


# A Culturally Sensitive and Supportive Maternity Care Service Increases the Uptake of Maternity Waiting Homes in Ethiopia

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**Background:** Maternal delays in utilization of emergency obstetric care are impacting on a high maternal mortality, especially in the poor resource countries including Ethiopia. Different strategies are designed and employed to reduce those maternal delays, and one of such strategies employed to overcome the geographic barriers and improve maternal and neonatal health outcomes is utilization of maternity waiting homes (MWHs). Studies related to the utilization of MWHs and associated factors are limited in Ethiopia and there were none in the study area.

**Objective:** The aim of this study was to assess the utilization of maternity waiting homes and associated factors.

**Methods and Materials:** A community-based cross-sectional study design was conducted, using multistage sampling technique. Logistic regression analysis with 95% CI for odds ratio (OR) was used to identify significant factors.

**Results:** A total of 379 women participated in this study, making a response rate of 85%. Of the total participants, 42.5% (95% CI=38–48) of women utilized MWHs. After controlling for potential confounders, women's decision-making capacity (AOR=12.74; 95% CI=6.18–26.26), women having someone who can care for their children and/or husband at home (AOR=2.71; 95% CI=1.44–5.09), MWHs offering food service (AOR=4.03; 95% CI=2.07–7.85), offering and/or allowing women to practice their own cultural ceremony (allowing to cook their own food type, porridge, coffee, etc) (AOR=9.55; 95% CI=4.45–20.47), and women's attitude towards MWHs (AOR=0.09; 95% CI=0.03–0.23) were factors significantly associated with the utilization of MWHs.

**Conclusion:** Compared to its contribution in reducing maternal and perinatal mortality, the utilization of MWHs was low in this study area. The integration of culturally sensitive and supportive maternity services, along with community participatory approach, would increase utilization of MWHs and consequently contribute in achieving the SDGs related to maternal and neonatal health.

**Keywords:** maternity waiting homes, utilization, supportive maternity services, cultural sensitivity, Ethiopia

## Introduction

The WHO reported more than 300,000 women died from pregnancy-related causes annually and 830 died each day worldwide,<sup>1–3</sup> with the greatest burden (99%) of maternal mortality falling on the low and middle income countries (LMICs), and more millions suffer obstetric morbidities.<sup>4,5</sup> These adversities of pregnancy outcomes would partly be defeated by addressing maternity waiting homes (MWHs).<sup>6</sup>

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MWHs are temporary shelters for pregnant women, and located near a qualified medical facility, where women identified as “high risk” can await their delivery and be transferred to a nearby medical facility shortly before delivery, or earlier should any complications arise,<sup>7</sup> for interventions including cesarian sections and blood transfusion.

Ethiopia introduced a three-tiered healthcare system that includes primary healthcare units (PHCUs) (consisting of primary/district hospitals, health centers, and community-based health posts); general hospitals (level 2), and specialized hospitals (level 3).<sup>8</sup> According to the national guidelines of Ethiopia, women who live far away from health centers, are not accessible by ambulance, are term pregnancy (38 or more weeks of gestation), and/or are at risk of experiencing obstetrical complications during pregnancy and/or delivery are eligible for MWH referrals.<sup>9</sup>

Studies reported MWHs have significant importance in reducing maternal and perinatal mortalities.<sup>10</sup> The WHO has endorsed MWHs since the 1950s as one component of a comprehensive package to reduce maternal morbidity and mortality,<sup>11</sup> primarily to be used in the LMICs to bridge the geographic barriers for women living far from health facilities,<sup>7,12</sup> considerably overcoming the three delays contributing to maternal mortality.<sup>13,14</sup>

