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A N M Rezaul Karim (✉ zakianaser@yahoo.com)
International Islamic University Chittagong

Research Article

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EFFECTS OF THE HOSTILE ENVIRONMENT IN POSTNATAL CARE (PNC) PRACTICES

A.N.M. REZAUL KARIM, PH.D

ASSOCIATE PROFESSOR

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

INTERNATIONAL ISLAMIC UNIVERSITY CHITTAGONG

BANGLADESH

CORRESPONDING AUTHOR: A.N.M. REZAUL KARIM

EMAIL ADDRESS: zakianaser@yahoo.com

Abstract

Background: Postpartum treatment is an integral part of being a healthy mother and baby. However, neglecting the quality of care during this period can lead to maternal illness or infant death. Complications can be avoided if postpartum care is used properly. The study identified postpartum care practices among mothers of newborns in selected areas of the hilly region of Bangladesh. **Method:** A cross-sectional study was performed on 556 postpartum mothers. A semi-structured questionnaire was used to gather relevant information through a convenient sampling method for study subject in a hilly region of Bangladesh. **Result:** A total of 36.2% of mothers received PNC services only. In bivariate analyses, many variables showed strong associations; however, in the multinomial logistic regression study, only a few variables remained significant for post-natal care groups. Mothers with little or little education (1-5 years of schooling) had a significantly lower probability of receiving postnatal care, whereas higher education seems to have a strong and significant connection with the postnatal care practices in the hilly areas of Bangladesh. Women who watched TV had a significantly higher likelihood. Socioeconomic status had a strong relationship with receiving postnatal care services. Cultural beliefs and local perspectives on neonatal care practices predominate there. The study also found that PNC has a significant relationship with ANC. **Conclusion:** Government and community leaders should work together to strengthen maternal health care and raise health awareness considering their unique way of life and geographical location.

zakianaser@yahoo.com

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Introduction

Increasing and protecting maternal health and pruning maternal mortality rates, particularly during pregnancy and childbirth, do not only refer to health issues, but also cover important critical areas of human rights [1]. Inadequate postpartum care can lead to maternal and / or neonatal death or disability [2]. During the postpartum period, two-thirds of maternal and neonatal deaths occur in developing countries, the majority of which occur in Sub-Saharan Africa [3, 4]. Approximately half of all postpartum maternal deaths happen within the first 24 hours, and 66% happen within the first week [5, 6]. According to another report the majority of maternal and newborn deaths happen within the first 42 days of birth [7, 8]. The postpartum era provides a window of opportunity to trim down maternal and child mortality in order to attain the Millennium Development Goals 4 and 5 [9]

According to a study, haemorrhage is the leading cause of maternal death [10]. Although this period is critical for the survival of both mother and child, the level of postpartum care coverage is the lowest in the countdown country [11]. A demographic and health survey in Sub-Saharan Africa exposed that only 13% of women who gave birth at home received postnatal care within 2 days of their delivery [6]. According to data from the Bangladesh Demographic and Health Survey (BDHS), 36% of mothers and 32% of children in Bangladesh receive postpartum treatment from a medically qualified physician within 2 days of delivery [12].

If the baby is born at home, the first postnatal interaction should take place as soon as possible after the baby is born, ideally within 24 hours. Both mothers and newborns should have at least three additional postnatal interactions on day 3 (48–72 hours), days 7–14 after birth, and six weeks after birth [13]. Thermal management is one of the key components of newborn treatment, according to the World Health Organization [14]. Preventing heat loss and promoting heat gain are key components of effective thermal regulation for newborns. Hypothermia is treated in large hospitals by placing the newborn in an incubator; however, such facilities might not be available in rural areas with limited resources. Skin-to-skin treatment (STSC) [15,16], which involves putting the naked baby squarely on the mother's bare chest in an vertical position and breastfeeding the baby regularly and entirely, is an efficient way to avoid hypothermia . The mother's postpartum treatment has traditionally focused on vaginal blood loss, blood pressure and body temperature, involution of the uterus, breast-feeding and breast-care counseling,

