

# Kangaroo mother care practice and its associated factors among postnatal mothers who gave birth in public general hospitals of Eastern and Central zone, Tigray, North Ethiopia

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## Research

**Keywords:** kangaroo mother care, low birth weight, practice, newborn baby

**Posted Date:** August 17th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-57242/v1>

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# Abstract

## Background:

Kangaroo mother care (KMC) practice 'is the early, prolonged and continuous skin-to skin contact between the mother and her low birth weight baby that practiced in the hospital and after early discharge until at least the 40<sup>th</sup> weeks of postnatal period with exclusive breast feeding and proper follow-up'. Low birth weight is an underlying factor in 60-80% of all neonatal deaths. Therefore, this study aimed to assess kangaroo mother care practice and its associated factors among post natal mothers who gave birth in public hospitals of Eastern and Central zone, Tigray, North Ethiopia.

## Methods:

An institutional based cross-sectional study was conducted in Eastern and central zone of Tigray Region from March – August/2019. A total of 411 study participants were selected using simple random sampling technique. Binary and Multiple logistic regression analysis were used to see the association of independent variables to the outcome variable at a  $P < 0.05$  using SPSS version 20.0 software.

## Results:

A total of 397 study participants were included in the study with a response rate of 96.6%. Of these, the mean age of the respondents was 27.4( $\pm$ 5.7). More than half (54.4%) of mothers were practiced KMC to their low birth weight baby. Mothers age [AOR (95%CI):0.21(0.05,0.95)], occupational status of mothers [AOR (95%CI): 0.11(0.04,0.34)], occupational status of fathers [AOR (95%CI): 4.1(1.54,11.07)], monthly income[AOR(95%CI): 0.27(0.09,0.76)], place of delivery [AOR(95%CI):0.29(0.11,0.76) and complications of newborn baby at birth [AOR(95%):3.1(1.21,8.09)] were the factors significantly associated with kangaroo mother care practice.

## Conclusion:

There was low proportion of mothers practiced kangaroo mother care to their low birth weight baby. Hence, health care providers should demonstrate for family members and mothers on how to practice kangaroo mother care immediately after delivery in health institution and to be continued at home.

# Introduction

Kangaroo mother care (KMC) practice is the early, prolonged and continuous skin-to skin contact between the mother and her low birth weight infant that practiced in the hospital and after early discharge until at least the 40<sup>th</sup> weeks of postnatal period with exclusive breast feeding and proper follow-up' [1].

Prematurity was the largest direct cause of neonatal mortality, accounting for an estimated 29% of 3.6 million neonatal deaths every year. Low birth weight was an underlying factor in 60-80% of all neonatal deaths [2]. Kangaroo Mother Care [KMC] is an evidence-based approach to reducing morbidity and mortality in preterm/ low birth weight baby [3-4]. Practicing of kangaroo mother care can be considered at

three levels; mothers, fathers and families, health-care workers and facilities. Kangaroo mother care takes place in the health facility or at home [5]. Health-care workers were critical for practicing in hospitals and their main role was to educate the parents about kangaroo mother care. Mothers, fathers and families were usually the primary caregivers of low birth weight or preterm newborns and involved in decision-making and practice of care [6]. Majority 82% of respondents were practicing kangaroo mother care to their child at neonatal intensive care units (NICUs) [7]. Adequately implement and effectively scale-up this intervention is critical to understand the key factors that contribute to a mother's (in) ability to practice KMC [8-9]. Majority of mothers (83.3%) did not have prior knowledge of KMC practiced. Mothers who committed to KMC, were satisfied with the results of the weight gain of the infant and indicated that they would continue to practice KMC at home. Most of them agreed that it was beneficial to both mother and infant [10].

Research from various countries also suggests that KMC is a cost-effective method for treating low birth weight or preterm infants [11]. In low birth weight newborns (< 2500 g) who were clinically stable, kangaroo mother care reduces mortality in preterm newborns [12]. When institutional leadership did not prioritize kangaroo mother care, health-care workers were less motivated to practice, but felt empowered to do so when management allowed for roles in decision-making or promoted kangaroo mother care practice [13]. In Ethiopia, around 41.9 % of mothers were practiced kangaroo mother care. Of these, 14.4% of mothers were started KMC immediately after birth as the infant had stabilized and 65.6% of them were practiced after 24 hours. Among mothers practiced KMC, 78.9% were continued at home, 31.1% used KMC continuously, 53.5% used KMC for 1-7 days but 4.2% were continued KMC practice at home for more than 15 days [14]. Kangaroo mother care practice and its associated factors were a scanty of known in Tigray Regional state. This study will help in advocacy; guidance and program development on kangaroo mother care practice, which is very important for reducing of preterm/low birth weight babies morbidity and mortality. Therefore, this study aims to investigate kangaroo mother care practice and its associated factors among postnatal mothers who gave birth to preterm/low birth weight.

