum sample size assessed and would be adequate for this study.

The minimum required sample size for the qualitative study was determined according to the recommendation of Morse and Creswell for Phenomenological studies (5–25 study participants) [20]. Based on the recommendation, we decided to include 25 study respondents as per their recommendation. But, we reached level of information saturation after conducted 16 interviews. We done three additional in-depth interviews in ordered to guarantee the actual level of information saturation. Thus, we have included19 study respondents to explore the barriers for maternal satisfaction with maternal health service.

Sampling technique

Initially, the determined sample size was comparably allocated to the all kebeles in Darara district based on their population size. A systematic sampling procedure was utilized to draw the study participants until the determined sample size reached. The households with reproductive age group women who were gave birth in last 12 months were identified by conducting the house to house census and a sampling frame was prepared. The calculated sample frame (K= N/n) was K (which was differ from kebele to kebele). Finally, study respondents were drawn using a systematic sampling technique with sampling interval of K. The first mother was selected by using a simple random sampling method. Then, successive mothers were drawn at a fixed interval of Kth interval from the kebele until calculated sample size attained. If selected woman was lacking from the household for three successive visits or under exclusion criteria and there were no other opportunities, the subsequent nearest woman was included. One mother was included by using simple random sampling procedure when two or more mother occurred in the selected households. A purposive sampling method was utilized to draw study participants for the in-depth interview (IDI) by considering variability in age, educational status, socio-economic status, roles and responsibility in the women development arm. All mother included in the IDI were not respondents of the quantitative study.

Study variables

The outcome variable was maternal satisfaction with maternal health service provided by HEWs and exposure variables were socio-demographic characteristics such as age, religion, marital status, occupation status, educational status, household income; obstetric characteristics such as ANC visit, modes of delivery, duration of labor, birth outcome, number of children, PNC visit, and knowledge of obstetric danger sign; health extension workers related factors such as served high population, career structure, incentives, supportive supervision, availability of HEWs in the working area,

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acceptability by HHs and length of stay; health post related factors such as the availability of curtains, the availability of screens, partitions, sufficient bed capacity, electricity, water, toilet, waiting area, written up-to-date protocols and reliable communication methods.

Study tools and data collection methods

The study tool was developed from others similar previously conducted studies [13–19]. The questionnaire or study tool was initially prepared in English, translated to Amharic language and reconverted back to English to retain its originality and consistency. The assessment was conducted to evaluate the inconsistency and non-accuracy among the 2 versions of the study tool. It was pre-tested on 5% of sample in kebeles which were not involved in the actual study setting. Then, any inconsistence and non-accuracy between the 2 versions was amended accordingly. The final version questionnaire consists of three parts. The first part comprises socio-demographic and economic characteristics of the study subjects as mentioned above in study variables section. The second part consists of questions about the obstetric characteristics, health extension workers related factors and health post related factors. The final part measured the maternal satisfaction about the maternal health service provided by HEWs. To assess the maternal satisfaction with the maternal service, 15 questions were tested (S1-S15) and have 5 point Likert scales differing from strongly dissatisfied to strongly satisfied **(Supplementary file 1).** The training regarding to study questionnaire was provided for the data collectors and supervisors by principal investigator for one day. During the training attention was given on the significance of the study, data collection procedure, objective, methods and ethical issues. The data collection was conducted by 7 BSc nurses using a pretested, structured, face-to-face interviewer administrated questionnaire. One public health expert with RH were carefully supervised the data collection method. They had recruited based on previous experience of data collection and out of the study site. The consistent checkup for incompleteness and non-consistency of the data were made on a daily basis. The data was cleaned, coded & entered by the PI. The incomplete, inconsistent and invalid data were distinguished correctly to acquire high quality of data before, during and after data entry. The corrections were made based on the original data.

Operational definitions

Maternal satisfaction is defined as attaining perceived desires and expectations of women in relation to maternal health service as evaluated by 5-point Likert scale questions.

Level of maternal satisfaction was evaluated using all questions in the Likert scale and calculated using a demarcation threshold formula. Based on the formula those women scored above cut of point and less than or equal to the cut of point were categorized as satisfied and unsatisfied, respectively.

