Impact of Cultural Practices During Labor and Delivery on Maternal and Child Health Service Utilization and Associated Factors in Awi, East and West Gojjam Zones, Amhara Region, North West Ethiopia: Community Based Cross Sectional Study

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Abstract

**Background:** Cultural practices are traditional and customary practices of a particular ethnic or any other social group. The time of labor and delivery is a period at which such practices and beliefs present in every society in the world with a varied degree in type, depth, and dependency. Thus, this research was aimed to assess the impact of cultural practices during labor and delivery on maternal and child health service utilization and associated factors in Awi, West, and East Gojjam Zones North West Ethiopia.

**Method:** Community based cross-sectional study was conducted on women of the reproductive age group who have at least one pregnancy history in Awi, West, and East Gojjam Zones from January 1 to May 30, 2020. The multistage cluster sampling technique was used to select 845 study participants. Data was collected through a pre-tested and structured interview questionnaire, entered and cleaned using EPI info version 7.2, and exported to SPSS version 23 for analysis. Bivariable and multivariable logistic regression was employed to assess the association of the variables and a P-value less than 0.05 was declared as statistically significant.

**Result:** The study revealed that the magnitude of home delivery due to the impact of cultural practices was 31.2% with 95% CI: 28.3 to 34.4. Educational status (AOR=5.2, 95% CI: 1.8, 14.7), parity (AOR=2.7, 95% CI: 1.3, 5.4), cultural practice experienced during labor and delivery (AOR=2.1, 95% CI: 1.3, 3.4), history of abortion (AOR=2.0, 95% CI: 1.2, 3.1) and antenatal care follow up (AOR=33.8, 95% CI: 20.5, 55.7) had statistically significant association with impact of cultural practices on health service utilization during labor and delivery.

**Conclusion:** This study showed that the impact of cultural practices on health service utilization during childbirth was high in Awi, West, and East Gojjam Zones. Working on antenatal care follow up and women education in a culturally acceptable manner may reduce the impact of cultural practices on health service utilization during labor and delivery.

**Background**

Culture is socially shared views and behaviors practiced in a certain society[1, 2]. Worldwide, the period of labor and delivery is embedded in different beliefs, customs, and rituals in different societies[3].

In some communities, cultural beliefs and attitudes may influence health-seeking behavior which in turn contributes to the compromised state of maternal and child health in the country[4–6]. Maternal and child health is one of the parameters of health which is highly affected by certain cultural believes, rituals, and practices. Low utilization of institutional delivery rate, high maternal mortality, high infant, and under 5 mortalities, and high cultural malpractices are among manifestations of poor health care utilization in Ethiopia[7].

Besides vigorous efforts are done by the state government of Ethiopia, national, and international nongovernmental institutions, maternal death was found to be 412 per 100,000 live births[8]. In terms of
service utilization, 74% of pregnant women had ANC follow-up, 50% institutional delivery, and 34% of women had post-natal care follow-up, which is far from the expected maternal health service utilization[9]. Also, high morbidity and mortality are seen in neonates, infants, and under-fives despite the availability of health care services and qualified health professionals.

The majority of deaths and morbidity to women and their children can be prevented by appropriate utilization of reproductive, maternal, child, and neonatal health standards per the recommendation with the state of behaviors, cultural practices, and rituals[10]. In contrast, in areas where cultural practices are prevalent, they will adversely impact the health of the mother and her child too[11].

Reduction of routine daily activities, psychological support, avoidance of sexual intercourse, preference to the traditional birth attendant, tumbling umbilical cord, confinement of woman, lying on the hotbed is practices and rituals seen in Lao PDR as studied on ritual communities in 2015[2].

Even in limmu genet, Ethiopia, the prevalence of cultural malpractices during pregnancy, delivery, and postpartum was high including nutritional taboo, abdominal massage, home delivery, and avoiding colostrum feeding to newborns were common findings[7].

