Delivery place preference and its associated factors among women who deliver in the last 12 months in Simada district of Amhara Region, Northwest Ethiopia: a community based cross sectional study

Maru Mekie1* and Wubet Taklual2

Abstract

Objective: The aim of this study was to assess delivery place preference and its determinant factors in Simada District of Amhara Region, Northwest Ethiopia. Data was collected among 346 women who delivered in the last 12 months.

Result: Of the total 362 study participants, 346 were included in the analysis giving a response rate of 95.6%. More than half, 56.4% of the study participants reported home as their preferred delivery place. The odds of preferring home delivery was higher among women with low household income (AOR = 2.13, 95%, CI (1.06, 4.35)), and those who had < 4 antenatal care visits (AOR = 3.65, 95%, CI (1.58, 8.41)). Whereas, preference of home delivery was lower (AOR = 0.13, 95%, CI (0.05, 0.32)), (AOR = 0.40, 95%, CI (0.17, 0.98)), and (AOR = 0.31, 95%, CI (0.15, 0.67)) among women with facility delivery, within 5 km distance to health facility, and who had transport access respectively. Improving access of health facility to the nearest possible and improving transport access shall be emphasized to improve institutional delivery.

Keywords: Delivery place preference, Home delivery, Determinant factors, Amhara, Ethiopia

Introduction

There is pronounced disparity in maternal mortality between developed and developing countries which showed 99% of maternal mortality burden resides in developing countries [1]. The life time risk of maternal mortality is found to be 1 in 41 and 1 in 3300 pregnancies among developed and developing countries respectively. Maternal mortality was reported to be 236 per 100,000 live births in low-income countries and 216 per 100,000 at global level in 2015 [2—4].

Ethiopia is one of Sub-Saharan country where maternal mortality is a great public health concern. Maternal mortality is found to be higher in the country even compared to other low income countries. According to the 2016 Ethiopia demographic and health survey, maternal mortality ratio was 412 per 100, 000 live births. Despite a significant maternal mortality reduction has been achieved from 1400 per 100,000 in 1990 to 412 per 100,000 in 2015, the problem is still un acceptably high in the country [5, 6]. Studies revealed that more than three quarter of maternal mortality is attributed to direct obstetrics causes which could be resolved by skilled delivery care [2, 7].

The government of Ethiopia has been undertaking several measures to counteract maternal morbidity and mortality such as expansion of health facilities, construction of maternity waiting homes, training, and deployment of
midwives confined to health sector transformation plan [7, 8].

Despite substantial measures have been undertaken by the Ethiopian government and support organizations [9], institutional delivery is still unacceptably low in the country. Place of delivery is critical factor for women and child survival [10]. Hence, identifying potential determinant factors influencing women's preference of delivery site is crucial for program implementers and policy makers to achieve the health sector transformation plan [7]. This study aimed to assess determinants of delivery place preference and women's experience in place of delivery.

Main text

Methods

Study setting

A community based cross-sectional study design was employed in Simada district of Amhara Region, Northwest Ethiopia from March to May 2018. Women who delivered in the last 12 months and permanent resident of the district were included. Whereas, those who refused to participate and those lived < 6 months in the district were excluded.

Sample size and data collection procedures

The sample size was performed by using a single population proportion formula with \( Z_{\alpha/2} = 1.96 \), \( p = 0.31 \) [11], \( d \) (margin of error) = 5%. The final sample size after adding 10% non-response rate was 362. There were 10,112 women who delivered in the last 12 months in the district and the calculated sample was proportionally allocated to kebeles (the lowest administrative scheme in Ethiopia). Then study participants were selected by simple random sampling technique by using the list of women who delivered in the last 12 months as a sample frame. The data was collected by pretested questionnaire (see Additional file 1) adapted from Ethiopian Demographic and Health Survey [5] through face to face interview by trained data collectors. The quality of the data was ensured during data collection, coding, entry, and analysis.

Analysis

The data were entered in Epi-data Version 3.1, cleaned, edited, and analyzed by SPSS version 20. Binary logistic regression was performed to identify factors affecting preference of delivery place among study participants. Variables with a p-value of < 0.2 in the binary logistic regression were included in the multivariable model to identify the predictors of preference of delivery place. The statistical significance is confirmed at \( p < 0.05 \) with 95% confidence interval.

