Poverty reduces maternity waiting home utilization in Sidama Zone, southern Ethiopia

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Research

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Abstract

Background: Maternity waiting home utilization is proved to decrease maternal mortality and morbidity. Maternity waiting home service utilization is a strategy to improve facility-based skilled delivery service in Ethiopia. Though the establishment of maternity waiting homes started in Ethiopia more than three decades back, the utilization of the service seems to low. The objective of this study is to estimate the magnitude of maternity waiting home utilization and identify its associated factors in Sidama Zone, southern Ethiopia. Methods: A community-based cross-sectional study was conducted on a total of 748 mothers who gave birth in the last one year in selected woredas (districts) of Sidama Zone. Data were collected from April 1-25, 2019 using pre-tested and structured questionnaires. Data were coded and entered into EpiData version 3.5.1 and exported to Stata Version 13 software for analysis. Multivariable logistic regression analysis was performed to identify factors associated with maternity waiting home utilization adjusting for confounders. Results: In this study utilization of maternity waiting home in Sidama Zone was 67.25 % (95% CI: 63.79%-70.53%). Maternity waiting home utilization was significantly associated with maternal age of 31-40 (AOR=0.4; 95%CI: 0.28-0.64) related to 20-30 age category, daily laborer occupation of mothers (AOR=0.2; 95%CI: 0.06-0.76), protestant religion (AOR=1.7; 95% CI: 1.00-2.82), monthly income under poverty level(825-1320 EBR) (AOR=0.6; 95%CI: 0.36-0.92) related with extremely under poverty level(<825EBR), lack of knowledge about maternity waiting home (AOR=0.009; 95%CI: 0.002-0.03) and having a spouse who can read and write (AOR=2.0; 95%CI: 1.11-3.66). Conclusion: Women who had knowledge about maternity waiting home, women who had a husband who can read and write and women who were protestant religion followers have higher probabilities of maternity waiting home utilization, whereas older women (31-40 years old), women who are daily laborers and women whose family income is below poverty have lower probabilities of maternity waiting home utilization. Health education about maternity waiting home utilization, spouse education and women's economic empowerment are crucial to enhance maternity waiting home utilization. Keywords: Maternity waiting home, Utilization, Associated factors, Ethiopia

Background

Maternity waiting home (MWH) is a health facility residential accommodation of pregnant mothers starting from their term period of pregnancy. It is an intervention designed to improve access to skilled deliveries in low-income countries like Ethiopia where the maternal mortality and morbidity is high [1].

Access to comprehensive emergency obstetric care is limited in Ethiopia. MWHs are part of the strategies utilized to improve access to too hard to reach rural populations [2].

Skilled attendance at childbirth is crucial for decreasing maternal and neonatal mortality, yet many women in low- and middle-income countries deliver outside of health facilities without skilled help [3].

The utilization of maternity waiting home is a proven strategy to decrease maternal mortality and stillbirth rate [4]. There are different factors which affect the utilization of MWHs in Africa, a study in
Ghana reported that women could only use facility-based delivery services if they obtained permission from their husbands [5].

A study from Kenya reports only 28% of women knew of the existence of the MWH and the majority (95%) reported that they would require their husband's permission to use it [6].

In developing countries including Ethiopia, 30% of maternal mortality was due to low access to skilled birth attendants during delivery service [7]. Lower rates of maternal and perinatal death were reported from communities that utilized maternity waiting home service than communities not utilized maternity waiting home [8].

According to EDHS, 2016 report still the coverage of skilled and institutional delivery in the south nation's nationalities and peoples' region were only 28.6% and 25.5% respectively [9].

Despite long years of existence of this service in Ethiopia, the practice has not been adequately assessed so far [4]. Therefore, the aim of this study was to estimate the magnitude of maternity waiting home utilization and its associated factors in Sidama Zone, Southern Ethiopia.

**Methods And Materials**

A Community based cross-sectional study was carried out from April 1-30/2019 among mothers who gave birth in the last one year in the Sidama zone. Sidama Zone is one of the Zones found in the Southern Nations Nationalities and Peoples Regional State (SNNPRS) of Ethiopia. There are twenty woredas (districts) and two city administrations in the zone. According to the Sidama Zone Health Department, the total population in 2014/2015 was projected to be 3,676,576 (Personal communication with Sidama Zone Health Department Officials, 2017/18). There are seven governmental hospitals, 148 governmental health centers, and 524 health posts in the zone. Regarding human resources for health, the zone had 1857 obstetrics care providers (Physicians, Midwives, Public health officers, and nurses).

The sample size was proportionally allocated for selected woredas and kebeles based on the number of mothers who gave birth within the last year based on a census conducted before the actual study. A simple random sampling procedure was used to select the study participants.

