









Two out of every three pregnant women who gave birth in public health facilities of Tullo Woreda were dissatisfied with deliveries services, Eastern Ethiopia

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Shasho Debelle¹, Mulugeta Gamachu^{2,3} , Alemayehu Deressa⁴ ,
Adera Debella⁵ , Addis Eyeberu⁵ , Galana Mamo Ayana⁴ ,
Abdi Birhanu² , Hamdi Fekredin Zakaria⁴, Fenan Reshid⁶, Nega Assefa⁵ ,
and Ibsa Mussa⁴ 

Abstract

Background: The level of maternal satisfaction with delivery services significantly affects health service utilization among women. Ethiopia's healthcare system and health facilities' quality have not much improved, which may contribute to women's generally poor levels of satisfaction and there was a limited study about client satisfaction on delivery services in the study area. Thus, the purpose of this study was to assess level of maternal satisfaction with delivery service and its associated factors among women who gave birth in Tullo Woreda public health facilities, Eastern Ethiopia.

Methods: A facility-based cross-sectional study was conducted from 1 to 30 September 2020 among 355 women who gave birth in Tullo Woreda public health facilities, Eastern Ethiopia. Data were collected using a pretested structured questionnaire through a face-to-face interview and entered into Epidata version 3.1 and analyzed using statistical package for the social sciences (SPSS) version 25. The prevalence was reported using a 95% confidence interval and summary measures. Predictors were assessed using a multivariable logistic regression analysis model and reported using an adjusted odds ratio with 95% CI. Statistical significance was declared at a p -value of <0.05 .

Results: The overall satisfaction of mothers on delivery service was 33.5% (95% CI: 27.81, 39.13). Factors such as having no antenatal care (ANC) for the index pregnancy (AOR=0.33; 95% CI: 0.19, 0.56), women who came to health centers on foot (AOR=0.17; CI: 0.04, 0.74) and by auto-rickshaw (AOR=0.16; 95% CI: 0.04, 0.64), mothers who did not satisfied with toilet service at the delivery room (AOR=0.49; 95% CI: 0.12, 0.86) and who were not satisfied with maternal drugs availability (AOR=0.65; 95% CI: 0.11, 0.95) were predictors of maternal satisfaction.

Conclusions: This study pointed out that only 33.5% of women were satisfied with delivery care services provided in public health facilities of the study area. Factors such as not having ANC, using foot and auto-rickshaw as means of transportation, availability of drugs, and toilets were predictor of maternal satisfactions. Awareness creation for the benefit of ANC follow-up and delivery in the health facilities and providing safe transportation during referral time may help mothers get a timely healthcare service, which may increase client satisfaction. The concerned entities must pay attention in timely availability of drugs and improving the toilets, which play a role in shaping and molding level of satisfaction of women.

Keywords

Delivery care service, quality service, pregnancy, health facility, Ethiopia

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¹Tullo Woreda Health Office, West Hararge, Oromia Region, Bollo, Ethiopia

²School of Medicine, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

³Department of Public Health, Rift Valley University, Harar, Ethiopia

⁴School of Public Health, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

⁵School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

⁶Aweday Sub-City Health Office, Oromia Region, Aweday, Ethiopia

Corresponding author:

Mulugeta Gamachu, Haramaya University College of Health Sciences, P.O. Box 235, Harar, Harari 322, Ethiopia.
Email: gamachumle@gmail.com



Introduction

Maternal satisfaction with delivery service is a crucial and frequently used metric for assessing the quality of healthcare services.¹ Women's opinions of high-quality treatment have an impact on their level of satisfaction with childbirth, which is a multifaceted issue. However, it offers significant and affordable feedback for enhancing institutional childbirth care.²

The level of maternal satisfaction with delivery services significantly affects health service utilization among women. According to a report in Ethiopia, the prevalence of institutional delivery among women was 48% in a health facility, which may be associated with the level of satisfaction.³ This low prevalence of institutional delivery increases the maternal death rate, which occurs during labor and delivery and immediately postpartum as there is no care for the woman and child.⁴ Maternal satisfaction with delivery services can also have a significant impact on women's mental health.⁵

Evidence showed that different factors significantly affect the level of maternal satisfaction with delivery services. Factors like mothers' education level, occupational status, family income level, birth outcome, interpersonal interaction with care providers, privacy, and postpartum hospital stay all significantly affect women's childbirth services satisfaction.^{2,6-8}

