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Place of Child Birth and its Associated Factors in Shitganga Municipality, Arghakhanchi district, Nepal

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Abstract

Introduction: Maternal and newborn mortality are tragic events that occur due to complications occur during pregnancy and deliveries. Although, there are improvements in institutional birth services, still more than one-third of women in Nepal give birth at home due to various circumstances. The main objective of this study is to identify the factors associated with place of child birth.

Methods: A community based cross-sectional study was conducted in Shitganga Municipality of Arghakhanchi district. Using simple random sampling, 342 women who delivered in last one year were interviewed with structured questionnaire. Ethical approval was taken from the Institutional Review Committee (IRC) of Institute of Medicine, and written informed consent was obtain from respondent. Data analysis was performed in Statistical Package for the Social Sciences (SPSS).

Results: Study shows that municipality has 81.9% of institutional delivery. Among them more than 50% of institutional delivery occurs outside of municipality. Factors like age, type of family, occupation of husband, education of women and husband, parity of women, knowledge and practice of ANC services and time distance from health facility were establish significantly associated at p value <0.05 with place of child birth.

Conclusion: As per the study, ANC and delivery practice of municipality was good. Study also conclude that joint family, formal schooling of women, husband's occupation, experience of danger signs during delivery and time distance of 60 minutes or more have significant association with place of child birth.

Keywords: Home delivery, institutional delivery, place of childbirth

Introduction

In many parts of the world, including Nepal, home is the common place for childbirth due to various reasons. Although there has been improvement in institutional delivery services, a significant number of women still give birth at home.[1] According to Nepal Demography and Health Survey (NDHS), 2016, there was only 57% of delivery takes place in health facilities, while 41% still delivered at home. Several factors influence the choice of birth place, which includes socio-demographic and economic factors, and health service-related factors.[2-6] In addition to deciding the place of childbirth, these factors also contribute to three common delays in utilizing services: delay in seeking care, delay in reaching care, and delay in receiving care.[7]

This study aimed to identify the factors associated with the place of childbirth. The study result may add evidence to the data for the improvement of institutional delivery.

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Methods

A community based cross-sectional study was conducted in a municipality of Arghakhanchi district, Nepal from July 2018 to March 2019. Ethical approval was obtained from the Institutional Review Committee, Institute of Medicine [65(6-11-E)^2/075/076]. Verbal consent followed by written informed consent was taken from the study respondents. Data privacy and confidentiality was maintained by using respondent ID instead of name, and data was kept secured in password protected file. It used a simple random sampling technique to select participants. The sample size was calculated by using formula: Sample size (n) = z^2pq/d^2, at 95% confidence interval and 5% allowable error. A total of 342 women who had given birth within the past one year were included as study sample. The face to face interview was conducted using structured questionnaire which include five categories; socio-demographic information, economic status, knowledge and practice of ANC services, knowledge and practice of delivery services, women empowerment, and health service-related factors for data collection.

Data coding, recoding and cleaning were continuously carried out throughout data entry and analysis process to ensure data quality. Data entry was done in EpiData and analysis was performed using IBM SPSS. Initially, the descriptive analysis was conducted based on study variables and objectives. For inferential analysis, chi-square test and logistic regression were applied to determine if the factors were significantly associated (p-value <0.05) with the place of childbirth at a 95% confidence interval or not. Bivariate and multivariate analyses were conducted using binary logistic regression for independent variables related to the place of childbirth. Statistically significant variable during bivariate analysis were included in multivariate analysis for further testing of association with place of child birth. Adjusted Odds Ratios (AOR) at 95% CI was calculated to measure the net effect of variables. The Hosmer and Lemeshow test was used to test the goodness-of-fit for regression models. This test statistic p > 0.05 indicating that the model an adequately fit data. The logistic regression model: y = a + b1X1 + b2X2 + ... + biXi, was used to establish the relationship between dependent and independent variables.

Results

The study participants' ranges from 15-38 years of age, with almost half of participants (49.1) were comes under the age group of 20-24 years. The mean age of respondents was 24.2 years ± 3.86 SD. The large majority respondents of the study were Hindu (96.8%) and remaining were Buddhist (3.2%). Among them, 132 participant were in each Brahmin/Chhetri (38.6%) and Janajati (38.6%) group with, followed by 75 participants from Dalit group (29.1%), and a small proportion of others including Madhesi (0.9%). About three-quarters (75.4%) of respondents lived in joint families, while only 84 (24.6%) lived in nuclear families. The majority of women 327 (95.6%) were literate, with only 15 (4.4%) being illiterate. Similarly, 336 (98.2%) husband of respondent were literate, with only 6 (1.8%) being illiterate.

The study shows, 280 women (81.9%) has delivered their baby at health institutions, and there is still 18.1% of women delivered their baby at home.