Women's overall satisfaction was calculated by summing up the mean score of 15 satisfaction questions, the maximum and minimum total satisfaction score was determined using a descriptive statistic. The cut off point for satisfaction was calculated using a demarcation threshold formula, that is (total maximum score-total minimum score)/2 + Total lowest score. According to the formula those women scored more than cut of point and less than or equal to the cut of point were categorized as satisfied and unsatisfied, respectively.

Data analysis procedure

The data were cleaned, coded and entered into Epi Info7.1 and exported to the Statistical Package for Social Sciences (SPSS) version 25 for further processing and analysis. All needed variables recoding, calculations and categorizations were carried out before to the main analysis. Descriptive analyses were done to find out descriptive measures for the socio-demographic and other important variables. The descriptive statistic techniques were used for the data organization and presentation. The chi-square test was used to describe the overall association among the exposure and outcome variables.

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The data were analyzed using both bi-variable and multivariable binary logistic regression model. Those variables of the p-values < 0.25 on the bi-variable analysis model were considered into a multivariable binary logistic regression model to find out factors independently related with maternal satisfaction with maternal health service adjusting for other predictors in the model. The candidate variables were entered into the multivariable binary logistic regression model using the backward (Wald) stepwise regression method. The basic assumptions of binary logistic regression model such as absence of outliers, multicollinearity and interaction between independent variables were tested to be fulfilled. Multicollinearity among the independent variables was also evaluated using multiple linear regression model. For all variables as the variance inflation factor (VIF) was less than 10 which indicates no evidence of multicollinearity among independent variables. The fitness of binary logistic regression model was also considered using the Hosmer-Lemeshow statistics and found that model to be adequately fit (0.78). The presence and strength of statistically association between maternal satisfaction and the independent variables were assessed using adjusted odds ratios with a 95% confidence interval. Statistically significant association between the variables of interest was confirmed when the 95% CI of the adjusted odds ratio did not contain 1.

Ethics statement

The ethical clearance was received from the Institutional Review Board (IRB) of Hawassa University before beginning data collection with Ref. No IRB/056/13. An authorized letter of approval was got from the School of Public Health to the corresponding health facility. The informed written approval was also received from kebeles. Finally, informed written consent was also taken from all study respondents after clarifying the significance of the study, aims, risks or benefits, rights, privacy, nature of the study and the range of their participation in this study.

Results

Socio-demographic characteristic of the study subjects

The socio-demographic characteristics of the study respondents have been summarized in Table 1. As of a total of 545 study participants, merely 520 study participants responded questions, making a response rate of 95.4%. The mean (±standard deviation [SD]) of the age of study women was 29 (±6) years. Majority of study women were contained by the range of 20-29 years. The mean family size of each studied household was 4 persons. According to this study, majority 364 (70.0%) of the study subjects were housewife in the occupation. Majority 363 (69.8%) and 514 (98.8%) of the study respondents were followers of protestant Christianity and married, respectively. The wealth index of study participants 108 (20.8%), 100 (19.2%), 104 (20.0%), 99 (19.0%) and 109 (21.0%) were poorest, poor, middle, rich and richest, respectively.

Table 1. The socio-demographic characteristics of the study subjects among women of reproductive age who gave birth in last 12 months in Darara district, Sidama regional state, Southern Ethiopia 2020.

Variable	N (%)
Marital status	
Married	514 (98.8)
Divorced	6 (1.2)
Age of study participants	

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15-19	5 (1.0)
20-29	272 (52.3)
30-39	206 (39.6)
40-49	37 (7.1)
Educational status of study participants	
No formal education	162 (31.2)
Have formal education	358 (68.8)
Religion of study participants	
Protestant	363 (69.8)
Orthodox	2 (0.4)
Muslim	77 (14.8)
Catholic	78 (15)
Occupational status of women	
House wife	364 (70.0)
Employee	52 (10.0)
Merchant	47 (9.0)
Student	57 (11.0)
Occupational status of husband	
Employee	62 (11.9)
Farmer	238 (45.8)
Daily laborer	2 (0.4)

