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COGNITIVE SCIENCES AND HUMAN DEVELOPMENT

Factors Affecting the Selection of Institutional Delivery among Tribal Women in Bangladesh

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ABSTRACT

Background: Safe maternity is a global issue with the ongoing discussion of ways to reduce mortality. This problem is prevalent among women from low-income countries such as Bangladesh. Hence, this study evaluated the factors affecting delivery practices among tribal women in Bangladesh Chittagong Hill Tracts (CHT). Method: This is an analysis of cross-sectional research. To achieve the sample size of 556 married women, a convenient sampling technique was used. In a semi-structured questionnaire, data were collected. Associations were tested using Chi-square (χ^2) tests, and multivariate regression analysis was applied to elicit results from the data. Result: Result from the present study shows that most deliveries (66%) occur at home. Of this quantity, 50% of births were facilitated by untrained traditional midwives, 12% by trained conventional birth caregivers, and 4% by relatives and neighbors. Wealth index, place of dwelling, women's educational level, age at first childbirth, range to health care, and profession of the husband have all significantly contributed to the approach to delivery. Conclusion: This study concludes that institutional delivery (34%) is poor among tribal women of Bangladesh. Factors limiting the adoption of institutional delivery by these tribal women should be managed adequately via awareness campaigns and improving the socio-economic status of the tribal people of CHT.

Keywords: Delivery care; Institutional delivery; Choice of the birthplace; Skilled birth attendant (SBA); Traditional birth attendants (TBA); Trained birth attendants (TTBA); Home delivery

BACKGROUND

It was found that 3,03,000 women died during pregnancy or childbirth globally, of which 99% (3,02,000) deaths of the mother are recorded in developing countries; most of them occur in rural areas. About Eight hundred and thirty women die during pregnancy and childbirth each day in the world (World Health Organization, 2018). Almost all these deaths occur in areas with low income, and most of them could have been avoided (Alkema et al., 2016).

Globally, there are 216 maternal deaths/ 10^5 live births. As part of a global campaign to address maternal mortality, a new goal by

the United Nations named Sustainable Development Goal (SDG) 3 was developed aimed at reducing the death rate below 70 per 10^5 by the year of 2030, and the rate of maternal mortality of none can be double the world average. In 2015, the proportion of maternal mortality ratio between developing countries and developed countries was 239:12 per 10^5 live births. To meet the Sustainable Development Goal (SDG), assiduous efforts must be made to decrease the rate of maternal mortality by, at least, 7.5 % per year (UNICEF, et al., 2015)

The 2016 BMMS MMR figure is 196 maternal deaths per 10^5 live births, almost the same as the 2010 BMMS estimate. Hemorrhage and Eclampsia constitute 55% of maternal deaths. The risk of dying from these causes between BMMS 2010 and BMMS 2016 remained unchanged (BMM_HCS 2016).

In Bangladesh, 37.5% of women delivered their babies at health centers. Twenty-two percent of them were in a private hospital, 13% in a government hospital, and 2% in an NGO (non-government organization) facility. Not less than 62% of women gave birth to their babies at home. The BDHS revealed that 56.8% of urban women deliver their child at a health facility, and only about 30.6% of rural women had access to such a facility (BDHS, 2014).

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Safe delivery is one of the four foundations of safe motherhood. Having accurate knowledge of delivery can decrease the risk of complexity or infections, which may lead to fatal illness or the subsequent death of a mother or newborn. Delivery in unhealthy environments without protective equipment creates many troubles that can lead to high morbidity and maternal mortality. Hence, it is important to increase the survival rate of mother and child during delivery through the utilization of clean and befitting delivery rooms (whether the local type of rooms, which are mostly used by Traditional Birth Attendants – TBAs or the standard delivery rooms, which is obtainable in well-equipped hospitals).

The acceptance of Maternal Health Care Services (MHCS) in a community is determined mostly by some criteria. These are economical, socio-environmental, eco-political, and psycho-cultural. A study carried out by Kamal (2012) found that Bangladesh's healthcare system is not homogeneous, thereby resulting in socioeconomic inequalities. Lack of information and knowledge concerning the positives and disadvantages of using healthcare services for maternity with financial problems are the leading causes of MHCS's low usage. A study conducted in rural Bangladesh found that some infant delivery complications, such as maternal morbidity, have risen as a result of the nature of the place where such deliveries are taken (Islam et al., 2006). According to another Bangladesh study on nursing mothers in 2013, 80% of respondents stated that they delivered their babies at home. Out of these, about 71% of them expressed that home delivery was smooth, while about 29% of them stated that they were bound to deliver at home because of family decision

and financial constraints (Begum et al., 2013).