The Federal Ministry of Health has increasingly focused on improving the quality of care over the past few years. This is evident in the Health Sector Development Plan IV, which discusses various elements of quality, including accelerating the speed of delivery, and identifies maternal and child health as five priority public health areas where the need is great.⁹ Despite these efforts, Ethiopia's healthcare system and health facilities' quality have not much improved since the strategies of the health sector plan of Ethiopia, which may contribute to women's generally poor levels of satisfaction.^{10,11}

Despite different studies reporting the level of satisfaction, it is inconsistent and not at its expected level. The level of maternal satisfaction in Jimma, Ethiopia was 78.7%,¹² in eastern Ethiopia 80%,⁸ in Addis Ababa, Ethiopia 63%,⁶ and in west Shoa, Ethiopia 83.9%.⁷ In addition, factors that affect women's satisfaction with delivery care services are not consistent. Variable-like modes of delivery are inconsistent among different studies.^{7,8} Furthermore, maternal satisfaction is a crucial quality outcome indicator for healthcare providers and settings, particularly during labor and birth, as it significantly impacts the overall quality of care.¹³

Moreover, evidence on mother satisfaction with service delivery aids in identifying other aspects of care that should be improved in Ethiopian contexts in order to meet long-term demand, generate notable modifications in the maternal care-seeking behavior, and pinpoint obstacles that ought to be eliminated. Therefore, this study aimed to assess the level of maternal satisfaction and its associated factors among delivered women in West Hararge Zone public health facilities.

Methods and materials

Study design, setting, and period

An institutional based cross-sectional study was conducted from 1 to 30 September 2020 among women gave birth at Tullo Woreda Public Health Facilities, Eastern Ethiopia. Tullo woreda is located in Oromia region, Eastern Ethiopia, at a distance of 375 km from Addis Ababa, Country's capital city. According to the recent woreda health office report, the projected population size of the district was 205,572 and the district made up of three urban and 30 rural kebeles (smallest administrative units). There are 39 public health facilities (one primary hospital, eight health centers, and 30 Health Posts) available in the Woreda. Besides, private health institutions such as five rural drug venders, seven drug stores, 12 primary and two medium clinics, and two traditional healers were providing service at this woreda. Although a COVID-19 pandemic occurred during the course of this study, all facilities in the study area were required to provide services in accordance with guidelines and best practices for COVID-19 control and prevention. We used the Strengthening the Reporting of Observational Studies in Epidemiology cross-sectional checklist when writing our report.¹⁴

Population and eligibility criteria

The source population of the study was all women who gave birth in public health facilities where as randomly selected women who gave birth in selected public health facilities were the study population. Women who gave birth in selected public health facilities during data collection time were included in the study, and women who were mentally or critically ill and unable to provide the necessary information were excluded from the study.

Data collection methods

The data were collected by a pretested, structured questionnaire adapted from various literatures was used to collect data from the study participants.^{6,7,15-18} The data collection technique was interviewer-administered by trained data collectors. The data were collected by six BSc Nurse Health professionals who fluently speak Afaan Oromo (the local language). The questionnaire contains socio-demographic and economic characteristics, health service-related factors, and obstetric-related factors. Supervision was conducted by the principal investigator and two public health experts familiar with the study setting. Data collectors and supervisors were trained for 2 days on ethics, tool sampling, and data collection procedures. The data collection process was supervised on a daily basis, and timely feedback was communicated to the data collectors. Statistically, we performed Cronbach's alpha, which is a measure used to assess the quality of our employed instruments. The result was 0.87, which was within acceptable ranges.

Variables and measurement

Satisfaction is defined as the fulfillment of a need or want. It was measured based on a five-point Likert scales, which are named very satisfied, satisfied, unsure, dissatisfied, and very dissatisfied. Clients were categorized as “not satisfied” if they scored below 75% of score calculated from the satisfaction measuring items and “satisfied” if their satisfaction was 75% or above from the satisfaction measuring items. The analysis of internal reliability was done using Cronbach’s α to check whether the items are internally consistent. If the result of Cronbach’s α is ≥ 0.9 then the internal consistency is excellent, $0.8 \leq \alpha < 0.9$ as good, and $0.7 \leq \alpha < 0.8$ acceptable.

Satisfied: Just one’s expectation on delivery care provided.¹⁹

Dissatisfied: Below women’s expectation of received delivery care.²⁰

Quality health care: A care which is safe, reliable, patient centered, efficient and provided to all in need in an equitable and timely manner.²¹

Waiting time: Perceived time interval from arrival of the mother at the hospital/health center until first registered. The actual waiting time is less than 30 min.¹²

Bias

There were a number of biases involved while conducting this research and researcher took explicit measure to avoid them. One of the bias was social desirability bias is when respondents responded satisfied with their appearance to healthcare providers or others, believing it made them appear good. To avoid this bias, the researchers paraphrases the questions in the way that was not socially desirable and allowing a participants to answer freely and openly without fear of judgment from another person. In addition, the data collectors were not employees of the selected facilities, and the exit interview was done away from the delivery unit.