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Merchant	218 (41.9)
Educational status of husband	
No formal education	68 (13.1)
Only write and read	34 (6.5)
Elementary	142 (27.3)
High school	198 (38.1)
College and above	78 (15.0)
Wealth index	
Lowest	108 (20.8)
Second lowest	100 (19.2)
Middle	104 (20.0)
Second highest	99 (19.0)
Highest	109 (21.0)

Obstetrics characteristics of study participants

Regarding to the obstetric characteristics of the study subjects, majority 362 (69.6%) of women had first age of marriage surrounded by the range of 20-29 years. The majority, 459 (88.3%) of women's had two or more children before the current delivery. Only 51 (9.8%) of women were primigravida and 57.8% had an unplanned childbirth. The majority, 491 (94.4%) had one or more ANC visits during pregnancy: 401 (77.1%) visited 1- 3 times, 90 (17.3%) visited a minimum of four times and the remaining 29 (5.6%) did not follow ANC. The 77.3%, 13.1% and 9.6% of delivery were SVD, instrumental and caesarean section, respectively. Concerning the fetal outcomes, 476 (91.5%) of pregnancy was live birth. The only 102 (19.6%) of women had a PNC visit during last delivery (Table 2).

Table 2. Obstetrics characteristics of the study subjects among women of reproductive age who gave birth in last 12 months in Darara district, Sidama regional state, Southern Ethiopia 2020.

Variables	**N (%)**
Age of first marriage	

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15-19	156 (30.0)
20-29	362 (69.6)
30-39	2 (0.4)
Number of total pregnancies in the life time	
One	51 (9.8)
Two or more	469 (90.2)
Number of total live children	
One	61 (11.7)
Two and more	459 (88.3)
Last pregnancy planned	
Yes	301 (57.8)
No	219 (42.2)
ANC follow up	
No visit at all	29 (5.6)
1-3 visits	401 (77.1)
4 times	90 (17.3)
Do you know obstetric danger signs	
Yes	324 (62.3)
No	196 (37.7)
Mode of delivery	
SVD	402 (77.3)

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Instrumental	50 (9.6)
C/S	68 (13.1)
Husband support during labor and delivery	
Yes	431 (82.9)
No	89 (17.1)
The condition of the last baby	
Live birth	476 (91.5)
Live birth but died soon after	18 (3.5)
Died before seven day	6 (1.2)
Still birth	5 (1.0)
Others	15 (2.9)
Previous place of maternal health use	
At health post	349 (67.1)
Health center	171 (32.9)
PNC follow up	
Yes	102 (19.6)
No	418 (80.4)

Maternal satisfaction with maternal service provided by HEWs

The overall proportions of women's who were satisfied with maternal service provided by HEWs were 287 (55.2% [95% CI = 50.8-59.4%]) (fig1).

Predictors of maternal satisfaction with the maternal health service

Findings of the binary logistic regression analysis of maternal satisfaction with maternal health service are shown in Table 3. The study revealed that odds of maternal satisfaction were 3.59 times increased in women who had traveled less than 30 minutes from household to health post as compared to those who had traveled greater than 30 minutes (AOR = 3.59; 95% CI= 1.71 - 7.55). In addition, absence of preparation of HEWs during procedure (AOR= 2.87; 95% CI = 1.74 - 4.74),

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acceptability of the HES by HHs (AOR= 2.18; 95% CI = 1.14 - 4.18) and having a reliable communication method with HEWs (AOR = 3.47; 95% CI = 1.77 - 6.79) were positively associated with maternal satisfaction with maternal health service. Moreover, the odds of maternal satisfaction with maternal health service increased 2.48 times for women who had received training on the model family (AOR= 2.48, 95% CI= 1.86 - 2.57) as compared to those who had not received training on the model family.

Table 3. Bi-variable and multivariable analyses of predictors of maternal satisfaction with maternal health services provided by HEWS among women who gave birth in last 12 months in Darara district, Sidama regional state, South Ethiopia, 2020.

