Original Article

Prenatal Depression and Spontaneous Preterm Birth: A cross sectional study among women of Dhaka Community Medical College and Hospital

Dr.Shamima Parveen[1],Dr Shayela Farah[2]. Dr. Mohoshina Karim[3]

[1]Lecturer, Community Medicine, Dhaka Community Medical College, [2]Assistant Professor, Department of Community Medicine, Dhaka Community Medical College [3]Lecturer, Community Medicine, Dhaka Community Medical College

Abstract

Depression and Pre-term birth are the most important and serious health problem now a days. For decades, while infectious diseases have had the attention of the global health agenda, non-communicable diseases have received little attention. Preterm delivery, which occurs in approximately 5% to 10% of all births, is the leading cause of neonatal morbidity and mortality. This cross-sectional study was conducted with the aim to determine the depression and spontaneous preterm birth among 275 women of Dhaka Community Medical College and Hospital during January to June 2011. Results show, 44.7% of the respondents are in the age group >20 years. Among others 32% and 23.3% of the respondents respectively are in the age group 20-25 years and <20 years. 70.5% of the respondents belong to Islam religion. At the most 45.5% of the respondents are illiterate and 59.3% of the respondents are housewife and rest of them service holder. Most of the respondents were live in extended family (60.4%). Out of 275 respondents, the number of depressed women was 67.3% where as non depressed women were 32.7%.Women categorized as depressed 56.2% had 1-2 children , vaginal bleeding in 3rd trimester were most commonly seen in 82.7% of them and were more frequently hospitalized during the third trimester. Gestational hypertension and Polyhydramnios were less prone to depressed women. There is a highly significant relationship of depression with parity of women (P=0.00), vaginal bleeding in 3rd trimester of pregnancy. (P=0.00). Also there is a significant relationship of depression with hospitalization of 2nd trimester of pregnancy (P=.038) hospitalization of 3rd trimester of pregnancy (P=0.020) among the women of Dhaka Community Medical College and Hospital.

Key words: *Depression, Pre-Term birth, Pregnancy, risk factors.*

Introduction

Preterm delivery, which occurs in approximately 5% to 10% of all births, is the leading cause of neonatal morbidity and mortality [1]. Several sociodemographic and biomedical risk factors are now well identified but, in more than 50% of all preterm deliveries, the cause remains unknown or unclear [1, 2] The role of psychological factors in the etiology of preterm delivery, more specifically maternal stress and prenatal anxiety, has been studied for many years. Most of the recent prospective studies suggest an association with maternal stress [3, 4] but not with prenatal trait or state anxiety [5-8] during the last decade, more attention has been paid to the influence of antenatal depression, an easily detectable and common mental disorder, with a prevalence ranging from 5% to 17% during pregnancy [9-11]. Recent research suggests a potential biological pathway to explain a possible role of depression in the occurrence of preterm birth. In particular, cortisol and certain other stress hormones—whose production tends to be increased in cases of major depression [12]—have been shown to heighten the release of placental corticotropin-releasing hormone (CRH) [13,14], which plays a key role in the triggering of parturition [15,16].Considering the most recent and well-designed studies, a significant association between prenatal depression or distress and preterm birth was reported in three studies [17-19], whereas in four other studies [4, 5, 7, 8], there was no evidence of a link. We presented in a previous paper [20] the results of a cohort study investigation of the effects of antenatal depression and anxiety on the onset of preterm labor, an obstetric event preceding spontaneous preterm birth in approximately 50% of cases. The purpose of the present analysis, based on the cross sectional study most of the urban women receiving early and regular antenatal care, is to investigate if prenatal depression associated with spontaneous preterm birth.

Methods And Materials: This was a prospective study, performed on 275 pregnant women from January to June 2009 at Dhaka Community Medical College and Hospital, Moghbazar, Dhaka.. Women were consecutively recruited during a prenatal visit to the Department of Obstetrics. To be eligible for inclusion in the study, they had to be well-speaking, between 17 and 40 years of age, and between 20 and 36 weeks of gestation. Exclusion criteria were multiple gestation, placenta praevia and cervical cerclage .Depressive symptoms were assessed with the Depression scale. (The present depression scale was the part of M. Phil theses which is conducted by the Professor Mahmudur Rahman, Psychology department of Dhaka University and this scale was published in the journal of Bangladesh Psychological studies",2005.In the depression scale, a 30 items questionnaire.with score range from 0-150, with higher score indicating more severe depressive symptoms. The cut of value of depression scale is 93.5. With the scale depression were measured as no depression=<93.5, and depression=.≥93.5.In this minimum score 30 and maximum score. Items are rated on a 5-point Likert scale ranging from 1 to 5.Gestational age was based on early ultrasound examination to obtain an accurate assessment of the term of the pregnancy. It was performed before 13 weeks of gestation for 40% of the women and before 20 weeks for the remaining women. Spontaneous preterm birth resulting either from preterm labor or preterm premature rupture of membranes[1] was defined as delivery before 37 completed weeks of gestation. Because psychological questionnaires were completed by the women just before a prenatal visit, depression scores could be increased, at this particular time, by the stressful nature of the consultation. This could bias the results by artificially strengthening the association between preterm birth and psychological factors. Sociodemographic characteristics included mother's age, education, occupation, marital status, during pregnancy. We first assessed the relationships between psychological factors and each of the sociodemographic and biomedical variables. Pearson χ^2 tests were used to test associations between depression and categorical variables. Statistical significance was defined as $p < .05$. Data were analyzed with SPSS software, version 11.5 [27]