Feto-maternal death due to hypertensive disorder, uterine rupture, severe bleeding, fetal distress, stunting, and undergrowth is among the health impacts of cultural practices and rituals[3, 12].

After an effort of availing health facilities and enhancing access to health facilities, still, there is evidence of poor utilization of health care services in some parts of the countries in general and some regions in particular[13].

A little step was seen after the implementation of maternity waiting homes, an area created with the notion of creating women feel at home in taking advantage of societal culture by merging with the health system as the nation is full of the diverse culture surrounding pregnancy[10].

Plenty of cultural practices directly or indirectly have an impact on the health of the mother and her child. For instance, malpractices such as food taboos and restrictions, butter-based abdominal massage, confinement of postnatal mother and other are cultural practices which are practiced during pregnancy, childbirth, and postnatal mothers. Besides prelacteal feeding, restriction of certain food types and others are practices to the child[14].

In addition to a direct effect on the health, the mentioned practices and others can greatly affect health-seeking behaviors, specifically maternal and child health services, which are pivotal in improving the health of the family and the nation at large. Moreover, a high prevalence of stunting (46%) in the region might be due to certain cultures[8].

According to the 2019 Mini EDHS report, institutional delivery coverage was found to be only 48% but the ANC coverage was 74%[9]. This shows that the majority of women still delivered at home. So what?
Women who had ANC follow up should deliver at a health facility by principle since they had health care service utilization awareness.

A nationwide gap in maternal and child health service utilization during childbirth necessitates research at the grass-root level.

Therefore, the main aim of this study was to assess the impact of cultural practices on maternal and child health service utilization during childbirth and associated factors in Awi, East, and West Gojjam zones.

**Methods**

**Study design**

A community-based cross-sectional study design was used.

**Study area and period**

This study was conducted in Awi, East, and West Gojjam zones from February 1 to May 30, 2020.

**East Gojjam zone:** Debre Markos is its administrative center with a total population of 2,153,937 and 506,520 households who are distributed in 22 woredas and 480 Kebeles. There are 10 hospitals, 102 health centers, and 423 health posts in this Zone. **Awi zone:** Injibara is its administrative center and has a total population of 982,942 and 215,564 households. **West Gojjam zone:** Finoteselam is its administrative center with total population of 2,106,596, of whom 1,058,272 men and 1,048,324 women[15].

**Source population**

All women in the reproductive age group who had at least one history of pregnancy in Awi, East and West Gojjam Zones, Amhara Region, North West Ethiopia.

**Study population**

All randomly selected women found in the reproductive age group who had at least one history of pregnancy in randomly selected Kebeles of Awi, East and West Gojjam Zones, Amhara Region, Northwest Ethiopia.

**Inclusion and exclusion criteria**

**Inclusion criteria**

All reproductive age women who experience at least one pregnancy and available during the data collection period were included in the study.
Exclusion criteria

Women who were severely ill that could not communicate verbally and those who were not lived at least for six months in the study area during the data collection period were excluded from the study.

Sample Size Determination and Sampling procedure

Sample Size Determination

The sample size was determined based on a single population proportion formula assumption. Using the prevalence of cultural malpractices from the study done in Meshenti town[11], west Gojjam, Amhara region, Ethiopia which is 50.9% with 5% confidence limit (margin of error) and 95% confidence interval.

\[ n = \left( \frac{Z \alpha^2}{2} \right) \times p(1-p) w^2 = 1.96^2 \times 0.509(1-0.509)(0.05)^2 = 384 \]

Since it has two stages, we take a design effect of 2 and the sample size was 384*2=768. By considering a 10% non-response rate, the estimated number of non-response participants was 768*0.10=77.

Therefore, the minimum sample size for this study was 768+77=845

Sampling procedure

A multistage cluster sampling technique was used. Twelve (12) Woredas were selected by using the lottery method from the three zones and cluster sampling was again employed after proportionally allocate the total sample size (845) to the selected kebeles of each woreda.

