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Epidemiology of psychiatric disorders among pregnant women attending antenatal care in rural areas of Bangladesh

Rifat Binte Radwan, Chiro Islam Mallik
Trainee Resident, Monon Psychiatric Hospital, Dhaka 1207, Bangladesh

ABSTRACT

Background: Pregnancy brings about an enormous change in women on physical, social and psychological aspects. To adopt these changes, women become vulnerable to different psychiatric disorders, particularly depression and anxiety. The prevalence of psychiatric disorders among pregnant women is ranged from 10% to 32% that has a negative impact on general health of women as well as development of children. This study was aimed to find out the prevalence of possible psychiatric disorders among pregnant women and to delineate its relationship with socio-demographic variables, physical health, and pregnancy-related factors.

Methods: This cross-sectional, descriptive, quantitative, one-staged survey-type study was conducted from January to March 2018. Through consecutive sampling, confirmed pregnant women attending antenatal care in rural area aged between 18 and above were supplied a structured questionnaire containing sociodemographic and related variables and Self-Reporting Questionnaire (SRQ)-20 for screening psychopathology of the cases. Subjects were divided into screen-positive and screen-negative cases, and a comparison was made.

Results: The mean age of the cases was 24.76 ± 5.2 years. Using SRQ-20 cutoff, the prevalence of possible psychiatric disorders among the respondents was 27.5% and that was found to be 20.19%, 24.07%, and 23.28% in first, second, and third trimesters, respectively. Anxiety and depressive symptom category were significantly higher followed by somatic symptom and reduced vital energy categories among screen-positive cases than screen-negative cases. A good number of pregnancy-related variables both the social and physical were found to be significantly associated with possible psychiatric disorders.

Conclusions: This study explores and supports the wide magnitude of the possibility of mental health disorders during pregnancy, predominantly depression and anxiety. There should have a provision of the routine screening of psychopathology for all pregnant women with the aim toward early identification and treatment.

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Introduction

Pregnancy brings about an enormous change in physical, social, and psychological aspects. To adopt these changes, women become vulnerable to different psychiatric disorders. A series of representative studies found that the prevalence of psychiatric disorders among the pregnant women is ranged from 26% to 46% [1–3]. Depression and anxiety are the most prevalent during pregnancy and are equal to or higher than the prevalence of depression and anxiety after pregnancy [4–9].

Overall, the prevalence of perinatal depression ranged from 5% to more than 25% of pregnant women and mothers [4,5,10–12]. The reported prevalence of postpartum depression is ranged from 18% to 35% [13–15] in rural areas of Bangladesh and that of prenatal depression is 18%–25% in low-income countries such as Bangladesh and Pakistan [16,17]. The variation of prevalence in different studies is due to the difference in assessment method, timing of the assessment, and population characteristics. Due to its severity, chronicity,

Contact Rifat Binte Radwan ✉ radwanbrifat@gmail.com Monon Psychiatric Hospital, 20/20 Tajmahal road, Mohammadpur, Dhaka-1207, Bangladesh.

and recurrence, it has now been recognized as a global public health problem. It also leaves a negative impact on general health of women as well as development of children [18]. Postnatal mental health problems have got a lot of attention due to the researchers, clinicians, and media, but antenatal psychiatric disorders have failed to catch such attention, particularly in many developing countries, since there is very little information available [19–21].

There are several factors that can cause psychiatric disorders but pregnancy, being a major stressful event in a women's life, is one of the major and crucial predictors. In recent years, there has been increased interest in psychiatric disorders in pregnancy. Previously, it was assumed that pregnancy protects women from mood disorders by hormones, which was a misconception [5,6,22]. Rather, it is found that there are definite increases in psychiatric disorders, especially depression, during this period. Predominantly, the social and environmental factors are associated with psychiatric disorders during pregnancy. Factors such as unplanned pregnancy and lack of partner support are found to be strong predictors of prenatal depression in available studies [23,24]. Further, any unpleasant occurrence in previous pregnancy such as history of abortion, still birth, dead child, and multipara accelerates the chance of being vulnerable to mental disorders during this period [1,6,23,24]. Mental health of a woman during pregnancy is not well addressed in Bangladesh. Hence, the aim of the study was to delineate the prevalence and determinants of antenatal depression, examine and understand the associated factors, and detect the pregnant women in need of intervention to safeguard maternal and family psychosocial well-being.

