

Factors Associated with Postpartum Depression among Women in an Urban Area of Dhaka, Bangladesh

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ABSTRACT

Background and Objective: Limited data are available on prevalence and determinants of Postpartum Depression (PPD) among women in Bangladesh. This study aims at determining the factors associated with PPD among women in an urban setting in Dhaka, Bangladesh. **Materials and Methods:** An analytical cross-sectional study was conducted at Urban Primary Health Care Center of Dhaka. A total of 277 postpartum women were interviewed using Edinburgh Postnatal Depression Scale (EPDS) to screen for depression. Those women who scored 11 or more were categorized as depressed. Factors associated with postpartum depressive symptoms were analyzed through appropriate statistical method. **Results:** The proportion of women with PPD in this study is 82.3%. Risk factors found to be significantly associated with postpartum depression were participant's age ($p = 0.003$), husband's education ($p = 0.022$), husband's occupation ($p = 0.014$), husband's income ($p = 0.012$), participant's age during marriage ($p = 0.016$), age of menarche ($p = 0.024$), age of first conception ($p = 0.000$), history of abortion ($p = 0.050$), complication during pregnancy ($p = 0.024$), excess fear of delivery ($p = 0.001$), the most expected person during pregnancy ($p=0.000$), husband's support for taking care of child ($p = 0.049$), participant's mood swings in present days ($p = 0.000$), often feeling sad ($p = 0.004$), worries about taking care of child ($p = 0.000$), place of delivery ($p = 0.021$), complication during delivery ($p = 0.025$), desired gender of child ($p = 0.008$), twins or triplet babies ($p = 0.002$), baby's follow up visit within 42 days ($p = 0.006$). **Conclusion:** Postpartum depression is common but largely undetected public health problem in Bangladesh. By using simple screening methods depression can be detected early in the postpartum period. More research is required for the innovation of effective, low cost and culturally appropriate PPD case management and preventive intervention in Bangladesh.

KEYWORDS

Postpartum depression, mental health, urban health, factors, Dhaka, Bangladesh

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INTRODUCTION

Depression is a common and serious medical illness that negatively affects how a person feels, the way you think and how you act. Depression causes feelings of sadness and a loss of interest in activities once



enjoyed. It can lead to a variety of emotional and physical problems and can decrease a person's ability to function at work and at home¹. Postpartum Depression (PPD) is a term applied to describe depressive symptoms occurring during the first year of the postpartum period and is characterized by low mood, loss of enjoyment, reduced energy and activity, marked functional impairment, reduced self-esteem, ideas or acts of self-harm or suicide. Globally, the prevalence of PPD among mothers' ranges from 0.5-60.8%². In comparison to women of developed countries, women of developing countries showed higher rates of PPD³.

Postpartum or peripartum depression is a type of clinical depression¹. It is a serious but treatable medical illness involving feelings of extreme sadness, indifference and anxiety, as well as changes in energy, sleep and appetite. It carries risks for the mother and child. For women, having a baby is a very exciting, joyous and often anxious time. But for women with postpartum depression, it can become very distressing and difficult¹. Postpartum depression occurs soon after a woman gives birth. Normally these feelings occur suddenly four to five days after the birth of the baby. Typically, it develops within 4-6 weeks after giving birth, but can sometimes take several months to appear¹. Women can also experience depression during pregnancy. Approximately 50-75% of all new mothers experience some negative feelings after giving birth¹. The most common symptoms include: totally avoiding family and friends, reduced concentration, not being able to take care of yourself or your baby, trouble feeling close to your baby, or bonding, fears that you're not a good mother, crying for no apparent reason severe mood swings, anxiety, or panic attacks, too much or too little sleep, lack of interest in daily tasks, thoughts of harming baby, thoughts of suicide, or suicide attempts⁴. While these symptoms are quite unpleasant, they typically resolve on their own within a week to 2 weeks. Getting as much rest as possible and having a good support system can help these symptoms seem less severe¹.

Postpartum depression is a neglected public health problem which is not perceived as serious health problem in Bangladesh and not prioritized in prevention programs and in health care delivery. It is not recognized as an illness. 35.2% of women experienced postpartum depression within the first 6 months following childbirth⁵. Data on its prevalence and determinants are lacking in Bangladesh. In addition, there are often few prevalence data, making recognition of the problem difficult and posing a challenge to developing effective health care responses.

This study aimed at determine the factors associated with postpartum depression among women in an Urban Area of Dhaka, Bangladesh.

MATERIALS AND METHODS

Study area: This was a cross-sectional descriptive study conducted over 12 months from September, 2019 to August, 2020 at the Urban Primary Health Care Services Delivery Project (UPHCSDP), Mirpur, Dhaka. Beginning in 1998, UPHCSDP is a government run initiative that involves public-private partnerships with national NGOs to improve the health status of the poor in 11 city corporations and 4 municipalities by providing an essential package of high-impact services⁶.