Variables	Maternal satisfaction		95% CI of COR	95% CI of AOR
	Yes (%)	No (%)		
Wealth index				
Lowest	60 (55.6)	48 (44.4)	1	1
Second lowest	55 (55.0)	45 (45.0)	0.98 (0.56,1.69)	1.37 (0.69, 2.71)
Middle	43 (41.3)	61 (58.7)	0.56 (0.33, 0.97)	1.47 (0.70, 3.04)
Second highest	41 (41.4)	58 (58.6)	0.56 (0.33, 0.98)	2.10 (0.95, 4.68)
Highest	88 (80.7)	21 (19.3)	3.35 (1.82, 6.16)	2.09 (0.99, 4.39)
Educational status				
No formal education	63 (80.8)	15 (19.2)	4.28 (2.36, 7.76)	1.38 (0.75, 2.54)
Have a formal education	207 (49.5)	211 (50.5)	1	1
Occupation status of women				
Housewife	230 (63.2)	134 (36.8)	4.39 (2.37, 8.14)	1.41 (0.59, 3.42)
Government employee	21 (40.4)	31 (59.6)	1.74 (0.78, 3.86)	1.13 (0.36, 3.48)
Merchant	20 (42.6)	27 (57.4)	1.89 (0.84, 4.29)	1.56 (0.47, 5.07)
Student	16 (28.1)	41 (71.9)	1	1

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Distance of health post from household				
Less than 30 minutes	266 (61.1)	169 (38.9)	4.79 (2.83, 8.14)	3.59(1.71, 7.55)**
Greater than 30 minutes	21 (24.7)	64 (75.3)	1	1
Total number of pregnancy in the lifetime				
One	7 (13.7)	44 (86.3)	1	1
Two and more	280 (59.7)	189 (40.3)	9.31 (4.10, 18.01)	1.57 (0.53, 4.66)
Knows danger sign of pregnancy				
Yes	152 (46.9)	172 (53.1)	0.39 (0.27, 0.58)	1.17 (0.66, 2.06)
No	135 (68.9)	61 (31.1)	1	1
Previous place of MHS use				
Health post	241 (69.1)	108 (30.9)	6.06 (4.04, 9.11)	1.86 (0.98, 3.95)
Health center	46 (26.9)	125 (73.1)	1	1
Do you get training on the model family				
Yes	128 (74.4)	44 (25.6)	3.46 (2.31, 5.17)	2.48 (1.86, 2.57)*
No	159 (45.7)	189 (54.3)	1	1
Absence of preparation of HEWs during procedure				

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Yes	109 (38.8)	172 (61.2)	1	1
No	178 (74.5)	61 (25.5)	4.60 (3.15, 6.71)	2.87 (1.74, 4.74)**
Absence of self confidence				
Yes	55 (30.7)	124 (69.3)	1	1
No	232 (68.0)	109 (32.0)	4.79 (3.25, 7.09)	1.33 (0.75, 2.38)
Availability of HEWs in the working area				
Yes	189 (50.7)	184 (49.3)	1	1
No	98 (66.7)	49 (33.3)	1.95 (1.31, 2.90)	1.53 (0.88, 2.63)
Acceptability of the HES by HHs				
Yes	73 (73.7)	26 (26.3)	2.72 (1.66, 4.42)	2.18 (1.14, 4.18)*
No	214 (50.8)	207 (49.2)	1	1
Length of stay				
Yes	164 (73.9)	58 (26.1)	4.02 (2.75, 5.87)	1.53 (0.92, 2.54)
No	123 (41.3)	175 (58.7)	1	1
Having enough waiting area				
Yes	262 (67.9)	124 (32.1)	9.21 (5.67, 14.95)	1.82 (0.88, 3.72)
No	25 (18.7)	109 (81.3)	1	1
Having a reliable communication method				

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Yes	257 (71.2)	104 (28.8)	10.62(6.72,16.79)	3.47 (1.77, 6.79)**
No	30 (18.9)	129 (81.1)	1	

1: Shows the reference categories.*: Shows significant association at p-value < 0.05 **: Show the highly significant association at p-value <0.01.

