



Original Research Article

Factors Influencing Postnatal Care Services Utilization in a Tertiary Care Hospital of Dhaka

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Abstract: Background: Post natal care (PNC) is very crucial as most of the maternal and infant mortality occur during this period. At least 4 PNC should be received, and it is most ignored in developing countries. **Aims:** The study aimed to assess the factors associated with post-natal care utilization among mothers. **Materials and Methods:** This cross-sectional study was conveyed from September 2022 to January 2023 among 296 purposively included mothers having at least one living child aged below one year at paediatric outpatient department of Dhaka Medical College Hospital, Dhaka. After taking informed written consent data were collected by face-to-face interview by using a pretested semi-structured questionnaire. Data were analysed using the SPSS software version 25. **Results:** Mean \pm (SD) age of the women were $27.1 \pm (6.198)$ years. Among them 87 (44.4%) were within 18-25 years age; 51.5% studied up to SSC/equivalent level and 179.6% were housewives ($p < 0.05$). Mean \pm (SD) number of PNC was $2.69 \pm (1.814)$. Among women who took ANC; 179 (67.3%) used PNC service. Maximum women took minimum number of ANC, but 63.5% utilized PNC ($p < 0.05$). Most of the women were aware about danger signs of postnatal period but 39 (21.3%) did not receive PNC ($p < 0.01$). **Conclusion:** Women's age, education and occupation were significantly associated with utilization of PNC. Though most women were informed about complications; a significant proportion did not receive PNC.

Keywords: Post-Natal Care, Utilization of PNC, ANC, Normal Vaginal Delivery.

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Introduction

Postnatal care (PNC) may be defined as care given to the mother and her newborn baby immediately after delivery of baby up to the next 42 days of birth.¹ Post natal care (PNC) in post-natal period is very crucial because most maternal and infant deaths occur during this period.² According to the recommendation of the World Health Organization (WHO), all mothers and newborns should receive at least 4 PNC. First PNC should take within the first 24 hour of childbirth, after that more three PNC should be taken within next 42 days.^{3,4}

It was estimated that globally the maternal mortality ratio (MMR) was 216 per 100000 live births in 2015.⁵ Worldwide about 830 women died everyday due to the complication of pregnancy and childbirth. The initial reason of maternal morbidity and mortality is haemorrhage, high blood pressure and sepsis.⁶ Despite achieving significant progress in reducing maternal mortality, globally about 295,000 women die from complications related to pregnancy. Most of these maternal deaths occurred in developing countries including Bangladesh.⁷ Though MMR in Bangladesh fell from 569 to 176 maternal deaths per 100,000 live births in 1990 to 2015 but the target of the Sustainable Development Goal (SDG) was not achieved.⁸ The target of the SDGs regarding maternal

health is to decrease the worldwide MMR lower to less than 70 per 100,000 live births by 2030 and making sure that no country's MMR rises above 140 per 100,000 live births.⁹

Most maternal and infant death occurs in the first one month after birth and among these about half of postnatal maternal death occurs within the first 24 hours.¹⁰ Most maternal and infant morbidity and mortality can be minimized, specifically through postnatal care. Through regular PNC in the postpartum period any health problems can be detected immediately by health professionals and treatments can be given timely.^{11,12} Lack of concern during post-partum period can cause illnesses, impairments and even fatalities.¹¹ Postnatal care is usually the most ignored in developing countries, despite its significance.¹³

Materials & Methods

This cross-sectional study was conveyed during the period of September 2022 to January 2023 at paediatric outpatient department of Dhaka Medical College Hospital, Dhaka with the objective to assess the factors associated with postnatal care utilization among mothers. By purposive sampling technique 296 mothers were included having at least one living child aged below one year and not less than 4 weeks. Mothers who had psychiatric illness and other serious illness were excluded. After taking informed written consent data were collected by face-to-face interview from each respondent by using a pre-tested, observation based, peer-reviewed, semi-structured questionnaire which was included particulars of the respondents, socio demographic information and information about antenatal care (ANC) and postnatal care (PNC). Ethics was maintained strictly at different stages of this study. The procedure was explained to the sample unit, and they were informed that if they do not wish to be included in the study it will not hamper the treatment of their patient and at any stage of the study, they can withdraw themselves. After data collection data were checked thoroughly for any inconsistency, incompleteness and tabulated & analysed using the SPSS software version 25. Descriptive statistics were presented by mean, frequency, percentage, standard deviation and inferential statistics were presented by chi-square test in tables. Statistical significance was set as 95%

confidence level, *p*-value of 0.05 or less than 0.05 was considered statistically significant.

Results

The study was carried out among 296 mothers who had children aged between 1 year and attended in outpatient department of Dhaka Medical College Hospital. This chapter presents the results of the study findings.