Study variables

Dependent

Impact of cultural practice on maternal and child health service utilization

Independent

Education status, Residence, Religion, Ethnicity, Income, Occupation, knowledge, ANC follow up, place of delivery,….

Operational definitions

Labor: a continuous process in which progressive uterine contraction results in the expulsion of the product of conception from the uterus through the birth canal after progressive effacement and dilatation of the cervix[16].

Delivery: The release of the fetus and other products of conceptus from the uterus either vaginally or abdominally[16].
Health service utilization: The description of the use of services by persons to prevent and cure health problems, promoting maintenance of health and well-being, or obtaining information about one's health status and prognosis[17, 18].

Cultural practices: Experiences or beliefs that are socially shared views and behaviors practiced in a certain society at a certain time[2].

Impact of cultural practice on Health service utilization: Any cultural practice that can be a barrier to utilize the health services in the health facility[19].

Data Quality Control

To assure the data quality high emphasis was given in designing the data collection tool. A structured data collection tool was utilized and clarity of the tool was checked on 5% of the sample size in the south Gondar zone.

Two days of training were provided for data collectors and supervisors regarding the objectives of the study, data collection method, and the significance of the study. During data collection, all data collectors were supervised for any difficulties and direction and the necessary correction was provided. Collected data was checked for completeness and on spot corrective measure was taken both by data collectors and supervisors. Daily communication was conducted among data collectors, supervisors, and principal investigators for discussion regarding presenting difficulties and to assess the progress of data collection.

Data processing and analysis

All collected questionnaires were rechecked for completeness and coded. Then these data were entered and cleaned using Epi Info 7.2 software and exported to SPSS version 23 for analysis. Bivariable logistic regression was employed to identify an association, and a multivariable logistic regression model was used to control the effect of confounders.

Variables having P-value less than 0.05 in the Bivariable analysis were fitted into the multivariable logistic regression model. Ninety-five percent confidence interval of odds ratio was computed and a variable having P-value less than 0.05 in the multivariable logistic regression analysis was considered to declare statistical significance.

Before the actual logistic regression analysis was done, the necessary assumption of the logistic regression model was checked by using the Hosmer-Lemeshow test of goodness of fit which has a chi-square distribution.

For further analysis, descriptive statistics like frequencies and cross-tabulation was performed. Graphical presentations such as bar charts and pie charts were used to present the result findings of the study in addition to texts and tables.
Results

Socio-demographic characteristics

A total of 845 respondents were included in this study with a 100% response rate. The mean age of the respondents was 35.2 years (SD ± 8.9) ranging from 18 to 75 years as minimum and maximum ages respectively. Among the participants, five hundred forty-five (64.5%) were rural dwellers. (Table 1)

Obstetrics characteristics

These factors are directly related to pregnancy and services towards pregnancy including ANC follow-up, abortion management, delivery care, and the care given for the newborn. These services may be influenced by many factors like cultures, beliefs, and rituals in addition to other factors. More than three fourth (75.4%) of the respondents had ANC follow up in the study area. Five hundred eighty-two (68.9%) respondents were a decision maker by themselves to get maternal health care services. (Table 2)

Two hundred sixty-four (31.2%) of the respondents were delivered at home for different reasons. More than one third of the participants were consider their private options as a reason for home delivery. (Fig. 1)

Others: From the above figure represent transport cost due to COVID-19 and fear of the infection itself.

Among the respondents two hundred fifty-two (29.8%) were faced past obstetric complications and take different solutions for those problems like going to the health facility, taking home remedies, and others in general according to their cultures and beliefs(Fig. 2).

Others for Fig. 2

Represents relieves by itself without taking anything, preparing red Jano (gabi with the red stripe at the end) and rotating it around the women's head.

Cultural Characteristics

Cultural practices can influence health service utilization during labor and delivery in different ways. For example, by potentiating the three delays and making them negligent for medical care. More than half (54.8%) of the respondents heard antenatal cultural practices (Table 3).