The data were collected through face to face interviews by using structured and pretested questionnaires. The questionnaire was prepared by reviewing existing literature, which consists of sociodemographic characteristics, personal characteristics, and obstetric history. A pretest was done on 5% of the sample among mothers with similar characteristics to those included in the study.

Ten (10) Midwives who have a diploma and who were proficient in the local language (Sidaamu Afoo) were recruited for data collection. The training was given for 02 days on the objective, relevance of the study, confidentiality of information, respondent's rights, informed consent, and technique of interview; 02 midwives with a Bachelor's degree were trained and supervised the data collection.
The sample size was determined using the software Epi Info version 7 with the following assumptions: 95% confidence interval with 28.18% prevalence of maternity waiting home utilization [10], with a level of confidence (α) of 0.05, and 5% margin of error (d=0.05). The sample size for associated factors of maternity waiting home utilization was also calculated considering a confidence level of 95%, power of 80%, a ratio of unexposed-to-exposed of 1 and taking various factors. Then the largest of the calculated sample sizes was taken as a final sample size. Accordingly, distance to the health facility was considered as a factor to utilize maternity waiting home [1] which yielded a sample size of 340. By considering a design effect of 2 for two-stage sampling, the total sample size was 680. After adjusted for an anticipated 10% nonresponse rate, the final sample size was 748.

Data entry was done using EpiData 3.5.1 and exported to Stata version 13 software for analysis. The presence of an association between independent variables and MWH utilization was investigated using multivariable logistic regression. Adjusted odds ratios with 95% confidence interval were used to decide whether a significant association exists and its strength.

Results

Socio-demographic characteristic of study participants

A total of 748 mothers participated in the study, with a 99.59% response rate. The ages of the participants ranged from 20 to 61 years with a mean (±standard deviation) age of 31.26 (±6.42) years (Table 1).

Obstetric history of the study participants

Of the participants 70.20% (n=523) were multigravida and 68.72% (n=512) were multipara. From the participants, 74.63%(n=556) gave birth to their last baby in a health facility

Maternity waiting home utilization

In Sidama Zone the prevalence of maternity waiting home utilization is 67.25 % (95% CI: 63.79%-70.53%) (n=501). There are different reasons mentioned for not utilizing the maternity waiting home. The most common reason is to enjoy postnatal ceremony at home in the presence of the family members (37.30%; n=91) (Figure 1)

Factors associated with Maternity waiting home utilization

Maternal age of 31-40 years (AOR=0.4; 95%CI: 0.28-0.64) relative to 20-30 age groups, being a daily laborer by occupation (AOR=0.2; 95%CI: 0.06-0.76), protestant religion (AOR=1.7; 95%CI: 1.00-2.82), under poverty monthly income(825-1320 EBR) (AOR=0.6; 95%CI: 0.36-0.92) relative to extreme poverty level(<825 EBR), lack of knowledge about MWH (AOR=0.009, 95%CI: 0.002-0.03) and spouse who can read and write (AOR=2.0; 95%CI: 1.11-3.66) relative to illiterate were significantly associated with maternity waiting home utilization (Table 2).
Discussion

The prevalence of maternity waiting home utilization in Sidama Zone is 67.25%. This finding is better than the finding of the study conducted in Gurage Zone, Ethiopia (28.18%) [7]. The reason for the difference might be the time gap between the two studies (2010-2019) and improvements in information dissemination technologies nowadays.

The limitation of this study is, not involving obstetric health care providers in the study, and self-reporting data which is prone to social desirability and recall bias.

In this study, 87.65% of the women knew about the existence of maternity waiting homes. This finding is better than the study conducted in Kenya (28%). The possible reason might be socio-demographic differences and study periods [6].

Mothers in the age group of 31-40 years have 60% lower odds of maternity waiting home utilization compared to mothers in the age group of 20-30 years. This might be because during this age the mothers might have experience of many home births and hence could reluctant for maternity waiting home utilization. Women who were protestant religion followers were more likely to utilize maternity waiting (AOR=1.7, 95%CI (1.00-2.82)). The possible reason might be the religious doctrine which is flexible and gives emphasis for sensitive and update issues for their followers.

Women who were daily laborers had 80% lesser odds of utilizing maternity waiting homes. The possible reason might be due to their workload and income problem due to which they may engage in daily labor until the time of birth to win bread for their family. In opposite, women whose family income is under the poverty threshold were less likely to utilize maternity waiting home (AOR=0.6) in relation to mothers at extreme poverty levels. The possible reason might be mothers who had better income may consider private health facilities and might arrange accommodations in the nearby of the health center. Women who had a lack of knowledge on maternity waiting home were also less likely to utilize the maternity waiting home (AOR=0.009). The possible reason might be if they had knowledge, they have a better chance to utilize the maternity waiting home because they would know where the service is given and its benefits.