## **Materials And Methods**

### **Study area and period**

The study was conducted in Eastern and Central zone of Tigray Regional state, North Ethiopia. Tigray is bordered by Eritrea to the North, Sudan to the west, Afar Region to the east and Amhara Region to the south. According to the projected census of 2007, the Region had a total population of 4,806,843 of these; 2,441,158 (50.8%) were women. In Eastern Zone, there were total population of 755,343, of these, 395,705 were women. In central Zone, there were total population of 1,245,824, of these, 632,027 were women. In the two zones, there are six general hospitals [15]. The study was conducted from March – August/2019 among the selected health facilities.

### **Study design and population**

A facility based cross sectional study was employed. The source population for this study was all mothers who gave birth in all general hospitals of eastern and central zone of Tigray Regional state. All selected mothers who gave birth in the selected hospitals were also the study population. The inclusion criteria was mothers having low birth weight (LBW) baby of less than six months of age attending post natal care (PNC) visit and those who were critically ill during the study period and babies born to mothers with medically known; diabetes, hypertension, and records of incomplete data were the exclusion criteria.

## Sample size calculation and Sampling technique

Sample size was calculated using single population proportion formula,  $n = \frac{(Z\alpha/2)^2 p(1-p)}{d^2}$  by considering the proportion of KMC practice,  $p = 41.9\% - 42\%$  [14], 95% level of confidence and 5% margin of error. By adding 10% of none response rate, the final sample size needed for the study was 411. From a total of six hospitals providing delivery services in Eastern and central zone of Tigray regional state, four hospitals were selected using simple random sampling technique namely wukro, Adigrat, Adwa, and Abieadi. Based on the total number of newborn babies taken from the respective office of the delivery registration book records, the calculated sample size was proportionally allocated to the selected hospitals. Accordingly a total of 411 study participants were selected using simple random sampling technique.

## Study variables

The outcome variable for this study was Kangaroo mother care practice (Yes/No) and Socio-demographic and economic factors like mother's age, educational status, religion, occupational status, marital status and residence and Obstetric health care related variables were the independent variables.

## Data collection tools and procedures

The data were collected using interviewed administered questionnaire and document review. The administered questionnaire had socio demographic and economic conditions, obstetric health care services and practice related variables. The questionnaire was adapted from reviewing different literatures and considering the local situation of the study subjects.

## Data quality control

The principal investigator trained the data collectors and supervisors for two consecutive days on instruction for the method; how to take informed written consent, how to approach participants, ethical procedure, and general information on KMC practice and the objective of the study. Ten health care providers who took the training and two MPH students were assigned as data collectors and supervisors respectively to check for the daily activity, consistency and completeness of the questionnaire and to give

appropriate support during the data collection process. The principal investigator was checked on daily activities of supervisors and data collectors. The questionnaire was translated in to local language Tigrigna and back translated in to English by translators who were blind to the original questionnaire. The questionnaire was pre-tested on 5% of the study population in the non-selected institution to ensure clarity, wordings, logical sequence and skip patterns of the questions. After data collection, data were stored in a secured place to maintain confidentiality and backup of the data were stored in different areas not to lose the data. Each questionnaire was coded, entered and cleaning separately before analysis.

## Data processing and analysis

The collected data was coded, entered, cleaned and analyzed using SPSS version 20. Descriptive statistics was used to describe KMC practice among postnatal mothers who gave birth to low birth weight baby. Frequencies and percentages were used to present categorical data. To select the candidate variables, crude ORs and their 95% CI with the  $P < 0.2$  were estimated in the bivariate logistic regression analysis to include in the multivariable logistic regression model. After adjusted for confounders odds ratio with 95% confidence interval and p-value  $< 0.05$  were considered to declare statistically significant. Before inclusion of predictors to the final logistic regression model, the multicollinearity was checked using variance inflation factor (VIF)  $< 10$ /Tolerance tests  $> 0.1$ . The goodness of fit of the final logistic model was tested using Hosmer and Lemeshow test at a value of  $> 0.05$ .