Research protocol: The Ethical Review Committee of Bangladesh University of Health Sciences (BUHS) approved the study protocol and prior permission was taken from UPHC. All women of 4 weeks-3 months postpartum period obtained care from Urban Primary Health Care Service were invited to participate in the study. An informed written consent was taken before participation.

The inclusion criteria were women of 4 weeks-3 months postpartum period who were willing to participate in the study while the exclusion criteria were postpartum women with diagnosed depression, ongoing treatment for any psychiatric disorder or terminally ill.

Sample collection and calculations: Sample were collected by using convenient sampling technique from Urban Primary Health Care Services Delivery Project (UPHCSDP), Mirpur, Dhaka. The total sample size was 271 calculated by using below formula (<https://goodcalculators.com/sample-size-calculator/>).

Quantitative:

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

- n = Desired sample size
- Z = 95% confidence limit (Z-score used value 1.96)
- p = Proportion of women with postpartum depression
- q = 1-p
- d = Degree of accuracy, 0.05 level

In this study,

- p = 0.18
- q = 0.82

Therefore, the sample size is,

$$\begin{aligned} n &= (1.96)^2 \times 0.18 \times 0.82 / (0.05)^2 \\ &= 226 \end{aligned}$$

Due to non-response,

$$\begin{aligned} 20\% &= 22 \times 20 / 100 \\ &= 45.2 \end{aligned}$$

So, desired sample size,

$$\begin{aligned} n &= 226 + 45 \\ &= 271 \end{aligned}$$

Questionnaire: A semi-structured questionnaire was used for face-to-face interview. Questionnaire to assess depression was assessed by using The Edinburgh Postnatal Depression Scale (EPDS)⁷⁻⁹. A validated Bangla version of Edinburgh Postnatal Depression Scale (EPDS) was used to measure the depression status. The EPDS is a 10-item self-reporting scale based on a 1 week recall and is specifically designed to screen for PPD. Those women who scored 11 or more were categorized as depressed.

Statistical analysis: Statistical analysis was performed by using IBM SPSS® version 22 software. The analyzed data has been presented in tables, graphs and charts. All data were expressed as the frequency, percentage, median and Mean±SD as appropriate. The associations between the variables were measured using Chi-square test. A significance level of 0.05 was considered as proper and thus p-values of less than 0.05 was considered statistically significant.

RESULTS

Majority of women with postpartum depression were younger than 30 years with a graduate or postgraduate qualification. More than half of these women (55.2%) were homemaker while nearly all of their husbands were the earning member of the household (60.3%) in Table 1. Participant's age (p = 0.003), participant's husband education (p=0.022), husband occupation (p = 0.014) and husband income (p = 0.012) were statistically significant.

Majority of the participants reported age of menarche by 13 years (39.7%). Nearly 70% of women wity PPD conceived for the first time by 30 years of age in Table 2. One in ten women with PPD had a history of

Table 1: Association between socio-demographic factors and PPD (n = 277)

Factors	Variables	Postpartum depression (PPD) (%)		Chi-square	p-value
		Yes	No		
Age (years)	<20	6 (2.2)	7 (2.5)	15.390*	0.003
	21-25	58 (20.9)	7 (2.5)		
	26-30	136 (49.1)	24 (8.7)		
	31-35	24 (8.7)	10 (3.6)		
	>35	4 (1.4)	1 (0.4)		
Religion	Muslim	207(74.7)	46 (16.6)	0.484*	0.898
	Hindu	16 (5.8)	2 (0.7)		
	Christian	5 (1.8)	1 (0.4)		
	Buddhist	0	0		
Participant's education	Primary	18 (6.5)	6 (2.2)	1.333*	0.735
	Secondary	25 (9.0)	6 (2.2)		
	Graduate	163 (58.8)	33 (11.9)		
	Postgraduate	22 (7.9)	4 (1.4)		
Participant's occupation	Housewife	153 (55.2)	29 (10.5)	2.366*	0.499
	Employee	61 (22.0)	18 (6.5)		
	Business	4 (1.4)	1 (0.4)		
	Others	10 (3.6)	1 (0.4)		
Participant's income (n=95)	<5000	1 (1.1)	0	2.106*	0.447
	5000-10000	10 (1.5)	5 (5.3)		
	10000>	64 (67.4)	15 (15.8)		
Participant's husband's education	Primary	3 (1.1)	2 (0.7)	9.187*	0.022
	Secondary	30 (10.8)	8 (2.9)		
	Graduate	170 (61.4)	39 (14.1)		
	Postgraduate	25 (9.0)	0		
Participant's husband's occupation	Employee	167 (60.3)	26 (9.4)	8.131*	0.014
	Business	53 (19.1)	19 (6.9)		
	Others	8 (2.9)	4 (1.4)		
Participant's husband's income	5000-10000	2 (0.7)	3 (1.1)	6.260	0.012
	10000>	226 (81.6)	46 (16.6)		