Ethiopia has implemented MWHs since 1976,<sup>7</sup> as more than 80% of people live rurally with limited access to skilled obstetric care, still experiencing high maternal and neonatal mortality,<sup>15</sup> while only 28% of women delivered by skilled health professionals,<sup>16</sup> entailing the need for addressing MWHs, among others. In 2015, the Ethiopian Ministry of Health (MOH) revised the MWHs’ guidelines which transform the historical justification of MWHs from targeting only “high risk pregnant” women to “consider all pregnancy as high risk”, and bring all women around term pregnancy to MWHs; leading to increased skill birth attendances (SBAs),<sup>9</sup> and institutional delivery over the last 6 years.<sup>17</sup> While MWHs facilitate emergency obstetric care (EmOC), they are also part of the strategies utilized to improve access for the hard to reach rural populations and increasing the proportion of skilled birth care.<sup>18</sup>

Achieving the target of increasing the proportion of skilled birth attendants (SBAs) requires addressing the socio-cultural, distance, and financial barriers prohibiting mothers from utilizing health facilities.<sup>19,20</sup> Evidence has also noted that the effectiveness of MWHs is affected by its quality, including leaving childcare at home and the

cultural costs of being away from the home for childbirth.<sup>21–23</sup> However, studies on this area are limited in Ethiopia and certainly non-existent in the study setting. Therefore, this study tries to look into the utilization of MWHs and its associated factors (see Figure 1), in an effort to enlighten evidence-informed interventions and policy leading to an increased level of institutional births, and timely identification and management of complications during pregnancy and childbirth, ultimately reducing maternal and neonatal death.