Methods

This was a cross-sectional, descriptive, quantitative, and survey-type study with one-staged design to screen out the positive psychiatric cases using a screening instrument. The study took place in 10 different rural healthcare centers of Grameen Kalyan (one of the most prominent non-governmental organizations), in seven districts in Bangladesh. An ethical clearance was obtained from the Ethical Committee of the National Institute of Mental Health. The data were collected from 1 January to 31 March, 2018. For recruitment, 522 women who fulfilled the selection criteria were approached and six women declined to participate due to their unavoidable preoccupation about family matters including household work. Ultimately, the sample size was 516. Therefore, the participation ratio was 98.85%. Pregnant women, who were 18 years and above, who were in antenatal period, and whose pregnancy confirmed by ultrasonogram of pregnancy profile were included in the study through a consecutive sampling. Those who were near labor or in labor, needed immediate medical attention, and not in a position to participate were excluded from the study. A structured questionnaire was designed by the researchers containing sociodemographic and pregnancy- and physical health-related variables. The screening tool for measuring psychopathology used in this study was Self-Reporting Questionnaire (SRQ). It has been developed by the World Health Organization (WHO) as an instrument designed to screen for psychiatric disturbance, especially in the developing countries [25]. The SRQ-20 is one of the few specifically designed screening tools for the low- and middle income-countries' primary care setting, which has been widely used. Due to its short format, it became a promising tool for the busy primary care setting. The SRQ-20 is a self-reporting screening tool that asks about 20 attributes, which is answered in affirmative and negative. The items, which were selected on the basis of contemporary diagnostic criteria as well as factor analyses, are divided between four scales of several items each, generating scores for depressive or anxious behavior, somatic symptoms, reduced vital energy, and depressive thoughts. In addition to English, it has been translated and validated in many languages and has been used in research studies throughout the globe. The SRQ-20 has been translated and validated in Bangla [26]. The validated Bangla version was used in this study as a measure of mental health of the subjects. The researchers evaluated each of the SRQ-20 scales separately, focusing on the most prevalent symptom in each scale. It took approximately 7 minutes to complete the questionnaire in a private setting room. The cutoff value 10 was considered in this study to divide the subjects into screen-positive and screen-negative cases [27].

First, an informed consent was obtained from each subject who fulfilled the selection criteria. Before taking consent, the participants were briefed about the study including assuring confidentiality. Each participant was given the opportunity to not participate if she wanted or she could withdraw herself in any time during research even after giving consent. Then, the Bangla version of the structured questionnaire for the study was applied by

one of the researchers through face-to-face interview after ensuring the privacy of the patient. The answer was recorded accordingly. After that, the SRQ-20 was distributed among them. Briefing was given on the tool and they were requested to answer all the questions. The filled up questionnaires were collected. For those who were not able to read, the questions were read out to them and their answers were recorded accordingly. After that, the data were cleaned and processed. The SPSS version 24 had been used for the statistical analysis. For the level of significance, p value of 5% level and above was considered.

Results

A total of 516 pregnant women attending the antenatal care centers were taken in the study. Table 1 shows the sociodemographic characteristics of the subjects. It depicts that their age ranged from 18 to 44 years with a mean of 24.76 (SD = 5.18) years. Nearly half of the subjects were 18–24 years of age group. Subjects were predominantly Muslims (89.53%). Nearly 75% of the subjects were educated at least primary label or higher and the rest 25% were illiterate. Most of the subjects were housewives (95.93%), who came from either middle-income (52.33%) or lower-income group (47.67%). Among the subjects, 98.64% were married. Subjects came from nuclear family and joint family were 51.94% and 48.06%, respectively. Majority of the women belonged to a family that consisted of 2–6 members (74%), followed by family that consisted of 7–11 members (22.30%), and the rest belonged to a family of 12–16 members.

Mean SRQ scores for the sample were 6.57 ± 4.21. Mean SRQ score of screen-positive and screen-negative cases was 11.92 ± 1.99 and 4.55 ± 2.83, respectively. The difference was highly significant ($t = -28.51$, $p = 0.000$).

In total, 142 (27.5%) subjects were found to be screen positive and 374(72.5%) subjects were screen negative. Therefore, the prevalence of possible psychiatric disorders among the respondents was 27.5%, and the prevalence rates in first, second, and third trimesters were 20.19%, 24.07%, and 23.28%, respectively. According to age group, this prevalence rate was found to be 21.87% in 18–24 years of age group, 31.58% in 25–34 years of age group, and 43.75% in 35–44 years of age group.