More than one fourth (26%) of the participants were experienced abdominal massage during labor to fasten the delivery and nearly one third (31%) of the respondents were delivered at home.

Out of the respondents who had experienced cultural practices during labor and delivery one hundred sixty-two (54.7%) used linseed (telba) to fasten the delivery while she was in labor. (Table 3)

Impact of cultural practices on health service utilization during labor and delivery
As research findings in the world indicated that delivery service utilization is mainly affected by cultural practice and traditional beliefs. This is more common in developing country including Ethiopia, especially in rural areas.

These cultural practices greatly affect their healthcare-seeking behaviors. Not only delaines but also they had no interest to hear about health institutional delivery for different reasons. Some respondents complain about the pain of per vaginal examination and the ill manner of the health professionals. Others concern about privacy and the remaining ones rely on TBAs than health care providers.

Among respondents who had delivered at home, 21.1% were attended by TBAs. In some rural areas of Ethiopia, health care service utilization is counted as a sin rather they experienced taking holly water, rotating white hen around the laboring women's head, shooting a gun while bleeding occurs, and the likes.

All these cultural practices lead to delaines in seeking health care and decision making. Finally, the women may face many obstetric complications including fetomaternal death.

The following table shows that home deliveries in the study area due to those cultural practices. (Table 4)

**Factors associated with the impact of the cultural practice on health service utilization**

The influence of factors including culture on health service utilization was determined by using statistical package software for social science (SPSS) version 23 for analysis.

In crude Bivariable analysis, the significant variables for the impact of cultural practices on health care service utilization were gravidity, educational status, parity, cultural practice experienced during labor and delivery, pregnancy-related complications, history of abortion, and ANC follow up (P-value < 0.5%)  

In multivariable logistic regression, from variables found to be significant in bivariable analysis, gravidity, educational status, parity, cultural practice experienced during labor and delivery, pregnancy-related complications, history of abortion and ANC follow up were found to be significantly associated with the impact of cultural practices on health care service utilization (P-value < 0.05%). (Table 5)

**Discussion**

This community-based cross-sectional stud tried to assess the impact of cultural practices on health service utilization and associated factors among women of reproductive age who had at least one pregnancy history in Awi, East and West Gojjam Zones, Amhara region, North West Ethiopia, 2020.

The result of this study showed that the magnitude of home delivery is 31.2% due to the impact of cultural practices with 95% CI: 28.3 to 34.4. This result is lower than the study conducted in South West Ethiopia (38.3%)[7].

This may be due to a great difference in culture, civilization, and ethnicity between South West and North West Ethiopian people. In southern Ethiopia, there are a lot of ethnic groups with different culture and
most leads nomadic lifestyle whereas, in North West part, Amhara ethnic group is dominant with an almost similar culture and farming lifestyle.

The other possible explanation for this difference could be the period in which the study was conducted. As time has gone, the awareness of the community about the health service utilization will increase and again accessibility of those health services will replace cultural practices and traditional beliefs concerning fetomaternal health during labor and delivery.

This finding is lower than the results from the 2019 Mini-EDHS report which is 52%[9]. The difference might be due to the study area. The EDHS report is nationwide while our finding was done in three zones of one region. The other possible reason for this difference could be the sampled population size and cultural diversity throughout the country.

Again this result is in line with the study finding in Serra Leon (31.1%)[4]. This similarity can be explained by the methodology, sample size, and the study area we used. As the study in Serra Leon, we use a cross-sectional study design with enough sample size in both rural and urban as a study area.

Our finding is again much lower than the findings of the study done in rural Nepal (87%)[3]. The possible explanation for this difference may be the study set up. The study in Nepal was conducted in rural areas while our study was done both in rural and urban. People who live in urban areas have more health service access than rural ones. Again there may socio-cultural differences between Ethiopia and Nepal.

Maternal educational status is one of the factors associated with the impact of cultural practices on health service utilization.