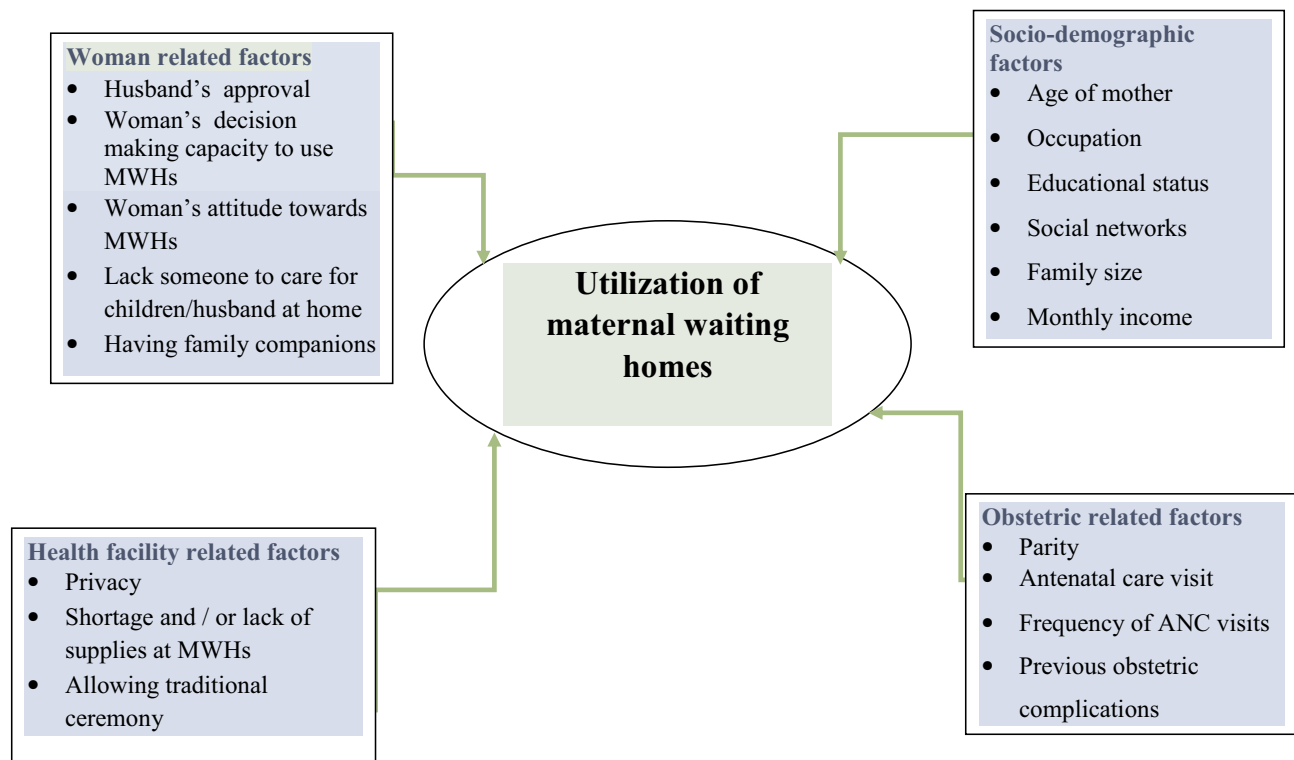
## Methods and Materials

### Study Setting

The study was conducted from March 26, 2018–April 11, 2018, in Gimbo district, Keffa Zone. This district is one of the 11 districts found in Keffa zone. Gimbo town is the capital of Gimbo district, and is 452 and 18 km from Addis Ababa and Bonga town, respectively. There are six health centers and 32 health posts, and all health centers have maternity waiting homes. According to the 2017 data, the district has a total population of 118,059, and 32 rural Kebeles (the lowest administrative units). From these Kebeles there were 1643 mothers who gave birth in the last year.

### Study Design, Participants, and Sampling

Using a community-based cross-sectional study design and multistage sampling technique, all mothers (from all 32 Kebeles) who gave birth in the last year in the district were considered as a source population, and mothers resided from ten randomly selected Kebeles (the lowest administrative unit) as a study population. The participants’ sample size was computed by using a single population proportion formula: considering the prevalence of utilization of MWHs was 38.7% ( $P=0.387$ ) in a previous study conducted in Ethiopia,<sup>24</sup> standard normal distribution of the Z-value at 95% confidence interval (CI)=1.96, and 5% margin of error, become 365, and since the source population is less than 10,000, we used a correction formula which reduced the sample to 298, and a 1.5 design effect (considering multistage sampling) made the final sample size 447. The calculated sample size was proportionally allocated to the selected 10 Kebeles. Then eligible participants were selected randomly from these Kebeles.



**Figure 1** Conceptual framework illustrating factors associated with utilization of maternal waiting homes.

## Instrument and Data Collection Procedures

Utilization of MWHs is the outcome variable, while socio-demographic, health-facility, obstetric, and maternal-related factors, as illustrated in Figure 1, are the exposure variables in this study. A pretested questionnaire adapted from previous relevant literatures were administered using a face-to-face interview. The questionnaire was prepared in English and then translated to Amharic and to local language (Kafinoonoo), then back translated to English by a language expert. Seven trained clinical nurses, with the assistance of the respective Kebele leaders in accessing eligible participants (those women who gave birth in the last year and resident in the selected kebeles), conducted house-to-house interviews with women at their homes privately. The interviews took an hour on average. Two supervisors having BSc midwifery backgrounds supervised data collection.

## Data Entry and Analysis

Data collected was coded and entered into Epi-Data 3.1 statistical software, then exported and analyzed using SPSS version 23.0 statistical software. Descriptive

analyses were carried out for each of the variables. Variables having *P*-values less or equal to 0.25 were considered candidates and entered into the multivariate logistic regression model to identify the independent effects of each variable on the outcome. Finally, variables with a *P*-value of less than 0.05 with a 95% CI for odds ratio (OR) were considered to have a significant association between exposure and outcome variables.