Table 1. Sociodemographic characteristics of the cases and relation with possible psychiatric problems ($N = 516$).

Variable		Frequency	%	*p* Value
Age (years) Mean = 24.76 ± 5.2	18–24	256	49.61	0.001
	25–34	228	44.18	
	35–44	32	6.20	
Religion	Islam	462	89.53	0.196
	Hindu	54	10.46	
Education	Illiterate	130	25.19	0.610
	Primary	230	44.57	
	Secondary and above	156	30.23	
Occupation	Housewife	495	95.93	0.916
	Self-employed	8	1.60	
	Service holder	13	2.52	
Marital status	Married	509	98.64	0.000
	Divorced	3	0.58	
	Widowed	4	0.78	
Economic status	Low	246	47.67	0.290
	Middle	270	52.33	
Type of family	Nuclear	268	51.94	0.261
	Joint	248	48.06	
Number of family member	2–6 persons	382	74.00	0.010
	7–11 persons	115	22.30	
	12–16 persons	19	3.68	

Further analysis was made according to response for each question of SRQ and categorized by the description of symptoms indicative of the types of psychiatric disorder, and the comparison was made between screen-positive and screen-negative groups. The result is shown in Table 2. It reveals that overall, excess of all symptoms was found significantly higher among screen-positive cases than that of screen negatives. Anxiety and depressive symptom category were higher among screen-positive cases than that of screen-negative cases. Among the screen-positive cases, the most reported symptom was crying more than usual (78.17%) and 76.08% reported feeling nervous, tense or worried, whereas among screen-negative cases, these two symptoms were 50.53% and 25.13% respectively. In the somatic symptom scale, both in screen-positive and screen-negative cases, the most reported symptom was poor appetite, which was 76.76% and 51.07%, respectively, and the least reported symptom was shaking of hands, which was 37.32% and 8.29%, respectively. In reduced vital energy scale, the most reported symptom was becoming easily tired, which was 87.32% in screen-positive cases and 56.68% in screen-negative cases. In the depressive thought scale, the most reported symptom among the screen-positive cases was losing interest in things (70.42%), followed by feeling of a worthless person (64.79%), and among the screen-negative cases, the most reported symptom was feeling of a worthless person (28.34%).

Table 3 shows the relationship between pregnancy-related variables and possible psychiatric disorders. Variables such as number of miscarriage, stillborn in previous pregnancy, gravida, and planned/unplanned pregnancy were the obstetric factors that show high significance among the screen-positive cases. Further, the odds ratios were calculated for these variables. It was found significantly higher in screen-positive group for

Table 2. Comparison of screen-positive and screen-negative cases according to response in SRQ items (*N* = 516).

Item number	Scale Categories of SRQ items	Screen-positive cases		Screen-negative cases		*p* value
		N = 142	%	*N* = 374	%	
	Depressive/Anxious					
4.	Are you easily frightened?	92	64.79	149	39.84	<0.0001
6.	Do you feel nervous, tense, or worried?	108	76.06	94	25.13	<0.0001
9.	Do you feel unhappy?	90	63.38	105	28.07	<0.0001
10.	Do you cry more than usual?	111	78.17	189	50.53	<0.0001
	Somatic Symptoms					
1.	Do you often have headaches?	85	59.86	88	23.53	<0.0001
3.	Do you sleep badly?	107	75.35	178	47.59	<0.0001
19.	Do you have uncomfortable feelings in your stomach?	89	62.68	188	50.27	<0.0500
7.	Is your digestion poor?	65	45.77	71	18.98	<0.0001
2.	Is your appetite poor?	109	76.76	191	51.07	<0.0001
5.	Do your hands shake?	53	37.32	31	8.29	<0.0001
	Reduced Vital Energy					
20.	Are you easily tired?	124	87.32	212	56.68	<0.0001
12.	Do you find it difficult to make decisions?	81	57.04	59	15.78	<0.0001
11.	Do you find it difficult to enjoy your daily activities?	66	46.48	24	6.42	<0.0001
13.	Is your daily work suffering?	50	35.21	28	7.49	<0.0001
18.	Do you feel tired all the time?	105	73.94	181	48.39	<0.0001
8.	Do you have trouble thinking clearly?	58	40.85	30	8.02	<0.0001
	Depressive Thoughts					
14.	Are you unable to play a useful part in life?	77	54.22	24	6.42	<0.0001
15.	Have you lost interest in things?	100	70.42	40	10.69	<0.0001
17.	Has the thought of ending your life been on your mind?	36	25.35	15	4.01	<0.0001
16.	Do you feel that you are a worthless person?	92	64.79	106	28.34	<0.0001

miscarriage (OR = 2.72), stillborn in previous pregnancy (OR = 4.71), gravida (OR = 2.29), planned/unplanned pregnancy (OR = 1.93), and having more than one child (OR = 1.47).