Table 1: Distribution of Respondents by Socio-Demographic Characteristics (n=296)

Characteristics	Frequency (f)	Percent (%)
Age (years)		
18-25	142	48
26-30	80	27
31-35	44	14.9
36-40	22	7.4
41-45	8	2.7
Mean age \pm (SD) = 27.1 \pm (6.198)		
Education		
Primary (1-5)	64	21.6
Upto SSC/equivalent	144	48.6
Upto HSC/equivalent	51	17.2
Graduation & above	37	12.5
Occupation		
Service	19	6.4
Business	8	2.7
Student	22	7.4
Housewife	247	83.4
Monthly family income		
10000-20000	205	69.3
21000-30000	60	20.3
31000-40000	13	4.4
41000-50000	8	2.7
>50000	10	3.4

Mean age of the respondents was about 27.1 \pm (6.198) years and most of them 142 (48%) were aged between 18-25 years followed by 80 (27%), 44 (14.9%) and 22(7.4%) were in age group 26-30, 31-35 and 36-40 years respectively and only 8(2.7%) of respondents aged between 41-45 years. Regarding educational qualifications, majority 144 (48.6%) of respondents completed SSC/equivalent. Majority 247(83.4%) of respondents were housewives, followed by 22(7.4%) were student, 19(6.4%) were in service and only

8(2.7%) had business as occupation. Monthly family income was between Tk.10000-20000 among majority 205 (69.3%) of respondents stated in Table 1.

Table 2: Distribution of PNC Utilization by the Respondents (n=296)

PNC	Frequency (f)	Percent (%)
Yes	196	66.2
No	100	33.8
Total	296	100

Table 2 shows majority 196 (66.2%) of women took PNC while the rest 100 (33.8%) did not.

Table 3: Distribution of Total Number of PNC Utilized by the Respondents (n=196)

PNC number	Frequency (f)	Percent (%)
1-2	111	56.6
3-4	64	32.7
5 & above	21	10
Total	196	100
Mean PNC \pm (SD) = 2.69 \pm (1.814)		
Minimum=1, Maximum=10		

Table 3 shows most of the respondents 111(56.6%) had PNC for 1-2 times followed By 64 (32.7%) and 21(10%) had PNC 3-4 times and 5 or more times respectively.

Table 4: Association Between Sociodemographic Characteristics with Utilization of PNC (n=296)

Characteristics	Utilization of PNC		Significance
	Yes f (%)	No f (%)	
Age (Years)			$\chi^2 = 10.504^a$ df=4 p = 0.033*
18-25	87 (44.4)	55 (55)	
26-30	61 (31.1)	19 (19)	
31-35	24 (12.2)	20 (20)	
36-40	18 (9.2)	4 (4)	
41-45	6 (3.1)	2 (2)	
Educational qualification			$\chi^2 = 23.528^a$ df=3 p = 0.000**
Primary (1-5)	27 (13.8)	37 (37)	
Upto SSC/equivalent	101 (51.5)	43 (43)	
Upto HSC/equivalent	37 (18.9)	14 (14)	
Upto graduation & above	31 (15.8)	6 (6.0)	$\chi^2 = 11.757^a$ df=3 p = 0.008**
Occupation			
Service	15 (7.7)	4 (4)	
Business	4 (2)	4 (4)	
Student	21 (10.7)	1 (1)	Fisher's exact = 6.773 ^b df=4 p = 0.140
Housewife	156 (79.6)	91 (91)	
Monthly family income			
10000-20000 Tk.	129 (65.8)	76 (76)	
21000-30000 Tk.	44 (22.4)	16 (16)	
31000-40000 Tk.	8 (4.1)	5 (5)	
41000-50000 Tk.	8 (4.1)	0 (0)	
>50000 Tk.	7 (3.6)	3 (3)	

^aPearson's chi-square and ^bFisher's exact tests were performed to measure the level of significance.

** p value <0.01 is highly significant.

*p value <0.05 is significant.

Table 4 revealed among the women who utilized PNC majority 87 (44.4%) were from age group 18-25 years, while who did not utilize PNC, majority 55 (55%) were from same age group. Considering educational qualification, women who utilized PNC majority 101 (51.5%) studied up to SSC/equivalent level and who

did not utilize PNC majority 43 (43%) also studied up to same level. By occupation, women who utilized and who did not utilize PNC majority 156 (79.6%) and 91 (91%) respectively were housewives. Regarding monthly family income, women who utilized and who did not utilize PNC majority 129 (65.8%) and 76

(76%) respectively had income between Tk. 10000-20000. Age, educational qualification and occupation were statistically associated with utilization of PNC.