Sample size determination and sampling procedures

Sample size was calculated using double population proportion using Epi-Info version 7 after considering significant factors such as ANC follow-up,¹⁹ unwanted status of pregnancy,²² and laboring time.²³ The sample size was calculated for each significant independent variable, considering the non-response rate, under the following statistical assumptions a power of 80% and a 95% confidence interval. Therefore, the maximum sample size calculated for the current study was 361.

Initially, a simple random sampling method was used to select eight public health facilities providing delivery service in Tullo Woreda. The number of study units to be sampled

from each health facility was determined using proportional allocation to size based on the number of client flows in the current year of 2020. The average 3-month caseload of each health facility was taken. Then, the systematic random sampling method was employed to select each study subject. The sampling fraction of the K th interval was calculated as $(N/n = 614/361 = 1.7-2)$. Based on the client’s card number, the starting woman was determined by using the lottery method, and every second delivered woman were included until the required sample was achieved (Figure 1).

Data quality control

The questionnaire was initially prepared in English and then translated into the local languages by a bilingual expert (Afaan Oromo). Then, it was translated back into an English version to ensure its consistency. The data collectors and supervisor received training on the data collection tool and procedures. Before the actual study data collection, a pretest was conducted among 10% of the study participants in similar settings. The investigators and experienced research supervisors provided regular supervision.

Data processing and analysis

First, the collected data were checked for completeness and consistency. Then, they were cleaned, coded, and entered into EpiData version 3.1 for further analysis. The entered data were exported to SPSS version 25 for analysis. Descriptive and summary statistics were conducted and reported using frequency tables and figures. A binary logistic regression model was fitted to check for an association between independent variables and the outcome variable. The model’s fitness was checked by Hosmer–Lemeshow statistics and Omnibus tests. A multivariable analysis was performed to identify the true predictors of the outcome variables. A multi-collinearity test was carried out to check the presence of correlation between independent variables by using the standard error and co-linearity statistics, and no collinearity effects were detected. Thus, the value of the Variance Inflation Factor was 0.951. The direction and strength of the statistical association were measured by the odds ratio along with the 95% confidence interval (CI). A p -value of 0.05 was considered to be statistically significant in both bi-variable and multivariable analyses.

Ethical consideration

Ethical approval was obtained from the Institutional Health Research Ethics Review Committee (IHRERC) of Haramaya University, College of Health and Medical Sciences (IHRERC/174/2020). Supporting letter that explains the objective of the study was written to the Tullo Woreda Health Office. Before data collection, written informed consent was