## Ethical Approval and Consent to Participate

Ethical approval was obtained from Jimma University College of Health sciences (CHSs) Institutional Review Board (IRB), and submitted to Keffa Zone health department to get permission. Then a collaboration letter was obtained from Keffa Zone health bureau and submitted to the district health departments followed by to each selected Kebele. Verbal and written consent for data collection was obtained from eligible participants. For participants under the age of 18 years, no parental informed consent was required according to the Ethiopia National Research Ethics Review Guideline (2014) section 8.3.5.3, as emancipated minors (ie, those working or earns their living, married, parenting may be allowed to give an

informed consent or an IRB may decide a waiver of consent. Trained research assistants read out the contents of the consent forms outlining the study objectives and investigators involved and describing what was expected from women as well as associated risks and benefits. This was done in a local language of women's preferences (Amharic or Kaffinoo). Prior to enrolment, participants were told that their name would not be mentioned, their rights as participants, and their questions were answered.

## Results

### Characteristics of Participants

A total of 447 mothers were interviewed, and 379 gave complete responses, making a response rate of 85%. The mean age of the respondents was 27 ( $SD=\pm 5.1$ ) years. Most of the respondents 299 (78.9%) were home-makers, 309 (81.5%) respondent's husbands were farmers, and 190 (50.1%) had no education. Two hundred and one (53.3%) were orthodox Christian, followed by protestant (82, 21.6%), 279 (73.6%) belong to Keffa ethnic group and 246 (64.9%) earned a monthly income ranging from 501–1499 ETB (Table 1).

### Maternal-Related Factors

From the total 379 respondents, 42.5% of them utilized the MWHs service, 195 (51.5%) faced husband refusal to go and stay at MWHs, 211 (55.7%) had no one to care for their children/husband while at MWHs, 222 (58.6%) of mothers had no concern about their marriage while staying at MWHs, and 253 (58.8%) of women had no companion to MWHs (Table 2). While 178 (47%) of the participants reported the decision of whether to go and stay to MWHs or not was made by their husbands.

### Health Facility-Related Factors

The mean duration of stay at MWHs was 16 days. Regarding resources at MWHs, 62% of women reported the absence of privacy, 64.6% comfort, 41.2% food service, 84.2% blankets, bed mattress and extra space for sleeping, 19% electric power, 37.2% extra space for cooking food, coffee ... etc, 34.8% toilets, 72.8% bath room, 82.6% water supply and firewood, 81.0% traditional ceremony after delivery, and 65.2% reported that rooms were too small and crowded (Table 2), and 20.1% had negative attitudes towards utilization of maternal waiting homes.

**Table 1** Socio-Demographic Characteristics of the Respondents (N=379)

Variables	Category	Frequency	Percent (%)
Age	15–19	32	8.4
	20–24	99	26.1
	25–29	134	35.4
	30–34	72	19.0
	35 and above	42	11.1
Maternal occupation	Housewife	299	78.9
	Farmer	54	14.2
	Student	12	3.2
	Merchant	7	1.8
	Governmental/ NGO employment	7	1.8
Husbands occupation	Farmer	309	81.5
	Merchant	44	11.6
	Daily laborer	13	3.4
	Governmental employee	13	3.4
Maternal educational level	No education	190	50.1
	Primary (1–8)	169	44.6
	Secondary (9–10)	12	3.2
	Preparatory and above	8	2.1
Husbands educational level	No education	152	40.1
	Primary (1–8)	194	51.2
	Secondary (9–10)	20	5.3
	Preparatory and above	13	3.4
Religion	Muslim	75	19.8
	Orthodox	201	53.0
	Protestant	82	21.6
	Catholic	21	5.5
Ethnicity	Keffa	279	73.6
	Amhara	67	17.7
	Oromo	33	8.7
Average monthly income	≤500ETB	86	22.7
	501–1499	246	64.9
	1500–2499	35	9.2
	2500–3499	9	2.4
	3500 and above	3	0.8
Family size	1–5	263	69.4
	5–7	92	24.3
	above 7	24	6.3

### Factors Associated with the Utilization of MWH Services

Multivariable logistic regression analysis adjusted for potential confounders show mothers who can make the