**Operational definitions:** Kangaroo mother care (KMC) - Early, continuous and prolonged skin-to-skin contact between the mother and the baby with exclusive breastfeeding and proper follow-up' and it is initiated in the hospital and can be continued at home after early discharge until at least the 40<sup>th</sup> weeks of postnatal period [14]. Low birth weight baby: infants with birth weight lower than 2500g, regardless of gestational age. KMC practiced: those mothers who scored points above or equal to the mean of KMC practice related questions; unless we consider them they did not practiced [14].

## Results

### Sociodemographic characteristics of respondents

A total of 397 respondents were included in the study with a response rate of 96.6%. Of these, the mean age of the respondents was 27.4( $\pm 5.7$ ). Two hundred twenty five (56.7%) of respondents were rural residence. More than half 239(60.2%) of respondents had their own source of income [Table-1].

### Obstetric related health services

Three hundred eighty eight (97.7%) of mothers were attending antenatal care visit. Among the respondents attending ANC, 232(58.4%) of respondents had a frequency of four and above ANC visits. Concerning mode of delivery, 50(12.6%) of respondents were delivered through cesarean section. Among

a total of newborn babies, 295(74.3%) of them had a weight of < 2500 gram at birth. Regardless of gestational age, 212(53.4%) of respondents were greater or equal to 37 weeks of gestation during delivery followed by 105(26.4%) from 35-36 weeks of gestation, 61(15.4%) from 33-34 weeks of gestation and 19(4.8%) less than or equal to 32 weeks of gestation. More than half 233(58.7%) of newborn babies were female in sex. Two hundred eighty five (71.8%) of respondents had a history of greater than two-birth interval of the last child. One hundred thirty seven (34.5%) of mothers were not used any family planning method. Nineteen (4.8%) of the mothers were not taking iron/folic acid supplementation during pregnancy. Concerning TT immunization, 52(13.1%) of the mothers were not immunized. Concerning abortion, 99(24.9%) of mothers had history of abortion. Regardless of death, 64(16.1%) of mothers had history of infant death. Sixty-six (16.6%) of mothers had history of any medical illness. From total of study participants, 45 (11.3%) of newborn babies had congenital malformation (Table-2).

## **Kangaroo mother care practice**

Two hundred sixteen (54.4%) of mothers were practiced KMC to their low birth weight baby. Of these, 207(52.1%) of mothers were started KMC to their baby immediately after birth and 9(2.3%) of them were practiced after 24 hours. Among mothers practiced KMC, 186 (46.9%) of mothers were practiced at home. Duration of KMC, 129(32.5%) of mothers were practiced KMC at home from 8-15 days followed by 63(15.9%) from 1-7 days and 24(6%) from 16-20 days. Among those practiced KMC, 114(28.7%) of mothers were practiced KMC to their baby continuously per a day and 102(25.7%) of mothers were also practiced intermittently per a day. More than half 302(76.1%) of mothers said that, health care providers were demonstrated to us how to practice KMC in health institution.

## **Factors significantly associated towards Kangaroo mother care practice**

The multivariable logistic regression analysis showed that, those mothers in the age group of 20-24 years [AOR (95%CI): 0.21(0.05,0.95)] were 79% more likely practiced KMC than those in the age group of 15-19 years. Regarding of occupational status, mothers being employed in private sector [AOR (95%CI): 0.11(0.04,0.34)] were 99% less likely practiced KMC than mothers worked in government employees. Concerning occupational status of fathers, being employed in private business [AOR (95%CI): 4.1(1.54,11.07)] were 4.1 times less likely practiced KMC than those worked in government employees. Fathers being employed in private sector [AOR (95%CI): 2.8(1.02,7.42)] were 2.8 times less likely practiced KMC than fathers employed in government. Based on household monthly income, mothers who had a monthly income of greater than 3,000 Ethiopian birr [AOR (95%CI): 0.27(0.09,0.76)] were 73% more likely practiced KMC than mothers having monthly income of less than 500 Ethiopian birr. Mothers who gave birth in private hospitals [AOR (95%CI): 0.29(0.11,0.76)] were 71% more likely practiced KMC than who gave birth at government hospitals. Concerning complication of newborn baby, mothers who had not

have complicated newborn baby [AOR (95%): 3.1(1.21,8.09)] were 3.1 times more likely practiced KMC than those who had complicated newborn baby (Table-3).