Barriers for maternal satisfaction with maternal service provided by HEWs

Themes from the qualitative data. An overall of 25 study participants were selected for an in-depth interview. But, after conducted the 16th in-depth interview, no new themes were produced from the interviews process. Thus, it was supposed that the qualitative data collection process had attained a saturation level. We sustained qualitative data collection process for 3 extra in-depth interviews to guarantee and confirm that there are no new themes emerging for the qualitative results.

After analyzing the qualitative data, three themes emerged which were discussed in this section. These themes were: Individual, organizational, socio-demographic and cultural.

Each of the study participants believe that the barriers for maternal satisfaction with maternal health service provided by HEWs are non-availability of HEWs at HP, lack of confidence to the HEWs, absence of home visit by the HEWs, poor quality service provided by HEWs, lack of respect, competency, communication and professional skill for HEWs during service provision. Moreover, the long distance travels to access health posts had been a discouraging factor for the appropriate use of maternal health service. In the in-depth interview, the data reveal that the way some health posts are built made it difficult for accessing health posts which could in turn affected the maternal satisfaction with maternal health service. The study participants suggested that the lack of training on the model family was also one of the challenges in maternal dissatisfaction with maternal health service provided by HEWs.

The qualitative data also indicated that the women of reproductive age do not have sufficient knowledge, negative attitude and poor practice about the Health Extension Packages (HEPs) and maternal health service provided by HEWs. It was also proved through qualitative data that the women of reproductive age knew immunization, ANC, PNC and family planning as the only health service provided by HEWs.

Discussion

A community-based prospective cross-sectional study was carried out to assess maternal satisfaction with maternal health service and its predictors among **women of reproductive age who gave birth in last 12 months in Darara district, Sidama regional state, Southern Ethiopia.** The overall maternal satisfaction with maternal health service was 55.2%. Distance from health post, absence of preparation of HEWs during procedure, acceptability of the HES by HHs, having a reliable communication method with HEWs and received training on the model family were pertinent predictors of maternal satisfaction with maternal health service.

In this study the overall maternal satisfaction with maternal health service was 55.2%. This finding is consistent with the studies carried out in Kambata Tambaro zone Southern Ethiopia (57.2%), Debra Markos Town North Ethiopia (56%) [21,22]. In contrary to the current finding, study conducted in Gamo Gofa zone (37.4%) of Ethiopia reported a lower maternal satisfaction with maternal health service [23]. However, the study conducted in Jimma zone of South West Ethiopia reported a higher maternal satisfaction with maternal health service (83%) than our study [24]. This discrepancy might be due to the fact that variation in the sample size considered, study area and period. Also, the difference might be attributed to criteria used to categorize level of maternal satisfaction (classification approach), provision of quality service in the health post and maternal expectation. In this regards, some of the above studies categorized women as satisfied when scored greater than or equal 75% of response on satisfaction questions while in the current study we used a

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participants who scored above the mean value were considered as satisfied to classify level of maternal satisfaction. Other reasons might be due to difference in level knowledge of mothers, cultural diversity aspects and socio-economic status of the study participants.

The study revealed that odds of maternal satisfaction were 3.59 times increased in women who had traveled less than 30 minutes from household to health post as compared to those who had traveled greater than 30 minutes. This result is agreed with the study carried out in Adwa Woreda, Tigray regional state, North Ethiopia [25]. This might be due to the fact that traveling a long distance to obtain maternal health service can negatively affect the maternal satisfaction with maternal health service provided by HEWs. The WHO has recommended that the mother should be not travel more than 5 Km to obtain maternal health service provided by HEWs at the health post.

The absence of preparation of HEWs during procedure was positively associated with maternal satisfaction with maternal health service. This finding is consistent with the study result from Jima zone South West Ethiopia [24]. This might be due to fact that good preparation of HEWs may be a marker of good care and important element of maternal satisfaction with maternal health service provided by HEWs.