nutritional advice for breastfeeding mothers, family planning consultations, and immunization against the tetanus toxoid. Similarly, the baby's postnatal treatment has traditionally concentrated on breastfeeding, warming up the baby (thermal care), taking care of the umbilical cord and skin in a sanitary manner, examining low birth weight etc [14]. PNC is one of the most important pillars of safe motherhood. Antenatal care (ANC) [17, 18], a safe and stable delivery [19] with clinical support [20] in a health facility for regular births, appropriate referral for obstetric complications, family planning, and other reproductive health services are all foundations of safe motherhood [1].

Literature review

Literature finds that the health-related beliefs, customs, distinctive features and socio-cultural characteristics play a significant role in the care of maternal health in rural Bangladesh.

It is believed that evil spirits overpower and overwhelm a pregnant woman when she travels alone outside the home, especially in the mornings, afternoons and evenings [21]. This is further explained by a study that rural women believe that malevolence spirits (*Alga batash*) are the reason bleeding during child birth [22]. According to another study, approximately 46% of women do not take care of severe bleeding right after childbirth [23]. In Bangladesh, rural women have little awareness of antenatal and postnatal health care facilities, and they are often at risk during childbirth [24].

A survey in Malawi to evaluate the awareness and practice of postpartum mothers about postpartum care found that almost all participants were aware of certain aspects of postpartum care [25]. Other studies, on the other hand, have revealed that women do not have adequate knowledge about postpartum care [26, 27]. The World Health Organization (WHO) states that lack of education, hunger, and inadequate access to healthcare are all linked to low use of PNC facilities [28].

Problem Statement

Bangladesh is a country in South Asia that is known for its diverse flora and fauna. While it is a delta, the south and south-eastern parts are hilly and home to tribal people. In relation to socioeconomic status, cultural context, educational attainment, place of residence, standard of living, social customs and geographical location, Tribal women in Bangladesh have diverse spectrum. Their way of life is still very primitive. Numerous studies have been conducted on maternal health of women living in slums, urban or rural areas, villages and coastal areas in Bangladesh. In contrast, no systematic study of PNC for women living in hilly areas came to my attention. Thus, the aim of the present study is to illustrate the

PNC-related situation of CHT indigenous peoples and to make the necessary recommendations to address the barriers.

Methodology

- i. The Study Design: The study was conducted using quantitative research methods in order to meet the demand of my research requirements.
- ii. Participants of the Study: Married tribal women living in hilly areas who had children aged at least one year or less.
- iii. Sampling Technique: In hilly areas, it was very difficult to know in advance the home address of mothers with children aged one year or younger. The population density is not the same in all villages. Therefore, convenient sampling techniques were effectively used for data collection in this study.
- iv. Sampling Size:

The sample size was determined using the following formula

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

Where,

n =Desired sample size.

z = the area under normal curve corresponding to the desired confidence level is 95% (1.96).

p = probability of success (expected population portion of main outcome variable; which was unknown and so 50% =0.5 was considered).

Since no previous study is found identifying the prevalence of PNC in the CHT of Bangladesh, we may assume that a woman who has given birth to a child very recently may possess the criteria of PNC or not.

Therefore we can consider $p = q = 0.50$.

$q = 1 - p$ =The probability of failure

d is the desired level of precision = sampling error = 0.05 (5%).

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

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

The projected sample size has been determined with an extra 50% added (384+192= 576) for adequate representation. Broad sampling results can generalize which can have a wide impact on indigenous women in Bangladesh. Although it was planned to collect data from the wives of 576 families, it was finally possible to collect data from 556 families due to the absence of respondents during the survey.

- v. Data Collection Tools & Instrument: Interview schedule or questionnaire was primarily used as data collection tool.
- vi. Data Analysis: Statistical Package for Social Sciences (SPSS-20.0) program was used to summarize, tabulate, and analyze the collected data. Bi-variate analysis, binary logistic regression analysis, multinomial logistic regression analysis was used in the study.