Women who were read and write were 5.2 times more likely to utilize health care services when compared with women who were unable to read and write (AOR = 5.2, 95% CI: 1.8, 14.7). Women who were in primary school were 3.2 times more likely to utilize health care services as compared to women who were unable to read and write (AOR = 3.2, 95% CI: 1.1, 9.2).

This finding is in agreement with studies conducted in Southern Ethiopia[7], India[6], and Turkey[20].

The possible explanation could be, respondents who were unable to read and write had a low level of understanding about health care service utilization and healthcare-seeking behavior rather they want traditional healers, cultural home remedies on the contrary those women who were read and write had better information about health and have information where they can get health care during labor and delivery.

This also indicates that as women educate, they might minimize the influence of cultural practices during labor and delivery that intensify health service utilization.

Respondents with no history of abortion were 2.0 times more likely to utilize health care services than those had (AOR = 2.0, 95% CI: 1.2, 3.1). This might be explained with women who utilize the health care
services can get preconception care that reduces the occurrence of abortion while women who experience cultural practices may not have the opportunity to utilize health care services. Preconception care is one health care service by itself.

Respondents who had experienced cultural practices during labor and delivery were 2.1 times less likely to utilize the health care services than those who do not have (AOR = 2.1, 95% CI: 1.3, 3.4). This finding is supported by other studies conducted in Meshenti town, Ethiopia[11], the Western Region of Ghana[21] and Southeast Madagascar[22].

The possible reason could be women who experience cultural practices during labor and delivery may face the three delays (delay in decision making, delay in transport, and delay in getting the service) than their counterparts.

These delays can create a burden on delivery service utilization whereas women who do not practice traditional beliefs and cultures may free from those delays and get the delivery service in the health institution easily. The other reason might be respondents who live within diversified cultures and traditional beliefs may neglect health care service utilization in general.

Women who had ANC follow up were 33.8 times more likely to utilize the delivery services than those who did not have ANC follow up (AOR = 33.8, 95% CI: 20.5, 55.7). This finding is similar to the study done in Malaysia[23].

This is possibly explained by the reasons women visit a health facility for ANC service, they well aware of the risks and complications of home delivery. Again when they have ANC follow-up, they get the opportunity to be familiar with the health professionals and know the reality of what is done in the health facility by avoiding cultural rumors.

The other possible explanation might be when pregnant women had ANC follow up, they will get a waiting room in the last month of pregnancy especially for those who are far apart from the health institution so that they utilize the delivery service effectively by breaking the influence of cultural practices and traditional beliefs during labor and delivery.

Parity is another variable that is significantly associated with the impact of cultural practices on health service utilization during labor and delivery. Respondents with parity of five and above were 2.7 times more likely to utilize the delivery services than Premipara (AOR = 2.7, 95% CI: 1.3, 5.4). This finding is in concur with the study conducted in Malaysia[23].

The possible justification might be, as the order of pregnancy increases, pregnancy complications increase in parallel including uterine rupture, postpartum hemorrhage, antepartum hemorrhage, and others that are life threatening for the mother as well as the fetus. Therefore, irrespective of her interest she may obligate to visit the health facility as these complications occur and utilize the health care services.
Limitation

Difficulty of data collection due to Covid-19 in terms of cost and getting full information from the respondents.

Conclusion

This study revealed that the impact of cultural practices on health service utilization during labor and delivery was high in Awi, West, and East Gojjam Zones.

Educational status, parity, cultural practice experienced during labor and delivery, pregnancy-related complications, history of abortion, and ANC follow up had a statistically significant association with the impact of cultural practices on health service utilization during labor and delivery.

Acronyms And Abbreviations

ANC: antenatal care, AOR: adjusted odds ratio, CI: confidence interval, CP: Cultural practice, FMOH: Federal Ministry of Health, HEW: health extension worker, HH: household, HSU: health service utilization, LD: Labor delivery

Declarations

Ethics approval and Consent to participate

An ethical clearance letter was obtained from the Debremarkos University Research and community service directorate. The study was ethically cleared by the research organizing and approving committee of the health science college. All methods were carried out in accordance with relevant guidelines and regulations of Debremarkos University.