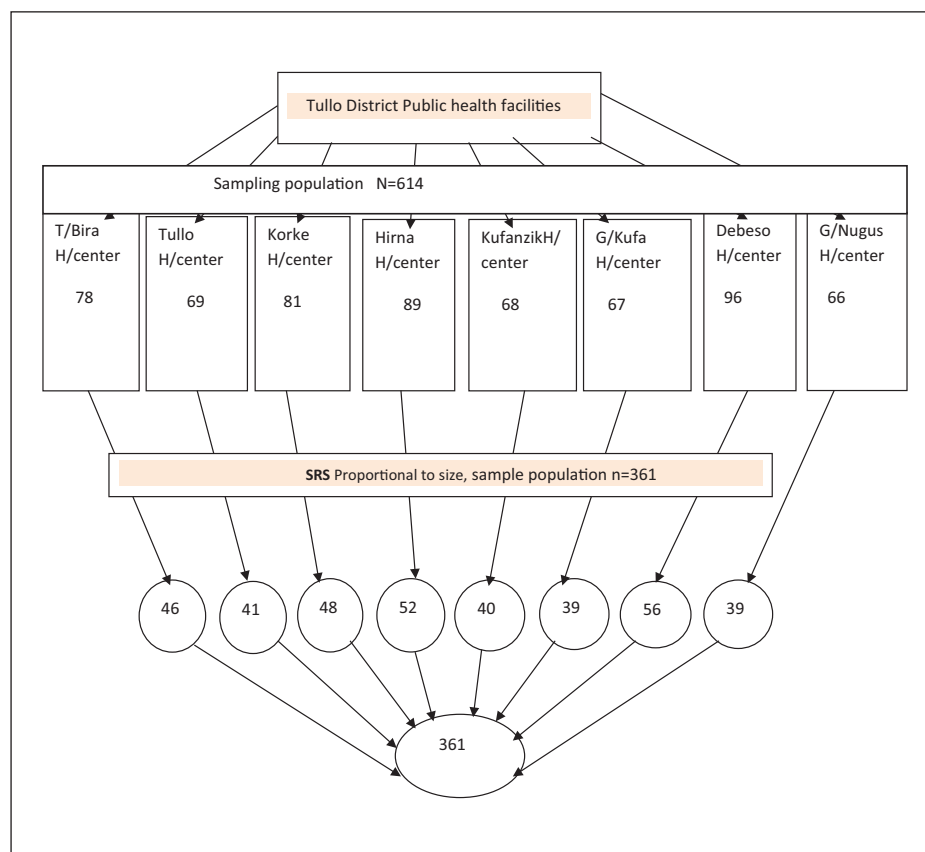


Figure 1. Schematic diagram showing maternal satisfaction and associated factors in the Tullo District Public health facilities, Eastern Ethiopia, 2020.

obtained from each study participant and their legally authorized representatives for minors. The consent was verbally explained for participants who were unable to read the consent, and the data collectors noted their consent. Their confidentiality was maintained, and the information obtained from each participant was generalized to the whole population.

Results

Sociodemographic characteristics of women

A total of 361 study participants were involved and yielding a response rate of 98.3%. The mean (\pm SD) age of the study participants were 27.78 (\pm 6.738). One hundred forty-three (40.3%) and 163 (45.9%) of the respondents were between the ages of 15–25 and 26–35, respectively. Three hundred twenty-seven (92.1%) of the respondents were married, and 37 (10.4%) and 123 (34.6%) had a formal education and a certificate, respectively. In terms of respondents' occupations, 103 (29%) of them were merchants, and 179 (50.4%) were housewives. The majority of participants, 267 (75.2%) were Muslims. Two hundred ninety-one (82%) of them were

Oromo, and 302 (85.1%) of them came from rural areas, whereas only 53 (13.9%) of them were from urban areas (Table 1).

Health service-related factors

Regarding travel time taken to reach at health facilities, only 21 (5.9%) of women responded that they would travel more than 2 h to get to a health institution, whereas 142 (or 40%) took less than 30 min. The majority, 69.6% of them, arrived at the health facility on foot to give birth, and 292 (82.3%) of the respondents had to wait less than 10 min for the delivery service. Male healthcare providers attended more than half (60.3%), whereas female healthcare providers attended the remaining 39.7% delivery. Almost all respondents 332 (93.5%) seek to use the delivery service in the future, and 323 (91.0%) of them said they would advise others to use the delivery service (Table 2).

Obstetric-related factors of respondents

Two hundred twenty (62%) of respondents were multipara, whereas 135 (38%) of them were primipara. Regarding their

Table 1. Sociodemographic characteristics of mothers gave birth in public health facilities, Tullo Woreda, Oromia, eastern Ethiopia, 2020 (n = 355).

Characteristics	Variable category	Frequency	Percentage (%)
Residence	Urban	53	14.9
	Rural	302	85.3
Age of respondents	<25	143	40.3
	25–35	163	45.9
	≥36	49	13.8
Marital status	Married	327	92.1
	Others*	28	7.9
Educational level	No formal education	123	34.6
	Grade 1–6	120	33.8
	Grade 7–12	75	21.1
	Certificate and above	37	10.4
Occupation	Government employee	41	11.5
	Merchant	103	29
	Housewife	179	50.4
	Others**	31	8.7
Religion	Orthodox	76	21.4
	Muslim	267	75.2
	Others#	12	3.4
Ethnicity	Oromo	291	82
	Amhara	45	12.7
	Others##	18	5.3

*Single, widowed, divorced and cohabit.

**Private employees, students, and daily laborer.

#Waqefata, catholic.

##Gurage, Somali.

mode of delivery, 230 (64.8%) of women gave birth by spontaneous vaginal delivery and 125 (35.2%) of them gave birth by assisted vaginal delivery. Among women who participated in this study, many of them 329 (92.7%) had normal outcomes of delivery and the remaining 26 (7.3%) of them had complications. Like this, the majority 85.9% of fetal outcome was normal, whereas 44 (12.4%) of them were complicated (stillbirth, neonatal death, and distress). Regarding the status of pregnancies, 276 (77.7%) of pregnancies were wanted, whereas the remaining 79 (22.3%) were unwanted. Two hundred forty-seven (69.6%) of respondents had ANC follow-up during the current pregnancy, and almost all 93.5% of them know their blood pressure status during ANC service (Table 3).