Ethical approval

The ethical issue was approved by Research Review Committee of the College of Health Sciences, Debre Tabor University. An official letter was written to administrative body of Simada district and the administrative bodies of the kebeles. Study participants were informed that the participation is voluntary and confidentiality of the information was maintained.

Results

Socio-demographic characteristics of the study participants

Of the total 362 samples, 346 were included in the analysis giving a response rate of 95.6% in which 16 cases were excluded in the analysis due to incompleteness. The mean age of the study participants was 30.82 years and the standard deviation was ± 6.41 years (see Table 1).

| Variables                        | Frequency (N) | Percent (%) |
|----------------------------------|---------------|-------------|
| Age (years)                      |               |             |
| < 20                             | 19            | 5.5         |
| 20–34                            | 224           | 64.7        |
| ≥ 35                             | 103           | 29.8        |
| Maternal status                  |               |             |
| In union                         | 318           | 91.9        |
| Not in union                     | 28            | 8.1         |
| Education                        |               |             |
| No formal education              | 183           | 52.9        |
| Primary education                | 113           | 32.7        |
| Secondary and above              | 50            | 14.5        |
| Occupation                       |               |             |
| House maker                      | 319           | 92.2        |
| Student                          | 12            | 3.5         |
| Government employee              | 15            | 4.3         |
| Monthly household income (ETB)   |               |             |
| < 1800                           | 161           | 46.5        |
| ≥ 1800                           | 185           | 53.5        |
| Husband education                |               |             |
| No formal education              | 168           | 48.6        |
| Primary education                | 112           | 32.4        |
| Secondary and above              | 66            | 19.1        |
| Husband occupation               |               |             |
| Government employee              | 31            | 9.0         |
| Farmer                           | 287           | 82.9        |
| Merchant                         | 14            | 4.0         |
| Daily laborers                   | 14            | 4.0         |
Obstetrics characteristics and factors influencing preference of delivery place

More than half, 195 (56.4%) of women prefer home delivery. Transport problem and far distance of health facility were reasons mostly cited by respondents with respective frequencies of 55 (28.1%) and 51 (26%). Trust on TBA and unfriendly care accounts for 36 (18.4%) and 25 (12.8%) respectively as a driving factors for preference of home delivery (Table 2.)

Pregnancy and child birth related characteristics of the study participants

With regards to number of pregnancies, 81 (23.4%) and 96 (27.7) participants were primiparous and grand multiparous respectively. More than a quarter, 97 (28%) of study participants had no information about advantage of giving birth at a health facility.

Table 2 Preference of place of delivery and related factors of women who delivered in the last 12 months in Simada district of Amhara region, Ethiopia

| Variables                        | Frequency (N) | Percent (%) |
|----------------------------------|---------------|-------------|
| Woman preference of delivery     |               |             |
| Facility                         | 151           | 43.6        |
| Home                             | 195           | 56.4        |
| Last place of delivery           |               |             |
| Facility delivery                | 150           | 43.4        |
| Home delivery                    | 196           | 56.6        |
| Reasons for home delivery        |               |             |
| Short delivery time              | 29            | 14.8        |
| Far facility                     | 51            | 26.0        |
| Transport problem                | 55            | 28.1        |
| Trust on TBA                     | 36            | 18.4        |
| Unfriendly care                  | 25            | 12.8        |
| Who manage at home               |               |             |
| Mother in low                    | 15            | 7.7         |
| TTBA                             | 21            | 10.7        |
| Female neighbor                  | 89            | 45.4        |
| Health extension workers         | 4             | 2.0         |
| Untrained TBA                    | 67            | 34.2        |
| Decision of delivery place       |               |             |
| Husband/TBA                      | 195           | 56.4        |
| Woman herself                    | 151           | 43.6        |
| Distance of health facility (km) |               |             |
| < 5                              | 182           | 52.6        |
| ≥ 5                              | 164           | 47.4        |
| Transport access                 |               |             |
| Yes                              | 159           | 46.0        |
| No                               | 187           | 54.0        |

Previous institutional delivery and living within 5 km distance to health facility were found to be associated with preference of institutional delivery (Table 3.)