Result

The characteristics of the PNC sample are mentioned in Table 1, 2. Out of 556 samples, a total of 201 (36.2%) mothers received PNC of which 32.9% received postpartum care within two days of delivery, and 3.2% within three to 42 days.

Table 1: Percentage Distribution of Postnatal Checkup for Mothers

Variable	N	%
PNC Check-up (No)	355	63.8
PNC Check-up (Yes)	201	36.2
Total	556	100.0

Table 2: Distribution of Postpartum Checkup Percentage for Mother (Scheduling)

Variables	N	%
Time of the beginning of PNC		
Not received	355	63.8
Received (Within 2 days of delivery)	183	32.9
Received (3-42 days after delivery)	18	3.3
Total	556	100.0

Bivariate results

Many variables showed a significant relationship with the dependent (PNC) variable, according to bivariate analyses in table 3, 4 & 5 such as, age at first marriage, family members, wealth index, occupation of the women, husbands' occupation, distance to health facility (km), women's education, husbands' education, place of residence, media exposure, family planning, group of tribal, religion. Some

variables, such as age of women, parity, and current age of husband, however, showed a negative relationship with the PNC variable.

Table 3: Association between different Demographic Characteristics and Postnatal Check up

Characteristics	Total	Did you receive PNC		χ^2	P-Value
		No	Yes		
Age of women				2.871	.238
<25	239	161 (67.4%)	78 (32.6%)		
25-34	275	166 (60.4%)	109 (39.6%)		
35+	42	28 (66.7%)	14(33.3%)		
Age at first marriage				4.962	.032
<18	120	87 (72.5%)	33 (27.5%)		
18+	436	268 (61.5%)	168 (38.5%)		
Family members				3.769	.053
<5	361	220 (60.9%)	141 (39.1%)		
5+	195	135 (69.2%)	60 (30.8%)		
Parity				1.981	.184
One to Two	418	260 (62.2%)	158 (37.8%)		
Three and More	138	95 (68.8%)	43 (31.2%)		
Current age of husband				1.291	.525
<25	136	92 (67.6%)	44 (32.4%)		
25-35	330	205 (62.1%)	125 (37.9%)		
35+	90	58 (64.4%)	32 (35.6%)		
Total	556	355 (63.8%)	201 (36.2%)		

Table 4: Association between Different Socio-Economic Characteristics and PNC Visit

Characteristics	Total	Did you receive PNC		χ^2	P-Value
		No	Yes		
Wealth index				153.296	.000
Poor	223	200 (89.7%)	23 (10.3%)		
Middle	162	105 (64.8%)	57 (35.2%)		
Rich	171	50 (29.2%)	121 (70.8%)		
Occupation of the women				48.803	.000
Who do not earn	524	353 (67.4%)	171 (32.6%)		
Who earn	32	2 (6.2%)	30 (93.8%)		
Husbands' occupation				123.730	.000

Agriculture	297	234 (78.8%)	63 (21.2%)		
Business	105	48 (45.7%)	57 (54.3%)		
Service	100	25 (25.0%)	75 (75.0%)		
Day laborer	54	48 (88.9%)	6 (11.1%)		
Distance to health facility (km)				86.904	.000
<5	199	82 (41.2%)	117 (58.8%)		
5-9	104	62 (59.6%)	42 (40.4%)		
10+	253	211 (83.4%)	42 (16.6%)		
Women's education				142.516	.000
No formal education	169	151 (89.3%)	18 (10.7%)		
Primary	128	98 (76.6%)	30 (23.4%)		
Secondary	160	85 (53.1%)	75 (46.9%)		
Higher	99	21 (21.2%)	78 (78.8%)		
Husbands' education				145.149	.000
No formal education	76	70 (92.1%)	6 (7.9%)		
Primary	87	76 (87.4%)	11 (12.6%)		
Secondary	197	147 (74.6%)	50 (25.4%)		
Higher	196	62 (31.6%)	134 (68.4%)		
Place of residence				81.466	.000
Rural	445	325 (73.0%)	120 (27.0%)		
Urban	111	30 (27.0%)	81 (73.0%)		
Media exposure					
Watching television				126.853	.000
No	371	297 (80.1%)	74 (19.9%)		
Yes	185	58 (31.4%)	127 (68.6%)		
Listening to the radio				7.004	.013
No	512	335 (65.4%)	177 (34.6%)		
Yes	44	20 (45.5%)	24 (54.5%)		
Total	556	355 (63.8%)	201 (36.2%)		