A study also found that TBA (Traditional Birth Attendant) is the first option for pregnant women to give birth to a baby at home (Sarker et al., 2016). The most commonly cited explanation for choosing TBA home delivery is "poverty." Another study showed that the beliefs and practices of indigenous women in Bangladesh are significant factors influencing the selection of child deliveries at home (Rahman et al., 2012).

Furthermore, a study by Islam et al. (2006) worked on a small group named Mru, located in the Bandarban District. The study was performed in three Upazilas named Alikadam, Lama, and Thanchi of the Bandarban District and a part of CHT. It showed that delivery care was lower among the Mru mothers as compared to Bengali mothers. Nearly all child deliveries were home-based and assisted by TBAs. Maternal mortality also seemed to be high in the community due to the practices of childbirth driven by the TBAs. There are 13 different tribal groups in the CHT. These diverse groups are culturally different from the majority of Bengalis. Different groups also have variations between themselves (Mohsin, 1997). Some of these groups live in valleys close to rivers and streams, and some on hillcrests. Hence the study conducted by Islam does not represent the maternal health status of whole tribal women of CHT.

The tribal women of Bangladesh are predominantly known to either give birth to their children at home or procure the services of birth attendants (most of who are unskilled or untrained), thereby resulting in a myriad of reported complications before, during or after childbirth. Different assumptions and assertions have been made regarding the causative factors for this type of practice among women. However, only a small number of research works have been conducted to outline the factors influencing such childbearing practices among women objectively.

In this way, the research is designed to understand the practice of delivery care and the factors associated with it.

RESEARCH METHODOLOGY

This study employed a quantitative survey approach using a convenient sample technique of women from the three districts that make up the Chittagong Hill Tracts, namely: Rangamati, Khagrachari, and Bandarban (*10, 8 and 7 upazilas respectively*). On average, 22 samples were collected from each Upazila. The sample size (n) was 556 wedded tribal women aged 15 to 49. They were recruited based on the inclusion criteria that they must have had a live birth within the last twelve months prior to the study.

Interview schedule or questionnaire was mainly used as an instrument (tools) of data collection through a face-to-face interview. The reliability of the questionnaire was tested through Cronbach's alpha (target was >=0.70 score). Content validity test was applied to check all related items needed to answer the query. There was some hypothesis in work, and it was accepted.

The collected data was recapitulated, tabulated, and evaluated by the SPSS-20. Associations were assessed using Chi-

square tests, and binary logistic regression analysis was used. The result of the multivariate analysis was 95 percent confidence interval (CI) odds ratio (OR) for simple comprehension and interpretation.

With this information in mind, there are three districts in the hilly area. The following Cochran's formula was used in determining the minimum sample size.

$$n = \frac{z^2 pq}{d^2}$$

$$n = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.05 \times 0.05} = 384$$

The approximate sample size was determined as (384 + 192) = 576 for ample representation by adding 50 percent. Eventually, out of 25 upazillas, 556 households were registered, and because of the absence, 20 households were not possible during the survey.

THEORETICAL FRAMEWORK

In the context of studies in Bangladesh, The inadequate use of maternal health services for childbirth, followed by a small proportion of deliveries assisted by health professionals, is a significant factor leading to high maternal mortality (Kamal, 2012). The poor use of maternal health facilities was also the result of geographical location and lack of service availability (Fotsoet al., 2009), the choice of birth place under untrained birth attendants is another (Moran et al., 2009; Fronczaket al., 2007). Moreover, attending antenatal care, seeking support from trained birth attendants, and postnatal check-up among Bangladeshi tribal women have been poorly explored.