Table 5: Association Between Utilization of ANC And Utilization of PNC Of Respondents (n=296)

ANC utilization	PNC utilization			Significance
	Yes f (%)	No f (%)	Total f (%)	
Yes	179 (67.3)	87 (32.7)	266 (100)	$\chi = 1.361^a$ df=1 p = 0.243
No	17 (56.7)	13 (43.3)	30 (100)	

^aPearson's chi-square test was performed.

Among women who utilized ANC, 179 (67.3%) took PNC and the rest 87 (32.7%) did not. While, women who did not utilize ANC, majority 17 (56.7%) took PNC and 87 (32.7%) did not. These differences were not statistically significant shown in Table 5.

Table 6: Association Between Number of ANC With Utilization of PNC of Respondents (n=266)

ANC number	PNC utilization			Significance
	Yes f (%)	No f (%)	Total f (%)	
1-5	132 (63.5)	76 (36.5)	208 (100)	$\chi = 8.836^a$ df=2 p = 0.012*
6-10	35 (76.1)	11 (23.9)	46 (100)	
11-14	12 (100)	0 (0)	12 (100)	

^aPearson's chi-square test was performed.

*p<0.05 is significant.

Women who had 1-5, 6-10 AND 11-14 number of ANC, among them 132 (63.5%), 35 (76.1%) and 12 (100%) took PNC. These differences between ANC number and PNC utilization were statistically significant (p<0.05) presented in Table 6.

Table 7: Association Between Number of ANC With Number of PNC Utilization of Respondents (n=179)

ANC number	PNC number				Significance
	1-2 f (%)	3-4 f (%)	≥5 f (%)	Total f (%)	
1-5	81 (61.4)	44 (33.3)	7 (5.3)	132 (100)	Fisher's exact = 17.944 ^b df=4 p = 0.001**
6-10	15 (42.9)	13 (37.1)	7 (20)	35 (100)	
11-14	3 (25)	4 (33.3)	5 (41.7)	12 (100)	

^bFisher's exact test was performed.

** p<0.01 is highly significant.

Women who had 1-5 and 6-10 number of ANC, among them majority 81 (61.4%) and 15 (42.9%) respectively took PNC for 1-2 times. On the other hand, women who had 11-14 numbers of ANC, majority 5 (41.7%) took PNC for more than 5 times.

These differences of number of ANC with number of PNC utilization were statistically significant (p<0.01) presented in Table 7.

Table 8: Association Between Mode of Delivery with Utilization of PNC (n=296)

Mode of delivery	Utilization of PNC			Significance
	Yes f (%)	No f (%)	Total f (%)	
Normal vaginal delivery (NVD)	79 (57.2)	59 (42.8)	138 (100)	$\chi = 9.298^a$ df=1 p=0.002*
Caesarean section (CS)	117 (74.1)	41 (25.9)	158 (100)	

Among the women who experienced normal vaginal delivery, 79 (57.2%) utilized PNC. While women who underwent caesarean section, among them 117

(74.1%) took PNC. Mode of delivery was statistically associated with utilization of PNC (p<0.01) illustrates in Table 8.

Table 9: Association Between Awareness About Danger Signs of Postnatal Period with Utilization of PNC Of Respondents (n=296)

Awareness	Utilization of PNC		Total f (%)	Significance
	Yes f (%)	No f (%)		
Yes	144 (78.7)	39 (21.3)	183 (100)	$\chi=3.334^a$ df=1 p=0.000**
No	52 (46)	61 (54)	113 (100)	

^aPearson's chi-square test was performed.

** p<0.01 is highly significant.

Among the respondents who had awareness about danger signs that may appear in post-natal period, maximum 144 (78.7%) utilized PNC and though 39 (21.3%) women knew about danger signs but also, they did not utilize PNC. Whereas among the respondents who were not aware about danger signs, majority 61 (54%) did not utilize PNC. These differences of utilization of PNC with awareness about danger signs during postnatal period were statistically significant (p<0.01) shown in Table-9.

Discussion

This cross-sectional study aimed to assess factors associated with post-natal care (PNC) utilization included 296 mothers. Majority 87 (44.4%) and 55 (55%) of women who utilized and did not utilize PNC respectively were between age group 18 – 25 years. Most 156 (79.6) and 91 (91%) of them who utilized and did not utilize PNC respectively were housewives. Regarding education, majority 101 (51.5%) and 43 (43%) of them who utilized and did not utilize PNC respectively studied up to SSC/equivalent level. Age, occupation and education among women with PNC utilization were statistically associated (p<0.05). Monthly family income of majority 129 (65.8%) and 76 (76%) of women who utilized and did not utilize PNC respectively were between Tk. 10000-20000. A study regarding PNC utilization among urban slum women in Karnataka, India revealed that majority 103 (54.21%) women were in age group 21-25 and majority 108 (56.84%) studied up to secondary level education and maximum 88.95% belonged to lower class of socio-economic status. These findings are near similar to the current study result.¹⁴