Table 1: Association between place of Childbirth and Socio-demographic characteristics N=342

Characteristics	Place of birth		P-value
	Home n (%)	Institution n (%)	
Current Age			
15-19	4 (14.3)	24 (85.7)	0.023*
20-24	25 (14.9)	143 (85.1)	
25-29	21 (18.4)	93 (81.6)	
≥30	12 (37.5)	20 (62.5)	
Type of family			
Nuclear	24 (28.6)	60 (71.4)	0.004*
Joint	38 (14.7)	220 (85.3)	
Women's Education			
No formal school	17 (37.0)	29 (63.0)	0.001*
Formal school	42 (16.3)	216 (83.7)	
Higher education	3 (7.9)	35 (92.1)	
Husband's education			
No formal school	12 (32.4)	25 (67.6)	0.046*
Formal school	46 (16.9)	226 (83.1)	
Higher education	4 (12.1)	29 (87.9)	

*Statistically significant association

Most of the women (74.3%) had household work as major occupation whereas agriculture (18.7%) has second major occupation followed by business (4.1%), service (2.6%) and labor (0.3%) respectively.

Whereas, more than half of husband had foreign employment (56.4) as major occupation, followed by agriculture (14.6%), labor (10.5%), business (7%), household work (6.4%) and service (5%) respectively.

Table 2: Association between Place of Childbirth and Socio-economic Characteristics N=342

Characteristics	Place of birth		P-value
	Home n (%)	Institution n (%)	
Women's occupation			
Homemaker/agriculture/ labor	60 (18.8)	259 (81.2)	0.224
Business/service	2 (8.7)	21 (91.3)	
Husband's occupation			
Household/agriculture/ labor	28 (25.9)	80 (74.1)	0.011*
Business/service/foreign employment	34 (14.5)	200 (85.5)	

*Statistically significant association

Among 186 women 55% were multiparous while 156 women were primi.

Table 3: Association between Place of Childbirth and Individual factors of participant N=342

Characteristics	Place of birth		P-value
	Home n (%)	Institution n (%)	
Parity			
Primi	16 (10.3)	140 (89.7)	0.001*
Multi	46 (24.7)	140(75.3)	

*Statistically significant association

Out of 342, only 236 (69%) women were aware of danger sign during pregnancy. Seventy eight women (23%) had experience of danger signs during pregnancy.

Table 4: Association between Place of Childbirth and Knowledge and experience of women on danger signs N=342

Characteristic	Place of birth		P-value
	Home n (%)	Institutional n (%)	
Knowledge on danger sign during pregnancy (n=342)			
Yes	41 (17.4)	195 (82.6)	0.588
No	21 (19.8)	85 (80.2)	
Experience Danger sign during pregnancy (n=236)			
Yes	9 (11.7)	68 (88.3)	0.109
No	32 (20.1)	127 (79.9)	
Knowledge on danger sign during delivery (n=342)			
Yes	40 (17.9)	183 (82.1)	0.900
No	22 (18.5)	97 (81.5)	
Experience danger sign during delivery (n=223)			
Yes	7 (9.0)	71 (91.0)	0.011*
No	33 (22.8)	112 (77.2)	

*Statistically significant association

About 96% women were aware ANC and around 90% of women were known about need of 4 and more time ANC visit during pregnancy. Among them, only 244 (74.4%) women went for 4 ANC and more ANC, while protocol wise ANC visit was done by only 224 (69.8%) women and rest do not complete their essential 4 ANC visit. Another important indicator to assess the accessibility of health facility is distance. Distance here measure in terms of relative time required to reach HF. More than half of the respondents' (65.8) needs more than 60 minutes to reach HF.

Table 5: Association between Place of Childbirth and Knowledge and practice of health service and other health facility related factors N=342

Characteristic	Place of birth		P-value
	Home n (%)	Institutional n (%)	
Knowledge about ANC (n=328)			
<4 times	14 (41.2)	20 (58.8)	<0.001*
≥4 times	45 (15.3)	249 (84.7)	
ANC Visit (n=321)			
<4 times	28 (36.4)	49 (63.6)	<0.001*
≥4 times	25 (10.2)	219 (89.8)	
ANC as per protocol (n=321)			
Yes	23 (10.3)	201 (89.7)	<0.001*
No	30 (30.9)	67 (69.1)	
Birth preparedness			
Yes	55 (17.2)	264 (82.8)	0.113
No	7(30.4)	16 (69.6)	
Distance of Health facility			
< 60 minutes	6 (5.1)	111 (94.9)	<0.001*
≥ 60 minutes	56 (24.9)	169 (75.1)	
Gender of Health worker			
Female	61 (18.0)	277 (82.0)	0.720
Male	1 (25.0)	(75.0)	

*Statistically significant association

Table 6: Multivariate analysis of association between place of childbirth and independent variables N=342