Dependent Variables

Delivery care utilization was measured in terms of place of delivery, which could be either termed 'home delivery' or 'institutional delivery'. The term "institutional delivery" can also refer to hospitals, health centers, or private clinics in the presence of a certified health expert called a skilled birth attendant who can manage a certain complication during childbirth or who can give appropriate instructions to the pregnant woman on the next possible and safest action to take. It is assumed that birth in a hospital/clinic/health center in the presence of a professional birth attendant (or trained traditional birth attendants (TTBA)) is portrayed as an institutional delivery.

Independent Variables

The independent variables are husbands' occupation, wealth index, place of residence, maternal age, women's and husband's education level, age at first marriage, parity, media exposure, women's working status, religion, family planning.

RESULTS

The study showed that only 34% of births of tribal women received institutional delivery, and most of the deliveries (66%) occurred at home **(**Figure 1).

Differentials of Institutional Delivery

Table 1 presents that there is a strong association of age at first pregnancy, parity, occupation of mother and husband, wealth quintile, women and their husbands' educational status, distance from health facilities, access to the media, form of

residence, and family planning with the determination of women's place of giving birth.

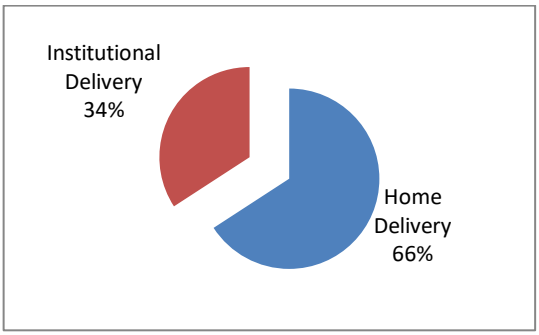

Figure 1: Delivery care practices among Tribal Women of Bangladesh

Determinants of Institutional Delivery

*Determinants of birth-place preferences. T*he regression analysis showed that wealth index, place of residence, distance from a medical facility, women's level of education, husband's profession, and first-time pregnancy were significantly related to entertaining institutional delivery (see Table 2). The wealth index of the respondents was a vital component in the selection of institutional delivery. The middle-class women were 3.28 times more likely to have their child delivered in healthcare facilities than poor women. Women at a high level were 7.82 times more likely than women at the lowest level to deliver their babies in hospitals.

Women in the metropolitan areas had 2.16 times probability of having access to healthcare facilities for delivery than women residing in rural areas. The age at first marriage was related to the use of institutional delivery. A pregnant woman aged 18 years of age or below was more likely to accept twice the probability of receiving healthcare facilities for the birth of her child than pregnant women greater than or equal to 18 years of age. Women whose husbands were engaged in business and services were 3.15 and 3.93 times, respectively, more likely to deliver their babies institutionally than those whose

Table 1: Association of factors with institutional delivery

Variables	Total	Place of Delivery		χ^2	P-Value
		Home, N(%)	Health Facility, N(%)		
Respondent's age				**1.460**	**0.482**
15–24	239	158 (66.1)	81 (33.9)		
25–34	275	177 (64.4)	98 (35.6)		
35+	42	31 (73.8)	11 (26.2)		
Age at first pregnancy				6.811	0**.009**
<18	120	91 (75.8)	29 (24.2)		
18+	436	275 (63.1)	161 (36.9)		
Family members				.464	0**.496**
<5	361	234 (64.8)	127 (35.2)		
5+	195	132 (67.7)	63 (32.3)		
Parity				3.594	0**.058**
One-two	418	266 (63.6)	152 (36.4)		
Three +	138	100 (72.5)	38 (27.5)		
The current age of husband				1.293	0**.524**
<25	136	93 (68.4)	43 (31.6)		
25–35	330	211 (63.9)	119 (36.1)		
35+	90	62 (68.9)	28 (31.1)		
Wealth Index				165.285	**.000**
Poor	223	206 (92.4)	17 (7.6)		
Middle	162	108 (66.7)	54 (33.3)		
Rich	171	52 (30.4)	119 (69.6)		