The relation of prior knowing of the subjects on fetal sex and possible psychiatric disorders was analyzed. It reveals that the prevalence of possible psychiatric disorder among pregnant women, who knew that their issue is female child, was 40.74%. Conversely, the rate was just 26.38% among the pregnant women who knew that they were going to have a male child. This difference was significant (p = 0.087). Of this, 10.08% of women, who knew that they were going to have a daughter, showed bad reactions to the news. Among them, 75.87% did not want to have a daughter because they already had one and 40.91% complained against the family for demanding a male child.

Table 4 presents the physical health-related variables and relationship with the possible psychiatric disorders. Subjects, who had suffered from any physical illness in previous pregnancy that led

Table 3. Pregnancy-related variables and relation with possible psychiatric disorders (N = 516).

Variables		Screen-positive cases		Screen-negative cases		Total		p value
		N = 142	%	N = 374	%	N = 516	%	
Number of miscarriage	0	98	23.39	321	76.61	419	81.20	0.000
	1	31	40.79	45	59.21	76	14.72	
	2	13	61.90	8	38.10	21	4.06	
Number of menstrual regulation	0	129	26.43	359	73.57	488	94.57	0.130
	1	12	46.15	14	53.85	26	5.04	
	2 and above	1	50.00	1	50.00	2	0.40	
Dead child in previous pregnancy	0	120	25.00	360	75.00	480	93.02	0.000
	1	20	58.82	14	41.18	34	6.58	
	2	2	100.00	0	0.00	2	0.40	
Gravida	1	25	16.89	123	83.11	148	28.68	0.000
	2	31	23.66	100	76.34	131	25.38	
	3	39	28.46	88	71.54	127	24.61	
	4 and above	47	42.72	63	57.28	110	21.32	
Planning of pregnancy	Planned	76	22.75	258	77.25	334	64.73	0.001
	Unplanned	66	36.26	116	63.74	182	35.27	

Table 4. Physical health-related variables and relation with possible psychiatric disorders (N = 516).

variables		Screen-positive cases		Screen-negative cases		Total		p Value
		N = 142	%	N = 374	%	N = 516	%	
Any physical illness in previous pregnancy	Gestational Diabetes Mellitus (GDM)	3	33.33	6	66.67	9	1.74	0.043
	Hypertension (HTN)	5	55.56	4	44.44	9	1.74	
	Convulsion	2	40.00	3	60.00	5	0.97	
	Anemia	30	32.26	63	67.74	93	18.02	
	Others (Premature rupture of membrane)	1	16.67	5	83.33	6	1.16	
	No recorded physical illness	101	25.63	293	74.37	394	76.35	
Any physical illness in present pregnancy	Anemia	50	28.57	125	71.43	175	33.91	0.254
	Gestational Diabetes Mellitus (GDM)	4	40.00	6	60.00	10	1.94	
	Hypertension (HTN)	4	57.14	3	42.86	7	1.36	
	Eclampsia	0	0.00	1	100.00	1	0.19	
	Urinary Tract Infection (UTI)	19	31.66	41	68.34	60	11.62	
	More than one disease	24	28.23	61	71.77	85	16.47	
	No physical illness	41	23.03	137	76.97	178	34.50	

to complications during child birth, were found higher in the screen-positive group than that of screen-negative group. This difference was significant ($p = 0.043$).

An analysis was performed to find out the association between sociodemographic variable and existence of psychiatric disorder which is shown in Table 1. In the screen-positive cases, 43.75% was of older age group and 21.88% was of the youngest age group. The difference was highly significant ($p = 0.001$). Women who were widowed during their pregnancy were the most affected (100%) with possible psychiatric disorders, whereas 66.67% of divorced women and 26.57% of married women were found to have possible psychiatric disorders. The significance of marital status on possible psychiatric disorder was found high ($p = 0.001$). The larger number of family member was found higher in screen-positive group which was significantly higher than screen-negative group ($p = 0.01$). Subjects, who had more than one child (32.75%) below 5 years of age, were found higher in screen-positive group, and subjects who had only one child or became pregnant for the first time (24.82%) was higher in screen-negative group; the difference was significant ($p = 0.037$). It was found that 37.93% of women who had longer marital life were screened positive for the study than only 25.40% of screen-positive women who had their marital life shorter than 11 years.