## Discussion

The aim of this study was to assess kangaroo mother care practice and its associated factors among postnatal mothers who gave birth in public general hospitals. Based on this we found that, age of mothers, occupational status of mother and father, household monthly income, place of delivery and complication of newborn baby at birth were the factors significantly associated with KMC practice. Many mothers who gave birth to low birth weight babies were affected by the factors identified. Therefore, the rationale for this study was to help policy makers and programmers to have a clear picture about the kangaroo mother care practice and its associated factors among postnatal mothers who gave birth in public general hospitals to make an evidence based decision and mobilize resources for the prevention of low birth weight newborn death in the region. It will also guide for the health care providers working in delivery areas to make evidence based decisions for the prevention of low birth weight newborn death.

In this study, 54.4% of mothers were practiced KMC to their low birth weight baby. Of these, 52.1% of mothers were started KMC immediately after birth and 2.3% of mothers were practiced it after 24 hours. This finding was different with a study conducted in Southern, Ethiopia [14]. This might be due to the sample size difference, study period and living condition of the population. This study showed that, among mothers practiced KMC, 46.9% of mothers were practiced KMC to their baby at home and 28.7% of mothers were practiced KMC to their baby continuously and 25.7% were also practiced intermittently. This finding was lower than a study conducted in Eastern Ethiopia and Ghana. This might be due to lack of information, and sample size difference [16-17].

This study revealed that, those mothers in the age group of 20-24 years [AOR (95%CI): 0.21(0.05,0.95)] were 79% more likely practiced KMC than those in the age group of 15-19 years. This indicated that as the age of mothers becomes higher as compared to the lowest age group, they were more awarded to practiced kangaroo mother care to their low birth weight baby. Basically 28.2% of mothers in the age group of 20-24 years were more practiced as compared mothers in the age group of 15-19 years [22.6%]. This finding showed that, mothers being employed in private sector [AOR (95%CI): 0.11(0.04,0.34)] were 99% less likely practiced KMC than mothers worked in government employees. This might be due to mothers employed in private work had not had any time freedom to practiced kangaroo mother care to their low birth weight baby as compared to mothers worked in governmental institutions. In our study, fathers being employed in private business [AOR (95%CI): 4.1(1.54,11.07)] were 4.1 times less likely practiced KMC than those worked in government employees. Even if the proportion showed that, fathers worked in private business were 24.5% less likely practiced kangaroo mother care to their low birth weight baby than fathers worked in government institution [48.1%]. This might be due to lack of awareness giving more attention for the growing of economic status than practiced kangaroo mother care. Based on household monthly income, mothers who had a monthly income of greater than 3,000 Ethiopian birr [AOR (95%CI): 0.27(0.09,0.76)] were 73% more likely practiced KMC than mothers having monthly income of

less than 500 Ethiopian birr. This finding showed that, mothers in low economic status were not practiced kangaroo mother care practice to their low birth weight baby. This might be mothers were more engaged in their daily laborer to survive their life of family as well as the newborn baby.

In this study, mothers who gave birth in private hospitals [AOR (95%CI): 0.29(0.11,0.76)] were 71% more likely practiced KMC than who gave birth at government hospitals. This finding was similar in a study conducted in Ethiopia. This might be due to lack of health care providers awareness on demonstrated practiced of kangaroo mother care in government hospitals [18]. In this study, mothers who had not have complicated newborn baby at birth [AOR (95%): 3.1(1.21,8.09)] were 3.1 times more likely practiced KMC than those who had complicated newborn baby at birth. This finding was similar with a study conducted in Tikur Anbessa Hospital, Ethiopia. This might be due to mothers gave an attention to the complicated problems than practiced [19].

## Conclusion

There was low proportion of mothers practiced kangaroo mother care to their low birth weight baby which was low proportion of kangaroo mother care practice immediately after birth and continuously at home. Mothers age, occupational status of mothers, occupational status of fathers, monthly income, place of delivery and newborn complications at birth were the factors significantly associated with kangaroo mother care practice. Tigray Regional Health Bureau and district health offices should use this evidence to prevent newborn death due to low birth weight in collaboration with other stakeholders. In addition, health care providers should demonstrate for family member and mothers on how to practice kangaroo mother care immediately after delivery in health institution and to be continued at home. This study addresses the kangaroo mother care practice and its associated factors among postnatal mothers who gave birth. Therefore, we recommend researchers to conduct further study on the effectiveness of kangaroo mother care practices and follow up of home based practiced of KMC to prevent newborn death due to low birth weight.