Written informed consent was gained from study participants and the respondents were informed about the purpose of the study confidentiality of all information with no personal identification was left on the questionnaire.

Availability of data and materials

The data sets used and analyzed during the current study will be available from the corresponding author on reasonable request.

Consent for publication: Not applicable.

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Competing Interests

The author(s) declared that no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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Authors Contribution:

Conceptualization: MFM, TMB

Methodology: MFM, YBB

Data Cleaning: KND, DBW

Formal analysis: MFM, DBW

Supervision: KND, YBB

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Tables

**Table 1:** Socio-demographic characteristics among reproductive age women during child birth in Awi, east and west Gojjam zones, Amhara region, North West Ethiopia, 2020 (n=845)
| Variable            | Frequency | Percent |
|---------------------|-----------|---------|
| **Age (in years)**  |           |         |
| ≤20                 | 8         | 0.9     |
| 21 -35              | 491       | 58.2    |
| ≥36                 | 346       | 40.9    |
| **Marital status**  |           |         |
| Single              | 10        | 1.2     |
| Married             | 698       | 82.6    |
| Widowed             | 87        | 10.3    |
| Divorced            | 50        | 5.9     |
| **Religion**        |           |         |
| Orthodox            | 794       | 94.0    |
| Muslim              | 45        | 5.3     |
| Protestant          | 4         | 0.5     |
| Catholic            | 2         | 0.2     |
| **Educational status** |       |        |
| Unable to read and write | 339   | 40.1    |
| Read and write      | 227       | 26.9    |
| Primary education   | 106       | 12.5    |
| Secondary education | 73        | 8.7     |
| College and above   | 100       | 11.8    |
| **Ethnicity**       |           |         |
| Amhara              | 709       | 83.9    |
| Agew                | 136       | 16.1    |
| **Occupation**      |           |         |
| Housewife           | 341       | 40.4    |
| Governmental worker | 74        | 8.8     |
| Merchant            | 69        | 8.2     |
| Farmer              | 286       | 33.8    |
| Service related characteristics on women of reproductive age group during labor and delivery in Awi, East and West Gojjam Zones, Amhara Region, North West Ethiopia, 2020 (n=845) |
|---|---|---|---|
| **Student** | 7 | 0.8 |
| **NGO** | 3 | 0.4 |
| **Private worker** | 52 | 6.2 |
| **Others** | 13 | 1.5 |
| **Residence** |  |  |  |
| **Rural** | 545 | 64.5 |
| **Urban** | 300 | 35.5 |
| **Income** |  |  |  |
| Income<2037 | 284 | 33.6 |
| Income from 2037 to 3506 | 277 | 32.8 |
| Income>3506 | 284 | 33.6 |
| Variables                 | Frequency | Percent |
|---------------------------|-----------|---------|
| **History of abortion**   |           |         |
| No                        | 640       | 75.74   |
| Yes                       | 205       | 24.26   |
| **ANC follow up**         |           |         |
| No                        | 208       | 24.6    |
| Yes                       | 637       | 75.4    |
| **Reason for no ANC**     |           |         |
| No health facility nearby | 25        | 12.0    |
| I don't understand it's function | 133 | 63.9 |
| Unwillingness of family   | 38        | 18.3    |
| Others                    | 12        | 5.8     |
| **Decision maker for health care** | | |
| My self                   | 582       | 68.9    |
| Husband                   | 226       | 26.7    |
| Husband's mother          | 37        | 4.4     |
| **Who attend the delivery at home** | | |
| Family                    | 204       | 77.3    |
| TBA                       | 57        | 21.6    |
| Neighbors                 | 3         | 1.1     |