Discussion

Less than half, 151 (43.6%, 95%, CI 37.9%, 49.2%) women prefer facility delivery as their preferred delivery place. The prevalence of institutional delivery is better than the national average (26%) [5]. However, the finding of our study is found to be much lower than a study conducted in Debre Markos town of Ethiopia [12]. The difference could be related to difference in study population in which the aforementioned study was conducted in urban area unlike our study.

With regards to reasons of preference of home delivery; transport problem and far distance of health facility were reasons mostly cited by respondents with respective frequencies of 55 (28.1%) and 51 (26%). Trust on TBA and unfriendly care accounts for 36 (18.4%) and 25 (12.8%) respectively as a driving factors for preference of home delivery. The finding is consistent with previous studies [13, 14]. Government shall work on compassionate respectful maternity care in addition to improving the competency of health care workers to increase women’s trust [7].

With regards to previous place of delivery, our study revealed that the odds preferring home delivery was found to be lower among women who delivered at health facility in previous births compared with counterparts (AOR=0.13, 95%, CI (0.05, 0.32)). The finding of our study is supported by previous studies [12, 15]. Similarly, the odds of preferring home delivery was found to be 2.13 times higher among women with household income of < 1800 ETB (AOR=2.13, 95%, CI (1.06, 4.35)). The finding is supported by previous studies [14, 16].

With regards to distance to health facility, the odds of preferring home delivery was found to be lower among women living within 5 km distance (AOR=0.40, 95, CI (0.17, 0.98)) compared with counterparts. Women who live >5 km distance to health facility might face difficulty of transport access, cost and other related logistics which are likely to be associated with preference of home delivery. The finding of our study is consistent with previous studies [14, 17, 18]. Likewise, the odds of preferring home delivery was found to be lower among women who had transport access (AOR=0.31, 95%, CI (0.15, 0.67)) compared with counterparts. The finding of our study is consistent with previous studies [17, 19, 20].

Consistent with previous studies [12, 17], the odds of preferring home delivery was found to be 3.7 times higher among women who had < 4 ANC visits (AOR=3.65, 95%, (1.58, 8.41)) compared with women who had ≥ 4 ANC visits. This might be women had frequent ANC visit had
a chance to be counseled frequently about delivery place, birth preparedness, and complication readiness plan.

**Conclusion and recommendation**

Institutional delivery in the study district was better than the national average. Women who had low household income and less than 4 ANC visit were more likely to prefer home delivery. Whereas, women who deliver at health facility in previous pregnancy, had transport access, and within 5 km radius to health facility were more likely to prefer institutional delivery. Improving transport access and health facility to the nearest possible shall be emphasized. Lessons that could be taken from this study are; apart from improving health and transport infrastructure, the influence of poor quality of health care cannot be undermined.
Limitations
The study was conducted in one district which might affect generalizability and representativeness of the finding. Cross-sectional study design was used which might affect cause effect relationship. However, effort was made to increase generalizability by collecting data at community level and those who delivered in the last 12 months to minimize recall bias which can be taken as a strength.

Additional file

Additional file 1. English version Questionnaires used to assess delivery place preference.

Abbreviations
ANC: antenatal care; ETB: Ethiopian Birr; TBA: traditional birth attendant; TTBA: trained traditional birth attendant.

Authors’ contributions
MM and WT have contributed in the design, data collection, thesis write-up, manuscript development and edition. Both authors read and approved the final manuscript.

Author details
1 Department of Midwifery, College of Health Sciences, Debre Tabor University, PO. Box: 272, Debre Tabor, Ethiopia. 2 Department of Population Health, College of Health Sciences, Debre Tabor University, Debre Tabor, Ethiopia.

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Competing interests
The authors declare that they have no competing interests.

Availability of data and materials
The datasets used during the current study are available from the corresponding author on reasonable request.

Consent for publication
Not applicable.

Ethical approval and consent to participate
The study was approved by Research Ethics Committee of Debre Tabor University. The purpose of the study was revealed and written informed consent was obtained from each study participant prior to initiation of the data collection process. Autonomy of the study participants and confidentiality of information were maintained.

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