Maternal services satisfaction

A majority 232 (65.3%) and 222 (62.5%) of mothers were not satisfied with the availability of maternal service drugs and water availability at the period of giving birth in the facility. Again 282 (70.4%), 272 (76.6%), 266 (74.9%), 244 (68.7%), 289 (81.4%), 265 (74.6%), and 275 (77.5%) mothers were not satisfied with cleanliness of delivery room, health professional gender who give delivery service, blood pressure measurement services, keep confidentiality of information, respectful delivery care service,

privacy maintaining during delivery, and advice given about institution delivery and postnatal care (PNC), respectively. But almost half 186 (52.4%), 184 (51.8%), and 210 (59.2%) mothers were satisfied with the services of toilet, adequacy of the waiting area, and freedom of delivery position, respectively (Table 4).

Level of maternal satisfaction with delivery service

In this study, 119 (33.5%; 95% CI: 27.81, 39.13) mothers reported being satisfied with the overall delivery service given when giving birth in health facilities (Figure 2).

Factors associated with maternal satisfaction

All respondent-related characteristics such as Socio-demographic characteristics of mothers, Obstetric-related factors of mothers, and specific service satisfaction-related factors were assessed for possible association with overall maternal service satisfaction among mothers using a bi-variable logistic regression model. Accordingly, sociodemographic variables (residence, educational level of mother, and occupation of mothers), obstetric and health service-related variables (ANC follow-up for the past pregnancy, history of pregnancy, delivery outcome, and mode

Table 2. Health service-related factors of mothers who gave birth in public health facilities, Tullo Woreda, Oromia, eastern Ethiopia, 2020 ($n=355$).

Characteristics	Variable category	Frequency	Percentage (%)
Time taken to reach a health facility	30 min	142	40
	1 h	132	37.2
	2 h	60	16.9
	More than 2 h	21	5.9
Mode of arrival	Ambulance	78	22
	On foot	287	69.6
	Auto-rickshaw	14	3.9
	Other*	16	4.5
Waiting time	Less than 10 min	292	82.3
	10–30 min	57	16.1
	More than 30 min	6	1.7
ANC-antenatal care provider	Male	220	62
	Female	135	38
Delivery service care provider	Male	214	60.3
	Female	141	39.7
Seeking service in future	Yes	332	93.5
	No	23	6.5
Recommending service for friends and relatives	Yes	323	91
	No	32	9

*By human, other public transportation.

Table 3. Obstetric-related factors of mothers gave birth in public health facilities, Tullo Woreda, Oromia, eastern Ethiopia, 2020 ($n=355$).

Characteristics	Variables category	Frequency	Percentage (%)
Number of pregnancies or parity	Primipara	135	38
	Multipara	220	62
The current mode of delivery	Spontaneous vaginal delivery	230	64.8
	Assisted vaginal	125	35.2
Outcome of delivery	Normal	329	92.7
	Complicated	26	7.3
Fetal outcome	Normal	305	85.9
	Complicated	50	14.1
Status of pregnancy	Wanted	276	77.7
	Unwanted	79	22.3
ANC follow-up	Yes	247	69.6
	No	108	30.4
Blood pressure measured during giving service	Yes	332	93.5
	No	23	6.5

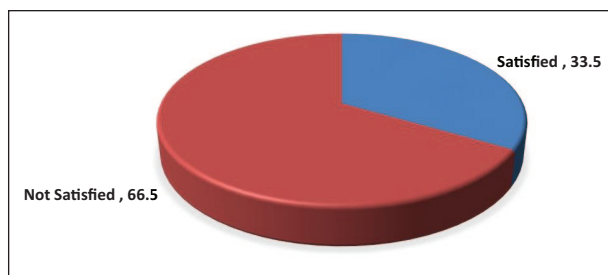
of transportation to reach health facilities), and specific maternal health service-related satisfaction (toilet availability, maternal care drugs availability, Maintaining mothers privacy during delivery, and respectful maternal care service) were variables found to be associated at $p < 0.25$ with overall maternal service satisfaction among mothers on bivariate analysis and a candidate for final multivariable logistic regression analysis.