Women who had a husband who can read and write were more likely to utilize maternity waiting home (AOR=2.0). The possible reason might be since the husbands can read and write they can easily access information about maternity waiting home.

Conclusion

Women who had knowledge about maternity waiting home, women who had a husband who can read and write and women who are protestant religion followers have increased probabilities of maternity waiting home utilization, whereas maternal age of 31-40 years, women who were daily laborers and women whose family income is under poverty had decreased probabilities of maternity waiting home.
utilization. Health education and counseling about maternity waiting home utilization, spouse education and women's economic empowerment are crucial to enhance maternity waiting home utilization.

**Abbreviations**

AOR: Adjusted Odds Ratio; EDHS: Ethiopian demographic health survey; GOE: Government of Ethiopia; MWH: Maternity waiting home; MWHU: Maternity waiting home utilization; MOHE: Ministry of Health Ethiopia; SNNPRS: South nation's nationalities and peoples regional state

**Declarations**

**Ethical consideration**

Ethical clearance was obtained from the Institutional Review Board of the College of Medicine and Health Sciences, Hawassa University. A permission letter was obtained from Sidama Zone Health Department and respective woredas (districts) and kebeles. After informing the objective of the study, verbal consent was obtained voluntarily from each study participant.

**Consent for publication**

Not applicable.

**Availability of data and materials**

All data supporting the conclusions are included in the manuscript (tables and graphs).

**Competent interests**

The authors declare no conflict of interest

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**Authors’ contribution**

ZT drafted the proposal, participated in data collection, analyzed the data and drafted the manuscript. RF, HG, and AA approved the proposal with some revisions, participated in data analysis and revised subsequent drafts of the paper. All authors read and approved the final manuscript.

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Tables

Table 1: Socio-demographic and economic characteristics of study participants in Sidama Zone, southern Ethiopia, April, 2019 (n=745)
| Variables                          | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| **Age (years)**                   |           |            |
| 20-30                             | 441       | 59.19      |
| 31-40                             | 245       | 32.89      |
| 41-50                             | 56        | 7.52       |
| 51-61                             | 3         | 0.40       |
| **Religion**                      |           |            |
| Orthodox                          | 97        | 13.02      |
| Muslim                            | 89        | 11.95      |
| Protestant                        | 527       | 70.74      |
| Catholic                          | 32        | 4.3        |
| **Marital status**                |           |            |
| Married                           | 692       | 92.89      |
| Single                            | 12        | 1.61       |
| Divorced                          | 11        | 1.48       |
| Widowed                           | 30        | 4.03       |
| **Occupation of the mother**      |           |            |
| House wife                        | 614       | 82.42      |
| Government employed               | 12        | 1.62       |
| Private employed                  | 85        | 11.41      |
| NGO employed                      | 4         | 0.54       |
| student                           | 12        | 1.61       |
| Daily labor                       | 14        | 1.88       |
| Other                             | 4         | 0.54       |
| **Occupation of the spouse**      |           |            |
| Farmer                            | 388       | 52.08      |
| Government employed               | 19        | 2.55       |
| Private employed                  | 152       | 33.83      |
| student                           | 8         | 1.07       |
| Daily labor                       | 69        | 9.26       |
| Other                             | 9         | 1.21       |
| **Monthly income**                |           |            |
| <825 (extreme poverty)            | 557       | 74.77      |
| 825-1320 (under poverty)          | 115       | 15.44      |
| >1320 (above poverty)             | 73        | 9.80       |
| **Family size**                   |           |            |
| 2-3                               | 150       | 20.13      |
| 4-6                               | 448       | 60.13      |
| 7-10                              | 147       | 19.73      |
| **Educational status of the mother** |          |            |
| Illiterate                        | 292       | 39.19      |
| Read and write                    | 195       | 26.17      |
| Primary school complete           | 188       | 25.23      |
| Secondary school complete         | 50        | 6.71       |
| Graduated from collage/university | 20        | 2.68       |
| **Educational status of the spouse** |        |            |
| Illiterate                        | 209       | 28.05      |
| Read and write                    | 223       | 29.93      |
| Primary school complete           | 204       | 27.38      |
| Secondary school complete         | 82        | 11.01      |
| Graduated from collage/university | 27        | 3.62       |