Characteristics	COR	CI (95%)	AOR	CI (95%)	P-value
Type of family					
Nuclear		Ref.			
Joint	2.316	1.290-4.158	3.020	1.007-9.057	0.049
Women's education					
No formal school	Ref.		Ref.		
Formal school	3.015	0.210-5.974	4.698	1.111-19.877	0.036
Higher education	6.839	1.823-25.662	5.446	0.569-52.470	0.141
Husband's occupation					
Agriculture/labor/ household work	Ref.				
Business/service/Foreign employment	2.059	1.172-3.617	2.721	1.004-7.375	0.049
Wealth quintile					
First (poor)	Ref.				
Second	0.612	0.243-1.542	0.555	0.127-2.415	0.432
Third (middle)	0.918	0.323-2.610	0.351	0.072-1.704	0.194
Fourth	0.459	0.178-1.183	1.103	0.230-5.282	0.902
Fifth (least poor)	0.339	0.135-0.856	0.218	0.050-0.956	0.043
Experience on danger sign during delivery					
Yes	Ref.				
No	0.335	0.140-0.797	0.231	0.073-0.732	0.013
Distance from health facility					
Less than 60 minutes	Ref.				
60 minutes and more	0.163	0.068-6.460	0.066	0.012-0.372	0.002

In chi-square test, twelve independent variable were statistically significant namely; current age of mother, type of family, women's education, husband's education, husband's occupation, parity, experience danger sign during delivery, knowledge on number of ANC visit, number of ANC visit practice, ANC visit as protocol, wealth quintile and distance from health facility.

In multivariate logistic regression model, after adjusting possible confounder effects, joint type of family, experience danger sign during delivery, occupation of husband, formal school education of mother, distance from health facility and wealth quintile (fifth rank) were statistically significant.

Logistic regression revealed the following equation for place of child birth.

Place of child birth =0.587+ 1.1.05X_1+1.001X_2+1.547X_3+(-1.465) X_4 + (-2.711)X_5 +(-1.525) X_6

Here,

X_1=joint family

X_2 =husband occupation

X_3= formal schooling of women

X_4= Experience danger sigh during delivery

X_5= Distance 60 minutes and more

X_6= wealth quintile rank fifth (least poor)

Discussions

The study shows most of the child birth (81.9%) takes place in health facilities which is higher than national, provincial and district status. District has only 30.5% of institutional delivery according to district annual report 2017. Similarly, this (study site) municipality has 22% of institutional delivery in 2018. When we differentiate the institutional delivery into public hospital (46.8%), private hospital (6.4%) and PHC and HP (28.7%) we can observe that most of the delivery takes place in hospitals which does not cover under municipality or even districts. During data collection it was observed that some PHC and HP of Kapilvastu district were service site for ANC and delivery service for women residing in municipality with sharing Kapilvastu as district border. Although, study shows high number of institutional delivery still 18.1% of women deliver their baby at home.

Similar to the finding of this study, different studies done in Nepal, Kenya, Ethiopia and Tanzania also showed that formal and higher education of women and their husband more likely to go health facility for delivery than no education and no formal school education. [2–4,6,8–12] Similar to this study, women of age group 15-19 years and living in joint family were also more likely to go for institutional delivery according to different studies done in Nepal than in nuclear family.[3,4,13]

Different socio-economic factors were also assessed in this study among them husband's occupation is significantly associated with decision to place of childbirth. Husband with high income occupation like, service, business and foreign employment were more likely to go for institutional delivery, which is also supported by different studies.[2,4,12,14]

The study shows, the women with two or more children were less likely to go for institutional delivery, similar studies conducted in Nepal and Ethiopia also shows that parity and knowledge and experience on danger sign during pregnancy and delivery are significant factor for institutional delivery.[5,15] This study, along with other studies in Nepal, indicates that ANC service knowledge and practice are critical factors in the choice of delivery place.[2,3,6,9,13] Along with this study, different studies also highlighted that the distance or time to reach health facility is significantly associated with place of child birth .[2,5,11,12]

Women with formal education were more likely to have institutional delivery in comparison to women who did not get any formal schooling (OR=4.698, CI: 1.1-19.8). Different study showed that there is significant association between formal schooling of women and place of child birth.[6,12]

In data collection procedure there were questions related to events that occur almost 2 year of time duration which creates some level of recall bias. The study might represent the Shitganga Municipality, but it is difficult to generalize the whole district and nation due to various factors.

Conclusion

The ANC and delivery practice of Shitganga municipality was found to be good. However the health service utilization in HF of municipality was not that satisfactory, as mentioned in this study almost more than half women deliver their baby outside municipality. Through this study, it can be concluded that different socio-demographic, economic and health facility related factors are directly associated with place of childbirth, and improvement in those factors can lead to a better utilization of health services for safe motherhood and child health.

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