Discussion

In the present study, the screening of psychopathology was carried out among 516 pregnant women subjects using SRQ. The difference of mean SRQ score between screen-positive and screen-negative groups was highly significant which clearly indicates that two groups were psychopathologically distinct. The prevalence of possible psychiatric disorder among them was found to be 27.5%. The result falls in the upper margin of the WHO report of common mental disorder (5.2%–32.9%). The finding simulates with rates obtained in the representative studies in the developed and developing countries[4–6,24]. This rate is closely comparable with 26%–31% prevalence rate of similar types of studies done in lower- and middle-income countries [6,24]. The rate was slightly higher (46.6%) in an Ethiopian sample [23] and was mainly due to the difference of study design and instrument.

In this study, most of the subjects answered affirmative to the questions related to depression and/or anxiety symptoms. All the anxiety and depressive symptom categories were higher among screen-positive group than screen-negative group with significantly increased proportion of symptoms related to these disorders. It can be predicted from this finding that a significant proportion of the subjects of this study had associated anxiety and depressive disorder. In similar screening studies from South Asian settings, the prevalence rate of prenatal depression was found to be 35.7% in India [28] and 18% in Pakistan [17,29]. One screening study in Bangladesh reported 18% prevalence of prenatal depression [16]. The prevalence rate of depression during pregnancy in the developed countries was found to be 27.5% [5], 27.9% [30], and 27.3% [31]. On the other hand, the prevalence rate of anxiety among pregnant women was reported 63% in India [32] and 39% in Pakistan [29].

In this study, symptoms in the somatic symptoms category of SRQ were found higher in the subjects. In Bangladeshi culture, a tendency of somatization is frequently observed and it is more in the females. Further, both the anxiety and depressive disorder can be manifested through somatic symptoms in Bangladeshi culture reported in a study [33].

In the present study, we found that the prevalence of possible psychiatric disorder among pregnant women who knew that their fetuses will be female child was almost 1.5 times higher than the subjects who knew that they were going to have a male child. Living in a country, where a male child is more cherished, an acknowledgment of the sex of fetus can put pregnant women in a difficult position in family and threatens their mental calmness. This social perception creates a negative impact on mental health of pregnant women and certainly the cause of increased anxiety and depression among them.

In this study, increased maternal age, being widowed or divorced, increased family member, expecting a female child, and longer conjugal life were found to be associated with possible psychiatric disorders. Further, number of miscarriage, stillbirth in previous pregnancy, unplanned pregnancy, complication in previous pregnancy, and having more than one child were found significantly higher among screen-positive cases and had a strong causal relationship as expressed through odds ratios. These findings simulate with the findings of several representative studies of developed and developing countries [3–6]. Further studies are needed to confirm these correlates.

This study was conducted only on less privileged rural pregnant women population and, therefore, may be representative of this population group and not representative of whole pregnant women population in Bangladesh. In addition, the subjects were only screened for possible psychiatric disorder rather conducting diagnostic interview using a structured measure of psychopathology. With these views, generalization of the study results should be cautiously done and the findings of this study can be considered approximate.

This study is the first to explore the possible psychiatric morbidity among pregnant women in Bangladesh, especially in rural communities who are one of the most vulnerable population. The findings of this study have implications for addressing the issue of psychiatric disorder screening during antenatal checkup. Since there has been a scarcity in medical resources, particularly in the mental health sector in a low-income country, SRQ-20 has provided the vital screening aspect of mental health care. Further research is needed to explore the exact types of psychiatric disorders among pregnant women in Bangladesh, using structured measures of psychopathology.

Conclusions

This study explores and supports the wide magnitude of the possibility of mental health disorders during pregnancy. Depression and anxiety-related symptoms are the most prevalent. Not only the mothers are affected but also there is growing evidence that antenatal psychiatric disorders are the risk factors for adverse outcomes for both the mothers and children. Thus it echoes the need of early identification and treatment of those who are in need to prevent these adverse outcomes.

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