Table 1 (cont.): Association between variables and institutional delivery

Variables	Total	Place of Delivery		χ^2	P-Value
		Home	Health Facility		
Occupation of the respondents				48.103	**.000**
unemployed	524	363 (69.3)	161 (30.7)		
employed	32	3 (9.4)	29 (90.6)		
Husband's occupation				150.589	**.000**
Agriculture	297	245 (82.5)	52 (17.5)		
Business	105	46 (43.8)	59 (56.2)		
Service	100	25 (25.0)	75 (75.0)		
Day laborer	54	50 (92.6)	4 (7.4)		
The distance of maternal treatment facility (km)				79.969	**.000**
<5	199	86 (43.2)	113 (56.8)		
5–9	104	69 (66.3)	35 (33.7)		
10+	253	211 (83.4)	42 (16.6)		
Women's education level				145.032	**.000**
(Illiterate)	169	151 (89.3)	18 (10.7)		
Primary (1-5)	128	102 (79.7)	26 (20.3)		
Secondary (6-10)	160	92 (57.5)	68 (42.5)		
Higher (10+)	99	21 (21.2)	78 (78.8)		
Husband's education level				136.295	.000
(Illiterate)	76	72 (94.7)	4 (5.3)		
Primary (1-5)	87	76 (87.4)	11 (12.6)		
Secondary (6-10)	197	149 (75.6)	48 (24.4)		
Higher (10+)	196	69 (35.2)	127 (64.8)		

Table 1 (cont..): Association between variables and institutional delivery

Variables	Total	Place of Delivery		χ^2	P-Value
		Home	Health Facility		
Media exposure					
Watching television				120.229	**.000**
No	371	302 (81.4)	69 (18.6)		
Yes	185	64 (34.6)	121 (65.4)		
Listening to the radio				8.816	**.003**
No	512	346 (67.6)	166 (32.4)		
Yes	44	20 (45.5)	24 (54.5)		
Type of place of residence				96.835	**.000**
Rural	444	336 (75.7)	108 (24.3)		
Urban	111	29 (26.1)	82 (73.9)		
Religion				4.860	**.027**
Buddhist	499	321 (64.3)	178 (35.7)		
Other	57	45 (78.9)	12 (21.1)		
Group of Tribal				27.420	**.000**
Chakma	331	191 (57.7)	140 (42.3)		
Marma	138	105 (76.1)	33 (23.9)		
Tripura	37	26 (70.3)	11 (29.7)		
Other	50	44 (88.0)	6 (12.0)		
Family planning (use of a modern method of contraception**)**				17.871	.000
No	303	223(73.6)	80(26.4)		
Yes	253	143(56.5)	110(43.5)		
Total	556	366(65.8)	190(34.2)		

husbands were involved in farming.

The study indicated that distance to the nearest healthcare center is one of the ingredients that determine where delivery will take place. Women residing near healthcare facilities were more likely to select an institutional delivery.

DISCUSSION

With 34% institutional deliveries among tribal women of Bangladesh, it is still 4% short of figures reported at the National level (Bangladesh Demographic and Health Survey, 2014). These results are also lower compared to data obtained in India, with 88.6% institutional delivery assisted by auxiliary nurse midwife (ANM) among tribal women (Jinu et al., 2014).

Regression analysis from this study shows that the mother educational level is a significant indicator of delivery choice. Through education, mothers become aware of their health status and also provide measures to meet the medical costs of healthcare services. This result corroborates the researches that were earlier conducted in Bangladesh, Pakistan, and Uganda, respectively (Moyer et al., 2013; Kamal et al., 2013; Agha et al., 2011; Kalule-Sabiti et al., 2015). Also, recent studies in Kenya and Malawi show that institutional delivery to be significantly linked to higher education (Mazalale et al., 2015; Ono et al., 2013). Education serves as the catalyst for quality treatment for maternal health care (Karim, 2018). Knowledge motivates women to get better healthcare services elsewhere if it's not available nearby (Tann et al., 2007).

The maternal area of residence is also an essential factor during delivery. Several studies have demonstrated that home

Table 2: Estimates of binary logistic regression parameters for institutional delivery