Results:

Table 1: Socio-economic characteristics of depressed and non-depressed women

[n=275]

Socioeconomic characteristics of the respondents	Frequency (%)	Depression (%)	No depression (%)
Age	64(23.3)	42(25.9)	22(19.4)
<20 years	88(32.0)	50(30.8)	38(33.6)
20-25 years	123(44.7)	70(43.2)	53(46.9)
>25 years			
Mean=23.29,Median=24.00			
SD=(±)3.334,minimum=17,Maximum=30			
Education			
Illiterate	125(45.5)	71(43.8)	54(47.8)
Primary	98(35.6)	64(39.5)	34(30.0)
secondary	32(11.6)	18(11.1)	14(12.3)
Higher secondary and above	20(7.3)	09(5.5)	11(9.8)
occupation			
Housewife	163(59.3)	92(56.8)	71(62.8)
Service	112(40.7)	70(43.2)	42(37.1)
Religion			
Islam	194(70.5)	106(65.4)	88(77.87)
Hindu	57(20.7)	39(20.0)	18(15.92)
Buddhist	12(4.4)	9(5.6)	3(2.65)
Christian	12(4.4)	8(4.9)	4(3.53)
Family type			
Nuclear	109(39.6)	61(37.65)	48(42.47)
Extended	166(60.4)	101(62.34)	65(57.52)
Monthly family income			
<5000 taka	100(36.4)	7(35.18)	43(30.05)
5000-10000 taka	143(52)	87(53.70)	56(49.55)
>10000 taka	32(11.6)	18(11.11)	14(12.38)
Mean=6410.9091,Median=6000SD=(±)2849.3611,			

Out of 275 respondents, 44.7% of the respondents is in the age group >25 years. The mean age of the respondent is 23.29 years and SD= (±) 3,334. Among others 32% and 23.3% of the respondents respectively in the age group20-25 years and <20 years. 70.5% of the respondents belong to Islam religion, among others20.7% belongs to Hindu, 4.4% belongs to Christian and 4.4% belongs to Buddhist religion. At most 45.5% of the respondents are illiterate and among others 35.6%,11.6% are primary and secondary level educated. 59.3% of the respondents are housewife and rest of them service holder. Most of the respondents were live in extended family (60.4%) and rest of them live in nuclear family. 52% of the respondents earn monthly family income Taka 5000/- to 10,000/- with mean income with SD is Taka 6410.90±2849.3611.Among others 36% ,11.6% of the respondents earn monthly family income Taka <5000 and >10,000.

Table 2: Obstetric and clinical characteristics of depressed and non-depressed women.

				[n=275]
Factors responsible for preterm birth		**Frequency (%)**	**Depression (%)**	**No-depression (%)**
Parity	Primi	36(13.1)	33(20.37)	35(30.97)
	1-2	165(60.0)	91(56.17)	53(46.90)
	≥3	74(26.9)	38(20.45)	25(22.12)
Vaginal bleeding in 1st trimester	Yes	149(52.2)	89(54.93)	60(53.09)
	no	126(48.8)	73(45.06)	53(46.90)
Vaginal bleeding in 2nd trimester	Yes	103(37.5)	62(38.27)	41(36.28)
	no	172(62.5)	100(61.73)	72(63.71)
Vaginal bleeding in 3rd trimester	Yes	207(75.3)	134(82.71)	97(85.84)
	no	67924.7)	28(17.28)	16(14.15)
Urinary tract infection	Yes	172(62.5)	107(66.04)	71(62.83)
	no	103(37.5)	55(33.95)	42(37.16)
Gestational hypertension	Yes	133(48.4)	78(48.14)	55(48.67)
	no	142(52.6)	84(51.86)	58(51.32)
Polyhydramnios	Yes	77(28)	43(26.54)	34(30.08)
	no	198(72)	119(73.46)	79(69.91)
Hospitalization in 1st trimester	Yes	112(40.7)	66(40.74)	46(40.70)
	no	163(60.3)	96(59.25)	67(59.29)
Hospitalization in 2nd trimester	Yes	197(71.6)	45(27.77)	35(30.97)
	no	78(28.4)	117(72.22)	78(69.02)
Hospitalization in 3rd trimester	Yes	221(80.4)	126(77.77)	94(83.18)
	no	54(19.60	36(22.22)	19(16.81)