The current study revealed that, majority 111 (66.2%) of women received PNC, but among these women majority 111 (56.6%) took PNC only for 1 to 2 times. Few women 21 (10%) took PNC for 5 times or more. In another cross-sectional study in Mumbai, India during 2012, presented that out of 200 women only 54 (27%) received PNC. Among them majority 32 (59%) visited for PNC for 1 time.¹⁵ There was a discrepancy found between this PNC utilization result with current study result. The reason may be time and place difference, because with increasing time more enforcement is giving in institutional delivery to prevent maternal mortality and the number of institutional delivery and caesarean section has increased. It was found in a study conveyed in Bangladesh in 2023 that 77.8% women had institutional delivery.¹⁶ So, in that case women can receive at least one PNC after delivery in health facility.

Among the respondent majority utilized ANC. Women who received ANC, majority 179 (67.3%) of them utilized PNC. Maximum women took minimum number that is 1-5 number of ANC and among them majority 132 (63.5%) women utilized PNC. Whereas the women who took maximum number of ANC, all of them 12 (100%) utilized PNC. Regarding number of PNC, it was found that women who received minimum number of ANC, among them majority also 81 (61.4%) utilized minimum number (1-2) of PNC. Women who utilized maximum number of ANC, among them majority 5 (41.7%) utilized 5 or more number of PNC. The number of ANC utilization was statistically associated with PNC utilization and also with number of PNC utilization (p<0.05). Similarity was found with this study result with another research carried out in Ethiopia where it was revealed that maximum women attended for ANC service and among those women majority 65.45% utilized PNC service. Women who received ANC for 3 or more times were more prone to utilize PNC than women who had not any ANC service (AOR=3.5; 95% CI=1.6–7.6).¹⁷

The mode of delivery was caesarean section (CS) among majority of women in current study and women who underwent CS, most of them 117 (74.1%) utilized PNC. On the other hand, women who had normal vaginal delivery (NVD), majority 79 (57.2%) of them also received PNC service. Mode of delivery was statistically associated with PNC utilization (p<0.01).

Regarding factors of PNC utilization in another study carried out in Ethiopia the result stated that, among 588 women maximum (n=452) women went through NVD, among them majority (n=318) did not attend for PNC. Few women (n=31) underwent for CS and among them maximum (n=24) took PNC.¹⁸ Dissimilarity was found between distribution of mode of delivery with current study result. Other study related to CS enlightened that, now a days CS rate is alarmingly increasing in Bangladesh, the rate was found increased from 3% to 24% during 2000 to 2014.^{19,20} In Ethiopia it was found slight increase in the national CS rate from 0.7% to 1.9% during 2000 to 2016.²¹

Postpartum period is very vital because several maternal and neonatal life-threatening conditions arise during this time. Regarding awareness about danger signs that may arise in post-natal period present study revealed, most of the women were aware about danger signs, among them 144 (78.7%) took PNC and 39 (21.3%) women did not although they were aware but also, they did not realize the necessity to utilize PNC service. It is very alarming that a large portion of women did not knew about danger signs that may arise in post-natal period and among them majority 61 (54%) did not utilize PNC service. Association between utilization of PNC and awareness about danger signs that may appear in post-natal period was statistically significant ($p < 0.01$). Another study result presented that majority women were not aware about maternal complications that may arise in post-natal period. Women who were aware, among them majority (n=124) utilized PNC but a large portion (n=100) did not utilize. Women who were not aware, among them a few portions (n=73) utilized PNC and the most (n=289) did not attended for PNC service.¹⁸

Limitations of the study

The study was conducted in a single centre among only 296 respondents. So, the results could not be generalized. For much information like frequency of ANC visit, frequency of PNC visits etc. we had to depend upon the stated answers of the respondents because no documents were found for the reliability of their information.

Conclusion

About half of the women were within lower age group, more than half of women studied up to SSC/equivalent level and more than three-fourths were housewives among women who utilized PNC. Women who attended for ANC among them majority utilized PNC but about one-third women did not. Majority of women after both normal vaginal delivery and caesarean section received PNC but a significant portion from both groups did not. Though about one-fourth of women were aware about danger signs in post-natal period, but they did not utilize PNC.

Declarations

Ethics approval and consent to participate. Before data collection, both verbal and written informed consent was taken from participants.

Availability of Data and Materials

The datasets supporting the conclusions of this article are included within the article generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Consent for Publication: All authors have approved this manuscript for publication.

Competing Interests: The authors declare that they have no competing interests.

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Authors' Contributions

NS, FN participated in the design of the study, data interpretation and drafted the manuscript. NS, FN, FI contributed to the data design, data interpretation and data analysis. NS, FN, FI, MAR assisted in data interpretation, data analysis and critical review of the manuscript. All authors read and approved the final manuscript.

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