In this study, mothers who reached health facilities on their own feet 83% (AOR=0.17; 95% CI: 0.04, 0.74) and by auto-rickshaw 84 % (AOR=0.16; 95% CI: 0.04, 0.64) times

less likely to be satisfied with overall delivery service compared to those who reached health facilities by ambulance transportation. Additionally, mothers who are not satisfied with toilet service at the delivery room were 51% times less likely to be satisfied with overall delivery services (AOR=0.49; 95% CI: 0.12, 0.86) than their counterparts and also mothers who are not satisfied with maternal drugs availability during delivery service use were 35% times less likely to be satisfied with overall delivery services (AOR=0.65; 95% CI: 0.11, 0.95) than their counterparts. Finally, this study revealed that mothers who do not have a history of

Table 4. Maternal satisfaction level with each service of mothers who gave birth in public health facilities, Tullo Woreda, Oromia, eastern Ethiopia, 2020 (n = 355).

Maternal service area	Satisfied	Frequency	Percentage (%)
Drug availability	Yes	123	34.7
	No	232	65.3
Water service availability	Yes	133	37.5
	No	222	62.5
Cleanliness of delivery room	Yes	73	20.6
	No	282	70.4
Adequacy of the waiting area	Yes	186	52.4
	No	169	47.6
Toilet service	Yes	184	51.8
	No	171	44.5
Health professional gender	Yes	83	23.4
	No	272	76.6
Blood pressure measurement	Yes	89	25.1
	No	266	74.9
Freedom of delivery position	Yes	210	59.2
	No	145	40.8
Confidentiality of information	Yes	111	31.3
	No	244	68.7
Respectful delivery care service	Yes	66	18.6
	No	289	81.4
Privacy maintains during delivery	Yes	90	25.4
	No	265	74.6
Advice about institution delivery and PNC	Yes	80	22.5
	No	275	77.5

**Figure 2.** Overall maternal satisfaction of mothers gave birth in public health facilities, Tullo Woreda, Oromia, eastern Ethiopia, 2020 (n = 355).

ANC follow-up were 67% times less likely to be satisfied with overall delivery services (AOR=0.33; 95% CI: 0.19, 0.56) than mothers who had a history of ANC follow-up during their pregnancy (Table 5).

Discussion

This study assessed the prevalence and determinants of maternal satisfaction among mothers attending the public health facilities in Tullo Woreda, Eastern Ethiopia. The study pointed out that overall maternal satisfaction was 33.5% (95% CI: 27.81, 39.13). Thus, it revealed that only one in

every three women who gave birth in the aforementioned health facilities were satisfied with delivery services. Factors, such as ANC follow-up, means of transportation, the availability of toilets, and drugs, were identified as a predictor of maternal satisfactions.

In this study, the overall client satisfaction with delivery service was 33.5%. This finding was in line with the study conducted in Mizan Aman town in Southern nation and nationalities of Ethiopia which was 30.4% and higher than the finding of study conducted at Gandhi Memorial Hospital which ranges between 2.4% and 21%.^{17,24} However, the current finding was lower than the results of studies conducted in Jimma, Ethiopia 78.7%,¹² West Arsi, Ethiopia 74.6%,¹⁶ and Addis Ababa, Ethiopia 82% and studies conducted in other countries such Ghana 94%,⁹ Egypt 78.5%,²⁵ and India 67.8%.² The discrepancy between this study and others may be due to differences in socio-cultural, demographic, time of the study, study setting (health center vs hospital), real quality of services, and operational definition of the study variable. It also may be due to expectations of women or less quality of provided services. The other possible justification for low women's satisfaction in our study may be due to work overload on providers, especially at Hirna Health Center due to the closure of Hirna Hospital since it was selected as a COVID-19 treatment center during the data collection period. Regardless of their low level of satisfaction,

Table 5. Bi-variable and multivariable logistic regression analysis of factors associated with overall maternal satisfaction among mothers attending the public health facilities in Tullo Woreda, Oromia, eastern Ethiopia, 2020 (*n* = 355).