*Fisher's exact test

Table 2: Association between reproductive health and PPD (n = 277)

Factors	Variables	Postpartum depression (PPD) (%)		Chi-square	p-value
		Yes	No		
Age during marriage (years)	<18	27 (9.7%)	14 (5.1%)	8.108*	0.016
	18-21	42 (15.2%)	6 (2.2%)		
	>21	159 (57.4%)	29 (10.5%)		
	9-10	0	2 (0.7%)		
Age of menarche (years)	11-12	110 (39.7%)	17 (6.1%)	8.972*	0.024
	13	91 (32.9%)	22 (7.9%)		
	14-15	27 (9.7%)	8 (2.9%)		
	<20	29 (10.5%)	15 (5.4%)		
Age of first conception (years)	20-25	88 (31.8%)	7 (2.5%)	18.345*	0.000
	26-30	105 (37.9%)	23 (8.3%)		
	>30	6 (2.2%)	4 (1.4%)		
Number of live births	One	163 (58.8%)	35 (12.6)	0.573	1.000
	Two	46 (16.6%)	10 (3.6%)		
	Three	18 (6.5%)	4 (1.4%)		
	Four	1 (0.4%)	0		
History of stillbirth	Yes	3 (1.1%)	0	0.652	0.419
	No	225 (81.2%)	49 (17.7%)		
History of abortion	Yes	27 (9.7%)	11 (4%)	3.834	0.050
	No	201(72.6%)	38 (13.7%)		

*Fisher's exact test

Table 3: Association between obstetrical factors and PPD (n = 277)

Factors	Variables	Postpartum depression (PPD) (%)		Chi-square	p-value
		Yes	No		
Planned pregnancy	Yes	144 (52%)	33 (11.9%)	0.307	0.580
	No	84 (30.3%)	16 (5.8%)		
Complication during pregnancy	Yes	49 (17.7%)	18 (6.5%)	5.111	0.024
	No	179 (64.6%)	31 (11.2%)		
Excess fear of labor/delivery	Yes	184 (66.4%)	29 (10.5%)	10.511	0.001
	No	44 (15.9%)	20 (7.2%)		
Place of delivery (last)	Home	6 (2.2%)	0	9.101*	0.021
	Govt. hospital	19 (6.9%)	6 (2.2%)		
	Private hospital	140 (50.5%)	20 (7.2%)		
	Clinic	63 (22.7%)	23 (8.3%)		
Complication during delivery	Yes	15 (5.4%)	8 (2.9%)	5.033	0.025
	No	213 (76.9%)	41(14.8%)		

*Fisher's exact test

Table 4: Association between infant related factors and PPD (n=277)

Factors	Variables	Postpartum depression (PPD) (%)		Chi-square	p-value
		Yes	No		
Desired child	Boy	56 (20.2%)	4 (1.4%)	8.954*	0.008
	Girl	15 (5.4%)	7 (2.5%)		
	No choice	157 (56.7%)	38 (13.7%)		
Twin or triplet	Yes	4 (1.4%)	5 (1.8%)	9.160	0.002
	No	224 (80.9%)	44 (15.9%)		
Check-up of the baby within 42 days	Yes	223 (80.5%)	44 (15.9%)	7.438	0.006
	No	5 (1.8%)	5 (1.8%)		

*Fisher's exact test

Table 5: Association between personal characteristic and family relation related factors with PPD (n = 277)

Factors	Variables	Postpartum depression (PPD) (%)		Chi-square	p-value
		Yes	No		
Most expected person during pregnancy	Husband	195 (70.4%)	30 (10.8%)	17.799*	0.000
	Mother	29 (10.5%)	14 (5.1%)		
	Mother-in-law	1 (0.4%)	0		
	Sister	3 (1.1%)	5 (1.8%)		
Husband's support for taking care of child at present	Yes	211 (76.2%)	41 (14.8%)	3.865	0.049
	No	17 (6.1%)	8 (2.9%)		
Mood swing at present	Yes	199 (71.8%)	21 (7.6%)	48.701	0.000
	No	29 (10.5%)	28 (10.1%)		
At present often feel sad	Yes	92 (33.2%)	9 (3.2%)	8.413	0.004
	No	136 (49.1%)	40 (14.4%)		
Worried about child care	Yes	197 (71.1%)	27 (9.7%)	25.540	0.000
	No	31 (11.2%)	22 (7.9%)		

*Fisher's exact test

(abortion (9.7%) but stillbirth was very rare (1.1%). Factors found to be significantly associated with PPD were age ($p = 0.016$), age of menarche ($p = 0.024$), the age of first conception of participant ($p = 0.000$) and history of abortion ($p = 0.050$).