Table 5: Association between Culture and Behavioral Characteristics Variables and Postnatal Care

Variables	Total	Postnatal Care		Total	χ^2	P-Value
		No	Yes			
Family planning (Have you been used any family planning methods ever?)					23.828	.000

No	303	221 (72.9%)	82 (27.1%)	303(100.0%)		
Yes	253	134 (53.0%)	119(47.0%)	253(100.0%)		
Group of tribal					31.551	.000
Chakma	331	181 (54.7%)	150(45.3%)	331(100.0%)		
Marma	138	106 (76.8%)	32 (23.2%)	138(100.0%)		
Tripura	37	26 (70.3%)	11 (29.7%)	37(100.0%)		
Other	50	42 (84.0%)	8 (16.0%)	50(100.0%)		
Religion					6.272	.013
Buddhist	499	310(62.1%)	189 (37.9%)	499(100.0%)		
Other	57	45 (78.9%)	12 (21.1%)	57(100.0%)		
Total	556	355 (63.8%)	201(36.2%)	556(100.0%)		

Table 6: Association between ANC and place of delivery

Variables	Total	Place of Delivery		χ^2	P-Value
		Home	Health Facility		
ANC (did you receive ANC?)				277.616	.000
No	390	342 (87.7%)	48 (12.3%)		
Yes	166	24 (14.5%)	142 (85.5%)		

Table 7: Association between ANC and Skilled birth attendant

Variables	Total	Birth attendant		χ^2	P-Value
		NON-TRAINED	TRAINED		
ANC (did you receive ANC?)				175.287	.000
No	390	283 (72.6 %)	107 (27.4%)		
Yes	166	19 (11.4 %)	147 (88.6%)		

Table 8: Association between ANC and PNC

Variables	Total	Postnatal check (PNC)		χ^2	P-Value
		Not received	Received		
ANC (did you receive ANC?)				250.116	.000
No	390	331 (84.9%)	59 (15.1%)		
Yes	166	24 (14.5%)	142 (85.5%)		
	556	355	201		

Table 9: Association between Institutional Delivery and PNC

Variables	Total	Postnatal check (PNC)		χ^2	P-Value
		Not received	Received		
Place of delivery				406.374	.000
Home	390	342 (93.4%)	24 (6.6%)		
Hospital	166	13 (6.8%)	177 (93.2%)		

	556	355(63.8%)	201(36.2%)		
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From Tables 6, 7, 8 and 9, it is shown that SBA, PNC and institutional delivery have a significant relationship with those who have taken ANC.

Multivariate results

The results of PNC's logistic regressions are shown in Table 10.

Table 10: Estimates of Parameters of Binary Logistic Regression of Seeking Postnatal Care

Variables	B	S.E	Sig.	Odds ratio	95% C.I. for EXP(B)	
					Lower	Upper
Wealth index						
(Poor)				1.00		
Middle	.688	.329	.036	1.990**	1.045	3.790
Rich	1.336	.376	.000	3.804***	1.820	7.951
Distance to health facility (km)						
(<5)				1.00		
5-9	-.318	.329	.332	.727	.382	1.385
10+	-1.211	.304	.000	.298***	.164	.540
Women's education						
(Illiterate)				1.00		
Primary	.254	.413	.539	1.289	.573	2.898
Secondary	.402	.419	.337	1.495	.658	3.399
Higher	.983	.504	.051	2.672**	.996	7.169
Husbands' education						
(Illiterate)				1.00		
Primary	-.632	.634	.319	.532	.153	1.843
Secondary	.377	.565	.504	1.458	.482	4.411
Higher	1.244	.609	.041	3.471**	1.052	11.452
Place of residence						
(Rural)				1.00		
Urban	.582	.335	.082	1.790*	.929	3.449
Media exposure (Watching television)						