Variables	Odds Ratio	95% C.I. for EXP(B)	
		Lower	Upper
Age at first marriage (years)			
(<18)	1.00		
18+	2.012**	1.079	3.750
Tribal group			
(Chakma)	1.00		
Marma	.564*	.314	1.014
Tripura	.901 ns	.314	2.589
Other	.292**	.087	.979
Family planning			
(No)	1.00		
Yes	1.440 ns	.861	2.408
Wealth index			
(Poor)	1.00		
Middle	3.287***	1.673	6.457
Rich	7.821***	3.842	15.920
Occupation of Husbands			
(Agriculture)	1.00		
Business	3.154***	1.690	5.885
Service	3.931***	1.973	7.831
Day laborer	.803 ns	.240	2.693
Health facility in distance (km)			
(<5)	1.00		
5-9	.560***	.283	1.107
10+	.387***	.211	.709
Education level of women			
(Illiterate)	1.00		
Primary	.890 ns	.407	1.946
Secondary	1.234 ns	.580	2.624
Higher	2.996**	1.233	7.276
Location of house			
(Rural)	1.00		
Urban	2.165**	1.110	4.224

delivery is related to rural housing (Abebe et al., 2012; Fikre et al.,2012; Amano et al., 2012; Feyissa et al., 2014). This can be due to better health information for urban residents, proximity to a health facility, thus utilize health facilities for delivery compared to their rural dwellers. This assertion is in line with the results of this study and other outcomes of research in sub-Saharan Africa & South Asia (Anyait et al., 2012).

The present study also reports that higher economic status was linked to institutional delivery among tribal women. This finding may be attributed to the fact that mothers of higher economic status are more educated, enlightened about existing modern healthcare services and the ability to access and/or afford such services easily. This observation has been supported by a study in which economic well-being was also reported to be an essential prerequisite for women to adopt the choice of institutional delivery (Feyissa et al., 2014). Similarly, studies conducted in Kenya, Malawi, & Uganda, and also show that in choosing institutional delivery, economic status is a determinant (Tsawe et al., 2015; Gabrysch& Campbell, 2009). Women with great wealth do not see any challenge in taking MHCS (Karim, 2019). The task of conveying a pregnant woman, who is about to deliver to a hospital is always a herculean task, especially at night in places lacking basic amenities such as transport or electricity. This has lead to complications sometimes. Hence, the nearness of the health facility is critical to delivery (Shrestha et al., 2012; Kulmala, 2000). This notion which agrees with findings in this study is also corroborated by findings of different researchers, where they established that the choice of a place of giving birth to a baby relies on certain factors, such as distance from a medical facility, the nature or network of roads, transport accessibility and transportation costs (Bedford et al., 2013; John et al., 2013; Ng'anjo et al., 2014; Wilunda et al., 2014).

Although education, economic status and proximity to a health facility are key issues to getting healthcare services by pregnant women, the occupation of the husband cannot be ruled out, as it determines the status of the family both financially and socially, and the quality of healthcare services the pregnant wife gets . Results from this study reveal that women whose husbands are gainfully employed or running a profitable business are more likely to have institutional delivery when compared to those without a financially buoyant husband. Roni (2014) also indicated that husbands who are engaged in a white-collar job chose institutional delivery. This can be explained by the fact that white-collar workers are likely to be more educated than their blue-collar counterparts.

Early marriage and/or pregnancy at ages less than 18 years among participants in this study have also shown a lower rate of institutional delivery. This result can be correlated with the fact that many of these teenagers lack the mental capacity or readiness for prenatal responsibilities or delivery experience. Consequently, women are encouraged to get maternity healthcare services at maturity. This is corroborated by the work of Gedefawet al. (2014).

CONCLUSION & RECOMMENDATIONS

This study concludes that institutional delivery in CHT is low. The results from this study also indicate that poor educational and economic status of women, far away from a health facility, low-income of husband, early marriage and pregnancy; all persuade to the adoption of home delivery among tribal women of Bangladesh. Appropriate steps should be taken to implement female-friendly healthcare and institutional delivery programs, which is currently relatively low in this area.

Based on findings from this study, the following recommendations are made; promoting the economic conditions of tribal people, increasing the education facilities for women, reducing the distance of maternal health center, discouraging early or child marriage, and ensuring the well-being of spouses through the creation of income-generating activities, job opportunities and better working conditions as majority of them are illiterate and unskilled.

Limitation

This study is limited to the three districts that make up the Chittagong Hill Tracts, and data collection was not evenly distributed. Also, the collection of data for 20 households was not possible due to the absence of the respondents during the study. Due to the low educational status among the residents of the region, some information provided by respondents may not fully reflect the respondent's actual intentions. The poor road network of more remote areas in the region practically made it challenging to obtain data in these areas. Communication with the locals in this region was difficult as the languages of different tribes were distinct.

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