*Table 3:* cultural practices experienced on women of reproductive age group during labor and delivery in Awi, East and West Gojjam Zones, Amhara Region, North West Ethiopia, 2020
| Variables                              | Frequency | Percent |
|----------------------------------------|-----------|---------|
| Antenatal cultural practice heard      |           |         |
| No                                     | 382       | 45.2    |
| Yes                                    | 463       | 54.8    |
| Antenatal cultural practice experienced|           |         |
| No                                     | 602       | 71.2    |
| Yes                                    | 243       | 28.8    |
| Cultural practice heard at L/D         |           |         |
| No                                     | 375       | 44.5    |
| Yes                                    | 470       | 55.5    |
| Cultural practice experienced at L/D   |           |         |
| No                                     | 572       | 67.7    |
| Yes                                    | 273       | 32.3    |

**Table 4:** Place of delivery among respondents in Awi, East and West Gojjam Zones, Amhara Region North West Ethiopia, 2020 (n=845)

| Variables       | Frequency | Percent | Lower  | Upper  |
|-----------------|-----------|---------|--------|--------|
| Institutional delivery | 581       | 68.8    | 65.6   | 71.7   |
| Home delivery   | 264       | 31.2    | 28.3   | 34.4   |

**Table 5:** Bivariable and Multivariable logistic regression results of factors associated with impact of cultural practices on health service utilization in Awi, East and West Gojjam Zones, Amhara region, North West Ethiopia, 2020 (n=845)
| Variables                                      | L/D service utilization | COR (CI: 95%)        | AOR (CI: 95%)        |
|-----------------------------------------------|-------------------------|----------------------|----------------------|
|                                               | Health Inst. | Home |                  |                      |
| History of abortion                           | No | 484  | 156  | 3.5(2.5, 4.8)* | 2.0(1.2, 3.1)*       |
|                                               | Yes| 97   | 108  | 1           | 1                    |
| Educational status                            | Unable to read and write | 167  | 172  | 1           | 1                    |
|                                               | Read and write         | 160  | 67   | 0.4(0.3, 0.6)* | 5.2(1.8, 14.7)*       |
|                                               | Primary school         | 91   | 15   | 0.2(0.1, 0.3)* | 3.2(1.1, 9.2)*       |
|                                               | Secondary school       | 69   | 4    | 0.04(0.01, 0.13) | 2.6(0.8, 8.3) |
|                                               | College and above      | 94   | 6    | 0.06(0.03, 0.15) | 0.7(0.14, 3.4) |
| Cultural practice experienced during L&D      | No | 462  | 110  | 5.4(3.9, 7.4)* | 2.1(1.3, 3.4)*       |
|                                               | Yes| 120  | 153  | 1           | 1                    |
| ANC follow up                                 | No | 28   | 185  | 1           | 1                    |
|                                               | Yes| 554  | 78   | 46.9(29.5, 74.5)** | 33.8(20.5, 55.7)**   |
| parity                                        | parity≤1 | 153  | 35   | 1           | 1                    |
|                                               | parity from 2 to 4     | 347  | 122  | 1.5(1.01, 2.34)* | 1.2(0.6, 2.2) |
|                                               | parity ≥5              | 82   | 106  | 5.7(3.5, 9.01)* | 2.7(1.3, 5.4)*       |
| Pregnancy related complication                | No | 433  | 160  | 1           | 1                    |
|                                               | Yes| 148  | 104  | 1.9(1.4, 2.6)* | 0.9(0.5, 1.5)       |
| Gravidity                                     | Gravidity=1            | 134  | 21   | 1           | 1                    |
| Gravidity from 2 to 5 | 379 | 143 | 2.4(1.5, 3.9)* | 1.6(0.5, 5.9) |
|-----------------------|-----|-----|----------------|---------------|
| Gravidity 6 and above | 69  | 99  | 9.2(5.3, 15.9)* | 1.6(0.3, 7.8)[1] |

[1]**=P-value $\leq 0.001$, *= P-value $0.05$, 1=Reference