## List Of Abbreviations

ANC- Ante natal care, CI-confidence interval, HIV-human immune deficiency syndrome, KMC-Kangaroo mother care, LBW-Low birth weight, ORS-odds ratios, PNC-post natal care, SPSS-statistical package for social sciences

## Declarations

### Ethics approval and consent to participate

Adigrat university institutional review board approved the study and formal letter of permission was obtained from Adigrat University and Tigray Regional Health Bureau. Official letter of co-operation from the above organization was written to the respective health facilities. There was no potential risk that

might cause any harm to respondents. The importance of the study was explained to the participation of the study and informed written consent was requested from the study subjects immediately before the data collection and written informed consent was also obtained from a parents/guardians for participants under 16 years old.

### **Consent for publication**

Not applicable

### **Availability of data and material**

The datasets used and/or analyzed during this study are available from the corresponding author on reasonable request.

### **Competing interests**

The authors declare that they have no competing interests

### **Funding**

There is no funding organization

### **Authors' contributions**

HG was the principal investigator who contributed to the conception and design of the study, collected, entered, analyzed, interpreted the data, prepared the manuscript and acted as corresponding author. HDH, BG, MM, MB, MT and HL were contributed to interpretation and drafted the manuscript. All authors read and approved the final manuscript.

### **Acknowledgment**

We would like to thank to Adigrat University, Tigray regional health bureau and hospital staffs for their genuine cooperation. Our gratitude also goes to data collectors and supervisors for their hard work patience in obtaining necessary information. Our special thanks also go to participants who generously shared their thoughts and feelings despite other commitments.

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## Tables

Table 1: Sociodemographic and economic characteristics of respondents, Eastern and central zone, Tigray Region, North Ethiopia, 2019

Variables		Frequency (n)	Percent
Age of mothers (Years)	15-19	23	5.8%
	20-24	102	25.7%
	25-29	133	33.5%
	30-34	93	23.4%
	>=35	46	11.6%
Religion	Orthodox	338	85.1%
	Muslim	59	14.9%
Ethnicity	Tigray	326	82.1%
	Afar	54	13.6%
	Amara	17	4.3%
Marital status	Married	367	92.4%
	Unmarried	22	5.5%
	Divorced	8	2%
Educational status of mother	Cannot read and write	53	13.4%
	Can read and write (informal)	113	28.5%
	Read and write (Formal education)	231	58.2%
Educational status of father	Cannot read and write	13	30.2%
	Can read and write (informal)	11	25.6%
	Read and write (Formal education)	19	44.2%
Occupational status of mother	Government employee	72	18.1%
	Private business	72	18.1%
	Private sector employee	108	27.2%
	House wife	145	36.5%
Occupational status of father	Government employee	113	28.5%
	Private business	140	35.3%
	Private sector employee	144	36.3%
House hold monthly income:	<500 Eth.birr	29	12.1%
	500-1000 Eth.birr	27	11.3%
	1000-3000 Eth.birr	57	23.8%
	>3000 Eth. birr	126	52.7%

Table-2: Obstetric related health services of respondents, Eastern and central zone, Tigray Region, North Ethiopia, 2019

Variables		Frequency (n)	Percent
Number of pregnancy	Once	66	16.6%
	Twice	113	28.5%
	Three times	120	30.2%
	More than three times	98	24.7%
Frequency of ANC visit	<Four visit	165	41.6%
	>= Four and above visit	232	58.4%
Meals taken per day during pregnancy	< 3 Meals per day	90	22.7%
	>= Meals per day	307	77.3%
Place of delivery	Governmental hospital	240	60.5%
	Health center	72	18.1%
	Private hospital	55	13.9%
	Home	30	7.6%
Number of delivery	1-2	210	52.9%
	3-4	153	38.5%
	>= 5	34	8.6%
Number of live births	1-2	260	65.5%
	3-4	114	28.7%
	>=5	23	5.8%
Labor duration	2-6 hours	200	50.4%
	6-12 hours	147	37%
	>=12 hours	50	12.6%
Mode of delivery	Spontaneous vaginal delivery	347	87.4%
	Caesarian section	50	12.6%
Weight of baby at birth	<1000 gram	3	0.8%
	1000-1499 gram	49	12.3%
	1500-1999 gram	103	25.9%
	2000-2499 gram	140	35.3%
	>=2500 gram	102	25.7%
APGAR score	Poor<=7	88	22.2%
	Good>7	309	77.8%
Birth interval of last child	<= 2 years	112	28.2%
	>2 years	285	71.8%
Pregnancy type of last child	Wanted and planned	325	81.9%
	Unwanted and unplanned	72	18.1%
HIV status	Reactive	26	6.5%
	Non reactive	359	90.4%
	Unknown status	12	3%
Behavioral factors taken	Cigarette smoking	8	2%
	Alcohol drinking	58	14.6%
	Chat chewing	33	8.3%
	Not taken at all	298	75.1%