Other: Merchant, Shop keeper

Other: Fisher man, shop keeper
Table 2: Logistic regression analysis results of participants for maternity waiting home utilization in Sidama Zone, southern Ethiopia, April/2019 (n=745).
| Characteristics | Utilize MWH | OR (95%CI) |
|-----------------|------------|------------|
|                 | Yes | No | Crude | Adjusted |
| Age             |     |    |       |          |
| 20-30           | 72.11 | 27.89 | 1.00  |          |
| 31-40           | 56.73% | 43.27 | 0.5(0.37-0.706)* | 0.4(0.28-0.64)** |
| 41-50           | 78.57 | 21.43 | 1.4(0.72 -2.77)* |          |
| 51-61           | 0    | 100% |       |          |
| Marital status  |     |    |       |          |
| Married         | 67.63 | 32.37 | 1.00  |          |
| Single          | 33.33 | 66.67 | 0.2(0.07-0.80)* |          |
| Divorced        | 72.73 | 27.27 | 1.3(0.33-4.85) |          |
| Widowed         | 70.00 | 30.00 | 1.1(0.50-2.47) |          |
| Religion        |     |    |       |          |
| Orthodox        | 57.73 | 42.27 | 1.00  |          |
| Muslim          | 58.43 | 41.57 | 1.0(0.57-1.84) |          |
| Protestant      | 70.97 | 29.03 | 1.8(1.14-2.79)* | 1.7(1.00-2.82)** |
| Catholic        | 59.38 | 40.63 | 1.0(0.47-2.41) |          |
| Occupation of mother |     |    |       |          |
| House wife      | 68.40 | 31.60 | 1.00  |          |
| Government employed | 66.67 | 33.33 | 0.9(0.27-3.10) |          |
| Private employed | 62.35 | 37.65 | 0.8(0.47-1.22) |          |
| NGO employed    | 0    | 100  |       |          |
| Government      |      | 0    |       |          |
| Student         | 100  | 0    |       |          |
| Daily laborer   | 28.57 | 71.43 | 0.2(0.05-0.59)* | 0.2(0.06-0.76)** |
| NGO employed    | 100  | 0    |       |          |
| OtherΩ          | 100  | 0    |       |          |
| Farmer          | 67.78 | 32.22 | 1.00  |          |
| Occupation of spouse |     |    |       |          |
| Government      | 100  | 0    |       |          |
| employed        |      | 0    |       |          |
| Private employed | 63.10 | 36.90 | 0.8(0.58-1.13) |          |
| Student         | 100  | 0    |       |          |
| Daily laborer   | 66.67 | 33.33 | 0.9(0.55-1.63) |          |
| OtherΩ          | 66.67 | 33.33 | 0.9(0.23-3.86) |          |
| Family monthly income |     |    |       |          |
| <825(Extreme poverty) | 68.22 | 31.78 | 1.00  |          |
| 825-1320(Under poverty) | 59.13 | 40.87 | 0.6(0.44-1.02) | 0.6(0.36-0.92)** |
| >1320(Above poverty) | 72.60 | 27.40 | 1.2(0.71-2.12) |          |
| Family size | Primigravida | Multipara | Grand multipara |
|-------------|--------------|-----------|-----------------|
| 2-3         | 68.00        | 32.00     | 1.00            |
| 4-6         | 69.87        | 30.13     | 1.0(0.73-1.62)  |
| 7-10        | 58.50        | 41.50     | 0.6(0.41-1.06)  |

| Educational status of mother | Primigravida | Multipara | Grand multipara |
|-------------------------------|--------------|-----------|-----------------|
| Illiterate                    | 61.30        | 38.70     | 1.00            |
| Read and write                | 71.28        | 28.72     | 1.6(1.06-2.31)* |
| Primary school complete       | 72.87        | 27.13     | 1.7(1.14-2.53)* |
| Secondary school complete     | 52.00        | 48.00     | 0.6(0.37-1.25)  |
| Graduated from college/university | 100         | 0         |                 |

| Educational status of spouse  | Primigravida | Multipara | Grand multipara |
|-------------------------------|--------------|-----------|-----------------|
| Illiterate                    | 61.72        | 38.28     | 1.00            |
| Read and write                | 77.13        | 22.87     | 2.1(1.38-3.18)* |
| Primary school complete       | 61.76        | 38.24     | 1.0(0.67-1.48)  |
| Secondary school complete     | 67.07        | 32.93     | 1.2(0.74-2.16)  |
| Graduated from college/university | 70.37    | 29.63     |                 |

| Parity  | Primigravida | Multipara | Grand multipara |
|---------|--------------|-----------|-----------------|
| Primipara | 75.84       | 24.16     | 1.00            |
| Multipara | 65.43       | 34.57     | 0.6(0.39-0.91)* |
| Grand multipara | 63.10   | 36.90     | 0.5(0.30-0.97)* |

*P-value <0.05,  
** P-value < 0.05 after adjustment for socio demographic characteristics and some concepts of maternity waiting home utilization
Figures

Figure 1

Complained reasons of mother for not utilizing maternity waiting home