**Table 2** Maternal and Health Facility-Related Factors (N=379)

Maternal-Related Factors	Category	Frequency	%
Having someone to care for their children/husbands	Yes	168	44.3
	No	211	55.7
Husband's approval of woman's going and staying at MWHs	Yes	195	51.5
	No	184	48.5
Concern about their marriage when they stay in MWH	Yes	157	41.4
	No	222	58.6
Having family member to accompany and stay in the MWH	Yes	156	41.2
	No	223	58.8
<b>Health Facility Service-Related Factors</b>			
Privacy in MWHs & labour ward	Yes	144	38.0
	No	235	62.0
Having companion at MWHs	Yes	134	35.4
	No	245	64.6
Availability of food service	Yes	220	58.0
	No	159	42.0
Availability of blankets, bed mattress, and other materials	Yes	60	15.8
	No	319	84.2
Regular visit of the mother by midwives	Yes	258	68.1
	No	121	31.9
Accessibility of electric power	Yes	307	81.0
	No	72	19.0
Maternity waiting home too small or crowded	Yes	247	65.2
	No	132	34.8
Availability of extra space for cooking food, coffee, etc.	Yes	238	62.8
	No	141	37.2
Availability of toilets	Yes	247	65.2
	No	132	34.8
Availability of bath rooms	Yes	103	27.2
	No	276	72.8
Availability of water supply and firewood	Yes	66	17.4
	No	313	82.6
Availability of traditional ceremony after delivery	Yes	72	19.0
	No	307	81.0

decision by themselves to utilize MWHs were nearly 13-times (AOR=12.74; 95% CI=6.18–26.26), those who had someone to care for their children/husbands at home nearly 3-times (AOR=2.71; 95% CI=1.44–5.09), those who got meal service at MWHs 4-times (AOR=4.03; 95% CI=2.07–7.85) and those who are offered extra space for cooking food, coffee, etc, nearly 10-times (AOR=9.55; 95% CI=4.45–20.47] more likely to use

MWHs than their counterparts. Mothers who had negative attitude towards the utilization of MWHs were 91% times (AOR=0.09; 95% CI=0.03–0.23)] less likely to utilize MWHs than mothers who had a positive attitude (Table 3).

## Discussion

Our study identified low utilization of MWHs was linked with socio-economic, demographic, cultural, and facility-related constraints. Only 42.5% of women in our study utilized MWHs, which is higher than previous studies done in Ethiopia,<sup>24,25</sup> and Zambia (27.3%).<sup>26</sup> The availability of MWHs in all health centers in the study area, the recent health policy of the government of Ethiopia targeting to decrease the maternal and child mortality, the presence of health extension workers (HEWs) who can reach out to the grass-root level community and linking their service to the next level health institutions in Ethiopia are possible explanations accounting for the use of MWHs being higher than those reported in the previous studies mentioned above. However, this result is lower than the studies done in Kenya (61%),<sup>27</sup> and Zimbabwe (59.2%).<sup>28</sup> However, the disparity between these studies reporting a higher rate of utilization might be due to the difference in the quality of services and social backgrounds,<sup>27</sup> and can be considered as an alarm for Ethiopia to improve the quality of services at the MWHs.

The Ethiopian government made various efforts towards making safe-motherhood a priority. Launching a number of midwifery training programs,<sup>29</sup> health extension programs (HEP),<sup>8</sup> and scaling-up MWHs,<sup>9</sup> which were initially concentrated at the hospital level but have more recently been implemented at health centers, are some of the initiatives illustrating these efforts. Proper implementation of MWHs at the health centre level improved access to the basic emergency obstetric and newborn care (BEmONC),<sup>30,31</sup> which constitutes the seven signal functions: administering parenteral antibiotics, oxytocic drugs, and anticonvulsants; manual removal of the placenta and retained products; and perform assisted vaginal birth and, basic neonatal resuscitation.<sup>32</sup> Women in severe complications and laboring women requiring referral to the nearest comprehensive emergency obstetric and newborn care (CEmONC) facility will be referred to a facility that can perform two additional functions, cesarean section and blood transfusion.<sup>32</sup> This, in turn, demonstrates establishing functional MWHs considerably contribute to prevent maternal and perinatal mortality.<sup>10,30,33</sup> Likewise, systematically reviewed studies in Ethiopia