(No)				1.00		
Yes	.602	.287	.036	1.826**	1.041	3.203
Group of tribal						
(Chakma)				1.00		
Marma	-.729	.290	.012	.482	.273	.852
Tripura	.626	.844	.459	1.870**	.357	9.780
Other	-.571	.565	.312	.565	.187	1.711
Family planning						
(No)				1.00		
Yes	.559	.251	.026	1.749**	1.068	2.862
Religion						
(Buddhist)				1.00		
Other	-1.355	.784	.084	.258*	.055	1.200

Notes: Level of significance: *** = $p < 0.01$, ** = $p < 0.05$, * = $p < 0.10$, ns = not significant. The reference category is in the parenthesis.

When opposed to mothers in the lowest income quintile, mothers in the wealthy (OR =3.804, 95 percent CI = 1.820- 7.951) and middle (OR =1.990, 95 percent CI = 1.045-3.790) quintiles were 4 times and 2 times more likely to pursue PNC, respectively. Women who watched TV had a substantially higher chance of getting PNC (OR = 1.826; 95 percent CI = 1.041 – 3.203) than those who did not. PNC (OR =2.672, 95 percent CI =0.996-7.169) was significantly more likely to be received by mothers with a higher education level (SSC+). Living in an urban area improved the chances of reporting PNC by 1.8 times (OR =1.790, 95 percent CI =0.929-3.449). Women whose husbands were highly educated were significantly 3 times more likely to use postpartum care services (OR = 3.471, 95 percent CI =1.052-11.452) than other women. PNC was more prevalent among women who lived near a health center. Women who adopted family planning were 2 times more likely to receive postpartum checkup (OR =1.749, 95 percent CI =1.068-2.862) from a health professional. Women in the Tripura group were 1.8 times more likely to get PNC (OR = 1.870, 95 percent CI =0.357- 9.780) than Chakmas.

Discussion

Table 10 presents in terms of postnatal care utilization, wealth index, family planning, mass media exposure, women's education, husbands' education, distance to health facilities, place of residence, religion appeared as significant factors affecting postnatal care utilization.

The wealth index has emerged as a key factor in determining whether a woman receives postpartum treatment. Access to PNC was found to be positively linked to socioeconomic status, i.e., women with a higher socioeconomic status had more access to PNC. Therefore, it may be argued that a woman's high socioeconomic status opens the door to PNC services.

The research has linked the use of PNC to the educational attainment of both husbands and women. Reproductive health education can play an important role in increasing women's knowledge about obstetrics and thus raising women's health awareness through the use of healthcare services. Thus, it may be reasonable to say that education serves as a beacon of hope for access to appropriate maternal health care like PNC.

According to the findings, having more access to media affects changes in behavioral patterns and preferences. The most plausible reason is that attention to the media leads to increased visibility and sharing of information about current health-care services and policies.

The increased use of MHCS is due to women's increased understanding and acceptance of family planning. When women meet health workers, physicians, and other professionals about family planning, they will learn a lot about maternity health care programs from them, which eventually contributes to PNC.

In terms of the influence of place of residence, the study discovered that urban women were more likely than rural women to opt PNC. Generally, all maternal health services are conveniently available in urban areas as compared to rural areas.

Connection to healthcare is hampered significantly by long distances. Since the study region was marked by rough terrain, mountainous landscape, narrow valleys, and inaccessible areas, this is definitely true of the residents of hilly areas. In addition, there is also a lack of adequate transportation and proper highways in hilly areas.

From the study, it can be easily inferred that the ANC is a compartment of a moving train of safe motherhood. The woman in the compartment of this train will be able to reach her destination safely.

A similar study found that both prenatal care and its adequacy can predict early breastfeeding and the adoption of maternal counseling regarding the invention of complementary foods [29]. Thus, ANC is the gateway of MHCS which ultimately leads to the successful adoption of PNC.