In addition, acceptability of the HES by HHs was positively associated with maternal satisfaction with maternal health service. This finding is in agreement with the study result from the East Shoa and Arsi Zones, Oromia Regional state, Ethiopia [26]. This might be attributed to the fact that acceptability of a household on the health extension service increases the expectation and demand for great quality maternal health services.

Likewise, having a reliable communication method with HEWs was positively associated with maternal satisfaction with maternal health service. This finding is in agreement with study conducted in Ethiopia [27]. This might be because women who had a reliable communication method with health extension workers were more likely to have information about maternal health service like ANC, PNC, family planning method and maternal nutrition program. Also, these women were more confident to minimize rumors of maternal health service provided by HEWs. Moreover, it increases women confidence to make decision about its utilization.

Moreover, the odds of maternal satisfaction with maternal health service increased 6.4 times for women who had received training on the model family as compared to those who had not received training on the model family. This is consistent with the study findings from Jimma and Gamo Gofa zone of South West Ethiopia [23,24]. This might be clarified by the concepts that training on model family is a vital predictor in enabling women decision making power towards maternal health care services, improving knowledge of basic health care services, and informed regarding to health benefits and risks, with all of these subsequently leading to the positive health seeking behavior and increase maternal satisfaction with maternal health service provided by HEWs. Another reason might be due to a trained women were more likely to have a good awareness, increased level of the knowledge and skill of maternal health care service provided by HEWs and increase satisfaction to maternal health care services provided by HEWs.

Limitation of the study

This study had several strengths. Among these, the community based nature and enrolled relatively large number of study participants from multiple kebeles and presented satisfaction figure for maternal satisfaction with maternal health service provided by HEWs. Likewise, these large study respondents provided representative and valuable evidence for all women of reproductive age which is important to develop relevant policy strategies for effective or efficient promotion of maternal health service utilization provided by HEWs through increasing maternal satisfaction. Moreover, we attempted to measure and accounted for several potential confounders that can individually explain the association between the variables of interest. Irrespective of its strengths, this study has some basic limitations that might be considered while interpreting the findings. First, the cross-sectional nature of our study design does not accurately establish the cause and effect relationship. Secondly, our study might be liable to recall bias due to the information was collected by the study respondents

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self-report. Thirdly, there were limited studies conducted sufficiently to compare our result with earlier studies on satisfactions with maternal health service provided by HEWs.

Conclusions

This study indicated that 52.2% of study participants were satisfied with maternal health service provided by HEWs in Darara district, Sidama regional state, South Ethiopia. The low level of maternal satisfaction with maternal health service provided by HEWs in the study area showed that much work remains to be done to increase the maternal satisfaction. This study also identified presence of high unplanned pregnancy among study respondents; this provides a clue regarding to the presence of unmated need or poor implementation of family planning service in the area.

Distance from health post, absence of preparation of HEWs during procedure, acceptability of the HES by HHs, having a reliable communication method with HEWs and received training on the model family were significant predictors of maternal satisfaction with the maternal health service provided by HEWs. Therefore, the interventions to increase maternal satisfaction with HES need to focus on household-based acceptability of them and their reliable communication method in planning and implementing the services. Similarly, expansion of training of model family in the community would increase maternal satisfaction levels.

Supporting information: S1 file: English version survey questionnaire (DOCX). S2 file: Sidamic version survey questionnaire (DOCX). S3 file: STROBE statement (DOCX). S4 file: Raw SPSS dataset (SAV). S5 fig: This is the S5 maternal satisfaction with maternal health service in Darara district, Southern Ethiopia 2020.

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List of abbreviations

AOR	Adjusted odds ratio
ANC	Antenatal Care
CI	Confidence Interval
C/S	Cesarean section
HES	Health extension service
HEWs	Health extension workers
IRB	Institutional Review Board
OR	Odds ratio
PNC	Postnatal Care
SBA	Skilled Birth Attendance
SVD	Spontaneous vaginal delivery
SD	.Standard Deviation
SDG	Sustainable development goal
SPSS	Statistical packages for social science
VIF	Variance inflation factors

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