**Table 3** Multivariate Logistic Regression Analysis of Factors Associated with Utilization of MWHs (N= 379)

Variables	Category	MWH Utilization		COR (95% CI)	AOR (95% CI)	P-value
		Utilized	Not Utilized			
Decision-maker for the utilization of MWHs	My self	119	59	8.42 (5.17–13.7)	12.74 (6.18–26.26)	<0.001
	My family	8	17	1.965 (0.78–4.93)	2.68 (0.81–8.86)	0.105
	Husbands	34	142	1	1	
Having someone for child and/or husband care	Yes	103	69	3.83 (2.49–5.89)	2.71 (1.44–5.09)	<0.01
	No	58	149	1	1	
Availability of food service in MWHs	Yes	122	98	3.83 (2.44–5.99)	4.03 (2.07–7.85)	<0.001
	No	39	120	1	1	
Availability of extra space for cooking food, coffee, etc	Yes	140	98	8.16 (4.8–13.87)	9.55 (4.45–20.47)	<0.001
	No	21	120	1	1	
Husband approval to use MWHs	Yes	38	157	0.12 (0.075–0.195)	0.17 (0.09–0.32)	<0.001
	No	123	61	1	1	
Mother's attitude	Negative	7	69	0.09 (0.04–0.22)	0.09 (0.031–0.23)	<0.001
	Positive	154	149	1	1	

**Notes:** 1 – reference group, and the above variables are adjusted for husband's educational level, whether woman had ANC follow-up during the index pregnancy, had previous obstetric complications, had a family companion to MWHs, had concern on her marriage while staying in MWHs, MWH was too small and/or crowded, has water supply and firewood.

showed MWHs contributed to an 83% reduction in stillbirths and a 91% reduction in maternal deaths compared to women who did not attend MWHs.<sup>6,10</sup> This also illustrates the contribution of MWHs in achieving related SDGs,<sup>34,35</sup> in the poor countries like Ethiopia.

Similar with the results of previous studies done in Ethiopia,<sup>24,36</sup> and Mozambique,<sup>37</sup> the odds of utilizing MWHs increases when mothers are in a position to make their own decision towards using MWHs in our study. We also identified that women who had someone to care for their children/husbands at home when they go and stay at MWHs were more likely to utilize MWHs than those who do not have such assistances, and this is in concordance with an earlier study done in Ethiopia.<sup>36</sup> This again illustrates that, in Ethiopia, the burden of rearing children, taking care of household chores, and preparing food for the family are left to women, influencing their health, and signaling the need for male involvement in sharing household responsibilities including caring for children. On the other hand, MWHs allowing and arranging for pregnant women to bring their little kid/s with them would partly reduce such difficulty.

The utilization of MWHs and its facilities vary considerably across countries. Women bear different barriers when they want to go and stay at MWHs, including: poor MWH facilities, services, and sanitation issues; direct and indirect

costs; lack of transportation; and being away from home and their children.<sup>11</sup> In line with this, offering a meal service in MWHs increases the likelihood of utilizing MWHs in our study. The lack of services such as food insecurity at MWHs, cooking utensils, etc as potential barriers to utilize MWH were also identified by previous studies done in Ethiopia,<sup>38,39</sup> Zambia,<sup>26</sup> Liberia,<sup>13</sup> and other low resource countries in Africa.<sup>11</sup> In this study mothers who admitted to the MWHs and provided extra space for cooking their own traditional food and coffee were positively and significantly associated with the use of MWHs, and this is consistent with the previous studies done in Ethiopia,<sup>36,38,40</sup> Zimbabwe,<sup>11</sup> and Zambia.<sup>22,26</sup> Other studies also noted the absence of cooking utensils, the attendant being away from work,<sup>41</sup> poor toilets and kitchens, a lack of space for family and companions,<sup>14</sup> and provision of culturally inappropriate care as barriers to use MWHs.<sup>23,42</sup>