Variables (<i>n</i> = 355)	Overall maternal satisfied		COR (95% CI)	AOR (95% CI)	<i>p</i> -Value
	Yes(No.& %)	No(No.& %)			
Residence					
Urban	21 (5.9%)	32 (9%)	1	1	
Rural	161 (45.4%)	141 (39.7%)	0.55 (0.21, 1.48)	2.168 (0.97, 4.87)	0.061
Educational status of mothers					
No formal education	67 (18.87%)	56 (15.77%)	1	1	
Grade 1-6	60 (16.9%)	60 (16.9%)	1.44 (0.73, 2.83)	0.27 (0.06, 1.18)	0.081
Grade 7-12	42 (11.8%)	33 (9.29%)	0.93 (0.41, 2.11)	0.45 (0.10, 1.99)	0.295
Certificate & above	13 (3.67%)	24 (6.76%)	2.51 (0.46, 13.80)	0.30 (0.08, 1.20)	0.088
Occupational status of mothers					
Government employee	16 (4.5%)	25 (7%)	1	1	
Private employee	6 (1.7%)	5 (1.4%)	0.85 (0.11, 2.83)	1.52 (0.27, 8.51)	0.631
Merchant	59 (16.6%)	44 (12.4%)	0.93 (0.20, 4.40)	0.77 (0.10, 5.76)	0.799
Housewife	90 (25.4%)	89 (25%)	1.35 (0.03, 6.01)	1.45 (0.46, 4.6)	0.532
Other	10 (2.8%)	11 (3.1%)	0.23 (0.03, 2.02)	2.01 (0.66, 6.17)	0.225
Transportation means to reach at HF					
Ambulance	35 (9.86%)	43 (12.11%)	1	1	
On foot	138 (38.87%)	109 (30.7%)	1.03 (0.49, 2.17)	0.17 (0.04, 0.74)	0.018*
Auto- rickshaw	6 (1.69%)	8 (2.25%)	1.69 (0.33, 8.63)	0.16 (0.04, 0.64)	0.010*
Other	3 (0.85%)	13 (3.66%)	4.75 (0.96, 23.41)	0.17 (0.02, 1.21)	0.077
Satisfaction to the available to toilet					
Yes	57 (33.7%)	112 (66.3%)	1	1	
No	62 (33.3%)	124 (66.7%)	1.97 (0.90, 4.29)	0.49 (0.12, 0.86)	0.023*
Drugs availability satisfaction					
Yes	41 (24.3%)	82 (75.7%)	1	1	
No	78 (33.6%)	154 (66.4%)	1.73 (1.14, 2.63)	0.65 (0.11, 0.95)	0.043*
Privacy maintained during delivery					
Yes	31 (18.3%)	59 (81.7%)	1	1	
No	88 (33.2%)	177 (66.8%)	1.73 (1.14, 2.63)	0.95 (0.51, 1.75)	0.862
Respectful maternal care during delivery					
Yes	22 (13.0%)	38 (87.0%)	1	1	
No	97 (33.5%)	198 (68.5%)	1.91 (0.99, 3.66)	0.62 (0.28, 1.36)	0.237
History of antenatal care follow-up					
Yes	146 (41.1%)	101 (28.5%)	1	1	
No	36 (10.1%)	72 (20%)	3.09 (1.67, 5.74)	0.33 (0.19, 0.56)	0.000*
History of pregnancy					
Wanted	154 (43.38%)	122 (34.36%)	1	1	
Unwanted	28 (7.88%)	51 (14.36%)	1.68 (0.82, 3.43)	0.54 (0.298, 1.02)	0.056
Outcome of delivery					
Normal	175 (49.3%)	154 (43.38%)	1	1	
Complicated	7 (1.97%)	19 (5.35%)	2.42 (0.74, 7.90)	0.39 (0.14, 1.12)	0.080

*Statistically significant.

the majority of them suggested seeking service and recommending centers for others. This may be due to clients' awareness of complications related to home delivery. More importantly, the current finding may imply that low satisfaction decreases institutional delivery service utilization or leads to maternal complications and death as a result of home delivery.²⁶ This may hinder our country from reaching the 2030 sustainable development goal (SDG) target of a

70/100,000 maternal mortality ratio.²⁷ As explained in World Health organization recommendation guidelines, to achieve a positive childbirth experience for women and their babies, competent and motivated healthcare professionals working where essential physical resources are available are required.²⁸

According to this study, ANC follow-up has a statistically significant association with maternal satisfactions of delivery

service. Thus, women who did not have ANC follow-up are 67% less likely to be satisfied than their counterparts. This was in agreement with the studies conducted in the Somali region, Eastern Ethiopia,¹⁸ West Shewa Zone, Ethiopia,²⁹ Wolaita Sodo University Hospital, Ethiopia³⁰ Jimma Zone, Ethiopia,²² and Gondar Teaching and Referral Hospital, Northwest Ethiopia.³¹ This might be a result of mothers receiving antenatal care becoming more aware of institutional delivery services and other fundamental maternal health services. This study suggests that local and national programs should give careful consideration to increasing mothers' awareness of the advantages of ANC follow-up through advocacy and health education. Moreover, access to prenatal counseling about the advantages of institutional delivery may lead to the development of a cordial relationship in which caregivers and mothers become friends during the delivery care process. In general, the quality of ANC services positively influences women's healthcare-seeking behavior and good practices of mothers and family members.³²