**Table-3:** Factors significantly associated with KMC practice among postnatal mothers who gave birth in Eastern and Central zone of Tigray, North Ethiopia, 2019

Variables		Practiced KMC		COR (95%CI)	P-value	AOR (95%CI)	P-value
		Yes	No				
Age of mothers in years	15-19	8(3.7%)	15(8.3%)	1		1	
	20-24	61(28.2%)	41(22.7%)	0.36(0.14,0.92)	0.03	0.21(0.05,0.95)*	0.04
	25-29	74(34.3%)	59(32.6%)	0.43(0.17,1.07)	0.07	0.30(0.07,1.37)	0.12
	30-34	52(24.1%)	41(22.7%)	0.42(0.16,1.09)	0.07	0.34(0.07,1.59)	0.17
	>=35	21(9.7%)	25(13.8%)	0.64(0.23,1.79)	0.39	0.25(0.04,1.47)	0.12
Occupational status of mother	Government employee	35(16.2%)	37(20.4%)	1		1	
	Private business	38(17.6%)	34(18.8%)	0.85(0.44,1.63)	0.62	0.46(0.17,1.28)	0.14
	Private sector employee	89(41.2%)	19(10.5%)	0.20(0.10,0.39)	0.00	0.11(0.04,0.34)*	0.00
	House wife	54(25%)	91(50.3%)	1.59(0.90,2.82)	0.11	1.00(0.33,3.03)	0.99
Occupational status of father	Government employee	60(27.8%)	53(29.3%)	1		1	
	Private business	53(24.5%)	87(48.1%)	1.86(1.12,3.07)	0.02	4.1(1.54,11.07)*	0.00
	Private sector employee	103(47.7%)	41(22.7%)	0.45(0.27,0.76)	0.00	2.8(1.02,7.42)*	0.04
House hold monthly income	<500 Eth.birr	12(9%)	17(16.2%)	1		1	
	500-1000 Eth.birr	13(9.7%)	14(13.3%)	0.76(0.26,2.19)	0.61	0.71(0.19,2.62)	0.61
	1000-3000 Eth.birr	23(17.2%)	34(32.4%)	1.04(0.42,2.59)	0.93	0.88(0.28,2.83)	0.83
	>3000 Eth. birr	86(64.2%)	40(38.1%)	0.33(0.14,0.75)	0.01	0.27(0.09,0.76)*	0.01
Place of delivery	Governmental hospital	97(44.9%)	143(79%)	1		1	
	Health center	52(24.1%)	20(11%)	0.26(0.15,0.46)	0.00	0.42(0.17,1.03)	0.06
	Private hospital	45(20.8%)	10(5.5%)	0.15(0.07,0.31)	0.00	0.29(0.11,0.76)*	0.01
	Home	22(10.2%)	8(4.4%)	0.25(0.11,0.58)	0.00	0.42(0.13,1.35)	0.15
Number of delivery	1-2	102(47.2%)	108(59.7%)	1		1	
	3-4	96(44.4%)	57(31.5%)	0.56(0.37,0.86)	0.01	0.73(0.35,1.54)	0.41
	>= 5	18(8.3%)	16(8.8%)	0.84(0.41,1.74)	0.64	0.80(0.24,2.65)	0.72
Complication of newborn baby	Yes	36(16.7%)	38(21%)	1		1	
	No	180(83.3%)	143(79%)	0.75(0.45,1.25)	0.27	3.1(1.21,8.09)*	0.02

95% CI- 95% Confidence interval, COR- Crud odds ratio, AOR- Adjusted odds ratio

\* Statistically significant variables