Women may also face psycho-social and cultural costs of childbirth experiences when away from their home and community. Like other traditional societies, Ethiopian women highly value their tradition and culture (their food, dressing, coffee ceremony, prayers, etc), which may potentially influence their utilization of MWHs. This again demonstrates addressing a respectful and culturally appropriate service given by the health institutions increases utilization of MWHs.<sup>40,43</sup> Provision of care, not in-line with the tradition

of women discouraging the acceptability of MWHs, is also reported by another recent study that stated the care at MWHs that undermine women's culture and tradition in the low- and middle-income countries deterred women's ability to use them.<sup>14,42</sup>

Women's attitude towards MWHs is also an important component of its use. Consistent with previous studies done in Ethiopia,<sup>36,44</sup> and Zambia,<sup>26</sup> our study found when women having a negative attitude towards MWHs reduced its utilization by 91%. On the other hand, healthcare workers attitude towards women using MWHs can also be equally detrimental, as a study in Kenya reported women at MWHs were not happy with healthcare workers' attitudes and proposed that staff should check on them regularly during their stay at the MWHs.<sup>45</sup> Such negative attitudes from both sides need to be reversed by emphasizing the importance of using MWHs, embedding a caring, respectful, and compassionate (CRC) attitude among staff members and increasing basic social services for women while staying in the MWHs.

## Conclusion

Utilization of MWHs in the study area was low (42.5%), compared to studies done in some other African countries. Such a low utilization of MWHs is linked with socio-economic, demographic, cultural, and facility-related constraints, and could consequently result in high maternal and neonatal mortality. As such women who can make decision by themselves to utilize MWHs, had someone to care for their children/husbands at home, were given a meal service at MWHs, allowed and/or offered extra space for cooking their own traditional food, coffee, etc, are more likely to use MWHs, as identified by our study. However, women who had a negative attitude towards the utilization of MWHs were less likely to use it. Therefore, respectful, culturally-appropriate, and supportive care at MWHs are recommended to improve its utilization and contribute to achieving the SDGs, particularly SDG 3.1 and 3.2),<sup>34,35</sup> in the LMICs such as Ethiopia. It is also worth considering appropriate interventions, in emergency conditions, such as Covid-19 would disrupt the use of MWHs by promoting "the staying-at-home lockdowns".

## Strength and Limitation of the Study

The tools prepared after reviewing relevant literatures, the reliability (internal consistency) of the tools checked using

the Cronbach's alpha, (all  $\geq 0.875$ ), using pre-tested primary data, multistage sampling and community based design, training, and supervision of data collectors may have enhanced the strength of this study. However, participants may not have provided their actual practice of MWHs, and consequently might have introduced social desirability bias and over-reporting. Furthermore, as this study is a cross-sectional design, we can neither infer a causal or temporal ordering of the associations. Thus, a large scale longitudinal study will help to produce better precisions and inform interventions and policy.

## Abbreviations

C/S, cesarean section; CI, confidence interval; FANC, focused antenatal care; CHSSs, College of Health Sciences; FMOH, Federal Ministry of Health; H/C, health center; HEWs, health extension workers; IRB, Institutional Review Board; LMICs, low and middle income countries; MWHs, maternity waiting homes; SPSS, Statistical Package for the Social Sciences; WHO, World Health Organization.

## Data Sharing Statement

All the data analyzed in this article are available from the corresponding author and can be obtained upon reasonable request.

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## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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## Disclosure

The authors declare that they have no conflicts of interest in this work.

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