“Today's child, tomorrow's future”. The physical and mental development of the child is essential for the whole nation. Today, there is a worldwide movement for breastfeeding. Even around the world, the first day of August is celebrated as "World Breastfeeding Day" every year. Mother's milk is very beneficial for

the baby. Yellowish thick-sticky milk that comes out of the mother's breast is therefore Shal-milk. In the language of medical science, it is called 'Colostum'. This milk has fewer amounts of fat and sugar. However, mineral salts, iron, antioxidants and protein are more than normal milk. The incidence of allergic, bacterial and viral infections, diarrhea, tuberculosis, meningitis, and endocrine diseases in breastfed infants is much lower than in infants who consume canned powdered milk or artificial milk. Breastfeeding creates a heavenly bond between mother and baby that lasts forever. The Creator says in the Qur'an (2: 233), 'Mothers will breastfeed their children for a full two years'. The World Health Organization (WHO) also recommends providing adequate and safe nutrition within one hour of birth, as well as breastfeeding, exclusive breastfeeding for the first six months of life, and breastfeeding for two years or more [30, 31]. If mothers do not take PNC after childbirth, they remain unaware of the above benefits of breastfeeding.

What precautions do those who do not use PNC take for their newborn child and mother? This research has revealed that in case of postpartum problems such as bleeding from the navel, itching, fever, anemia, rapid breathing, excessive sleep, bladder problems, inability to drink breast milk, measles, jaundice, loose skin, dry water, etc., mothers are advised by the local Kabiraj. After cutting the umbilical cord during childbirth, mothers use ashes, animal dung, turmeric powder, honey, vermilion etc. on the navel of the newborn child. In the hilly areas, men as well as women cultivate land, cut down trees and catch fish etc. due to economic hardship. Many mothers in hilly areas do not have access to the rest and services that they need after giving birth.

Conclusion

The results of this study prove that women from these tribes can be considered as the most disadvantaged group in the country in terms of socio-economic barriers to PNC practice. Special initiatives need to be taken to address these issues.

According to the study's results, key recommendations of PNC practice include improving the economic status of tribal people, increasing the level of education of women and their husbands, ensuring access to media, reducing distance to maternal health centers, and strengthening family planning activities and confirming ANC check up.

Education in a formal setting is one of everyone's basic requirements, because it informs them about the benefits and problems of their existence. As a result, special attention and commitment are needed to enhance tribal women's formal education. Healthcare distance is being considered as a major barrier. Significant infrastructural development is required to facilitate geographical access and decentralization

to maternal health centers and dispensary services. Geographical position poses a challenge for women who need emergency or routine maternity care. Satellite clinics, mobile medical services should be deployed in convenient locations to cater to the specific needs of pregnant women.

Declaration

Ethics approval and consent to participate

Written permission for conducting research was taken from the Board of Advanced Studies, IU, Bangladesh (Reference no: 27/Education/IU-2013/828) dated 19.02.2013).

Informed Consent

The purpose of the study was explained to all of the women who were enrolled in it, and their written consent was obtained. The respondents were told that the information they provided would not be shared with any non-concerned members, that it would be kept private, and that it would only be used for research purposes. All participants were given an informed consent form to read and sign indicating their willingness to be interviewed. The participants were made aware that participation in the study was completely voluntary.

Consent for publication

I give my consent for identifiable information to be published in your Journal, which may include photograph(s) and/or videos and/or case history and/or details within the document ("Material").

Availability of Raw Data and Materials statement:

The source of the data and materials will not be disclosed because we are currently working on and preparing to publish another relevant research subject. If any researcher is interested in the data I have collected, he can contact the corresponding author of this paper.

Conflict of interest and ethical standards

The authors declare that there were no commercial or financial partnerships that could be construed as a possible conflict of interest during the study.

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Author Contributions: Conceptualization, methodology, formal analysis, investigation, writing—original draft preparation, writing—review and editing, visualization

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Human and Animal Rights

Not applicable

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