More than one-third of the participants (30.3%) identified their pregnancy as unplanned and less than quarter (17,7%) developed complications during pregnancy Table 3. Excess fear of labor process was also common (66.4%). Facility-based delivery was the main place of birth with few reported complications (76.9%). The association between PPD and complications during pregnancy was highly statistically

significant ($p = 0.024$). We also found excess fear of labor ($p = 0.001$), place of delivery ($p = 0.021$) and complications during delivery ($p=0.025$) were statistically significant.

More than half (56,7%) of the respondents with PPD showed no choice regarding desired sex of the child. Majority (80.5%) received postnatal check-up during the 6 weeks following delivery Table 4. These factors were found to be statistically significant in relation to PPD.

Most women with PPD experienced mood swings (71.8%) and expressed concern for child care (71.1%). More than one-third felt sadness despite having husband's support for taking care of children (33.2%) (Table 5). Among these factors, mood swing in present days ($p = 0.000$) and worries about taking care of child ($p=0.000$) were highly statistically significant.

DISCUSSION

The present study provides information on proportion and risk factors associated with PPD. The proportion of probable depression among postpartum women in the present study was found to be 82.3% that was very higher than prevalence rates of PPD in the UAE vary from 10-22%, United States (12%), Sweden (13%), Australia (15%), Canada (8%) and Norway (10%)¹⁰⁻¹³.

It is comparable to results of a study done on Egyptian women where the prevalence of PPD was 17.9%, which is not similar to previous results in developed countries and developing countries including Sudan^{12,14,15}. Differences in reported prevalence among various studies might be due to differences in the cut-off score used for EPDS, reporting style, differences in perception of mental health, differences in educational status, levels of social support or its perception, as well as biological vulnerability factors.

This study revealed PPD found majority in 26-30 years of age group. Some studies found different results associated with PPD where some found mothers at younger ages were at greater risk for PPD¹⁶⁻¹⁸.

An association with low socioeconomic status and perinatal depression has been reported, in some studies, from low- and middle-income countries¹⁹⁻²², although this has not replicated in other reports²³. In this study, more women in the depressed group, lived in families whose monthly income was more than 10,000 BDT (USD 119), although the finding was not found in multivariate analysis, to have a significant impact on PPD. Financial problems may act as an additional stressor, especially at the juncture where another family member is being added to the household. Unlike other reports²⁴, current study did not find an association between employment status of the mother, but we found it different between participant's age husband's employment status²⁵. Whether this finding was incidental, or that these women had other protective influences, e.g., better social-support and marital quality, needs further investigation.

In rural area of Bangladesh, it is found the association of postpartum depression with unintended pregnancy in bivariate analysis, but the association disappeared in multivariate regression analysis where in our study no association was found between unintended pregnancy and PPD^{5,26-28}.

Among the obstetric factors assessed in our study history of infertility or complication, history of still birth or child death were not associated with PPD-a finding that was not consistent with those of other studies^{8,29-30} as fear of a repeat occurrence of a miscarriage, stillbirth, or child death are thought to be a contributory factor of depression in the antenatal, postnatal period, or in both periods. Depression during pregnancy was mostly associated with PPD, was not similar to the findings of other studies³¹⁻³³.

CONCLUSION

A high proportion of PPD in an urban community is evident from this study reflecting the significance of mental health concerns in the context of public health in Bangladesh. Specific sociodemographic, psychological and obstetric risk factors for postpartum depressive symptoms were also identified. These factors must be taken into consideration when planning intervention and preventive strategies for women. Health care providers need appropriate training on psychological issues when providing care for women who are pregnant and who have recently given birth. Women should also be prepared for possible adjustment problems after the birth and should be taught coping strategies to prevent postpartum depression. Informing health professionals, social workers, families and mothers about these issues is important in order to improving the maternal and child health in developing countries like Bangladesh. This study findings reinforces previous reports from Bangladesh and other resource limited settings that PPD is potentially a major public health problem. This may be effective in alleviating maternal depressive symptoms and also delivering benefits for the baby.

SIGNIFICANCE STATEMENT

Pregnancy is considered as an important event in any women's life. The changes in the body during this period of time is simultaneously accompanied by psychological changes often under the influence of hormones. Depression within 6 weeks of delivery, commonly known as postpartum depression, can be debilitating for the new mother. Though this often resolves spontaneously within few days to weeks, it may persist long enough to cause a serious neglect in relation to care of the newborn. The healthcare providers including doctors may not take this condition into consideration due mainly to lack of necessary skills to detect and managing postpartum depression while providing care for the women during and after delivery. Factors influencing the development of postpartum depression need to addressed through simple yet effective steps like screening and appropriate management. The burden of care of child on the inexperienced mother can thus be reduced through helpful support.

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