In the final model of multivariable analysis, the means of transportations was found to be associated with the maternal satisfactions of delivery services. Accordingly, women who came with their foot and took an auto-rickshaw as means of transportation were 83% and 84% less likely to be satisfied with delivery services than those who received ambulance service to arrive at health facilities, respectively. This is supported by the study conducted in Central Ethiopia, in which mothers receiving ambulance service to arrive at health facilities were more likely to be satisfied.¹⁵ One of the possible justifications could be those who obtained ambulance service reach health facility quickly and can get services quickly, but women who did not receive ambulances promptly may give birth on the way to health facilities which in turn hugely and immensely affect their satisfactions. Furthermore, this may be due to the geographic problem, which was time-consuming and difficult even for non-pregnant and healthy people.

The current study also revealed that mothers who are not satisfied with toilet service at the delivery room were 51% less likely to be satisfied with overall delivery services compared to their counterparts which was comparable with the study done in West Shoa Zone, Oromia Region, Ethiopia⁷ and Wollega Zone, Oromia Regional State, Western Ethiopia.³³ It is known that toilet service is one of the important components of maternal service in the delivery room. In addition, mothers may perceive as their privacy did not maintain when they were dissatisfied with toilet service. Hence, a mother's dissatisfaction with a specific service obviously affects the overall maternal satisfaction with the delivery service. Another possible justification for this finding might be that it can be related to the study settings since the current study was conducted in health centers in which there was a low presence and quality of toilets in the delivery room. Therefore, this implies that the

administrative body of health facilities should pay attention to solving the problem related to the lack of toilets and sanitation to ensure that mothers receive adequate and quality services.

Furthermore, the current study revealed that mothers who were not satisfied with free maternal drugs availability during delivery service use were 35% less likely to be satisfied with overall delivery services than their counterparts. This finding of the study was supported by the study done in Northwest Ethiopia³¹ and Gamo Gofa Zone, Southwest Ethiopia.³⁴ This may be related to the study settings and period. The current study was conducted during the emergency of COVID-19 and it impacted the overall service delivery system worldwide. This implies that accessibility of cost-free service may increase institutional delivery and level of satisfaction as well. However, this can have a negative effect on maternal satisfaction and their institutional delivery perception and expectation of mothers. In addition, the pandemic of COVID-19 may have catastrophic direct and indirect negative effect on overall maternal services, and threatening the significant advancements achieved over the previous few decades.³⁵

Strength and limitation of the study

In this study, due to the nature of the cross-sectional study design, it would be impossible to determine the causal relationship between the variable and the outcome in the analysis. Since the data was collected at discharge time from the ward after delivery, recall bias may be reduced. However, the study respondents may be afraid to express their feelings to data collectors because they are in an institution where they receive a health care service.

Conclusions

This study pointed out that only one in every three women are satisfied with delivery care services provided in public health facilities of the study area. This low level of maternal satisfaction suggests that facilities management and healthcare providers need to work hard to raise the satisfaction of delivery services. Factors such as not having ANC, using foot and auto-rickshaw as means of transportation, availability of drugs and toilets were predictor of maternal satisfactions. Awareness creation for the benefit of ANC follow-up and delivery in the health facilities, and providing safe transportation during referral time may help mothers get a timely healthcare service, which may increase client satisfaction. The concerned entities must pay attention in timely availability of drugs and improving the toilets, which play a role in shaping and molding level of satisfaction of women. Furthermore, additional comparative studies might be required at different levels of health facilities to provide a variation in the degree of maternal satisfaction with delivery services.

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Authors contributions

Shasho Debelles conceived the idea and played key roles in data review, drafting, and writing the final product. Data analysis, drafting, and manuscript preparation were all done by all co-authors. Finally, all authors read and approved the final version of the manuscript for publication, and they all agreed on all aspects of this work.

Availability of data and materials

All data used to analyze this study is available from the corresponding author upon reasonable request.

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ORCID iDs

Mulugeta Gamachu  <https://orcid.org/0000-0003-3890-5203>
 Alemayehu Deressa  <https://orcid.org/0000-0001-9751-868X>
 Adera Debella  <https://orcid.org/0000-0002-8060-0027>
 Addis Eyeberu  <https://orcid.org/0000-0002-3147-3770>
 Galana Mamo Ayana  <https://orcid.org/0000-0001-6082-0172>
 Abdi Birhanu  <https://orcid.org/0000-0003-1312-0637>
 Nega Assefa  <https://orcid.org/0000-0003-0341-2329>
 Ibsa Mussa  <https://orcid.org/0000-0002-6318-4092>

Supplemental material

Supplemental material for this article is available online.

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