Out of 275 respondents, the number of depressed women was 67.3% whereas non depressed women Women categorized as depressed 56.2% had 1-2 children , vaginal bleeding in 3rd trimester were most commonly seen in 82.7% of them and were more frequently hospitalized during the third trimester. Gestational hypertension and Polyhydramnios were less prone to depressed women. (Table-2).
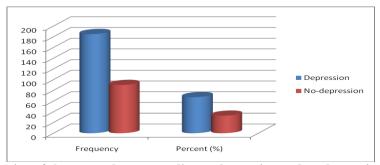

Figure:1 Distribution of the respondents according to depression and no depression
Out of 275 respondents, the number of depressed women were 67.3% whereas non depressed women were 32.7%

Table 3: Relationship of depression with parity of women and vaginal bleeding in 3rd trimester of pregnancy [n=275]

Parity of the respondents	Level of depression		X² Value	P Value
	depression	No-depression		
0-2	148	53		
≥3	37	37	13.720	0.000
Vaginal bleeding of 3rd trimester of Pregnancy	Level of depression		X² Value	P Value
	depression	No-depression		
Yes	185	22	185.6	0.000-
No	00	68		

There is a highly significant relationship of depression with parity of women (P=0.00), vaginal bleeding in 3rd trimester of pregnancy. (P=0.00). Also there is a significant relationship of depression with hospitalization of 2nd trimester of pregnancy (P=.038), hospitalization of 3rd trimester of pregnancy (P=0.020) among the women of Dhaka Community Medical College and Hospital.

Discussion

The present study was done with a view to find out the effects of antenatal depression on spontaneous preterm birth among the women with regular care in Dhaka community Medical College and Hospital, from January 2011 to June, 2011. It was a cross-sectional study and total 275 sample were studied .Structured pretested questionnaire were used to collect data. SPSS 17 package were used for data analysis.

44.7% of the respondents is in the age group >20 years. The mean age of the respondent is 23.29 years and SD= (±) 3,334. Among others 32% and 23.3% of the respondents respectively in the age group20-25 years and <20 years (Table-1). Majority (80%) of the people of Bangladesh are Muslim. Current study also found almost the same picture (70.5% of the respondents were Muslims). Rest included 20.7% Hindus and 4.4% both Christian and Buddhist (Table- 1). These findings are almost similar with findings conducted by Bangladesh Bureau of statistics. At most 45.5% of the respondents are illiterate and among others 35.6%,11.6% are primary and secondary level educated. 59.3% of the respondents are housewife and rest of them service holder. 52% of the respondents earn monthly family income Taka 5000/- to 10,000/- with mean income with SD is Taka 6410.90 ± 2849.3611. Among others 36%, 11.6% of the respondents earn monthly family income Taka<5000 and >10,000.

Out of 275 respondents, the numbers of depressed women were 67.3% whereas non depressed women were 32.7%

(Figure-1). Women categorized as depressed 56.2% had 1-2 children , vaginal bleeding in 3rd trimester were most commonly seen in 82.7% of them and were more frequently hospitalized during the third trimester. Gestational hypertension and Polyhydramnios were less prone to depressed women. (table-2).Similar study was conducted by Chung TK, et al. "Antepartum depressive symptomatology is associated with adverse obstetric and neonatal outcomes." Psychosomatic Medicine 2001.

Although the present study robustly found the significant relationship of depression with parity of women (P=0.000) (table-3), and bleeding in 3rd trimester of pregnancy (P=0.00) (table-3) Significant relationship also found with depression and hospitalization of 2nd trimester of pregnancy (P=0.020) and hospitalization of 3rd trimester of pregnancy (P=0.031). Similar study was conducted by Majzoub JA, McGregor JA, Lockwood CJ, Smith R, Taggart MS, Schulkin J. A central theory of preterm and term labor: putative role for corticotropin-releasing hormone. Am J Obstet Gynecol 1999;180:S232–41.[CrossRef][Medline] Steer RA, Scholl TO, Hediger ML, Fischer RL. Self-reported depression and negative pregnancy outcomes. J Clin Epidemiol 1992;45:1093–9.[CrossRef][Medline] Hedegaard M, Henriksen TB, Sabroe S, Secher NJ. Psychological distress in pregnancy and preterm delivery. BMJ 1993;307:234–9.[Abstract/Free Full Text] Orr ST, James SA, Blackmore Prince C. Maternal prenatal depressive symptoms and spontaneous preterm births among African-American women in Baltimore, Maryland. Am J Epidemiol 2002;156:797–802.[Abstract/Free Full Text].Our conclusion concerning prenatal depression is consistent with three previous studies in which higher risk of preterm birth was observed among depressed women [17–19]. In four other studies, no association was found [4,5,7,8]

Conclusion:

This institutional based cross sectional study was carried out among the women of Dhaka Community Medical College and Hospital, provides information about depression and no-depression and to find out the clinic-obstetrical characteristics and relationship of depression with spontaneous preterm birth among women. Here Depressed women more prone to developed spontaneous preterm birth and almost half of the respondents suffering from depression (5.0%) than no-depression. Depression has a very significant relation with parity of women (p=.000), bleeding in 3rd trimester of pregnancy (p=0.000).There is a significant relationship also present between depression and hospitalization of 2nd (p=0.020) and 3rd trimester of pregnancy (P=0.038).

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