

Child-related factors associated with depressive symptoms among mothers in urban Bangladesh: A Cross-Sectional Study

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Abstract

Background:

International evidence suggest that several child-related health outcomes and mother-children bonding are associated with depression among mothers. However, no studies documented this among Bangladeshi mothers. Therefore, this study aimed to assess the child-related factors associated with depression among mothers in urban Bangladesh.

Methods:

This cross-sectional study was conducted among mothers of school-going children from Dhaka City of Bangladesh during June and December 2019. A multistage sampling technique was adopted and a total of 324 mothers of school-going children (class V-VIII) from 12 schools of Dhaka City Corporation was selected. The inclusion criteria included the mothers of the children studying in the same school for at least six months. Depression was measured using a 20-item Self-Rating Depression Scale weighted to 100 percent, with 25-49 categorized as no depression and 50-59 as having depression. A binary logistic regression model was executed to identify the child-related factors associated with depression among mothers.

Results:

More than half of the participants (54.3%) were aged ≥ 40 years and had up to HSC level education (52.5%). Most of them were homemakers (67.0%) and mothers of a girl child (53.1%). In addition, 82.1% of the participants lived in a nuclear family, and 52.8% of the participants had a family income of $\geq 50,000$ BDT. Adjusted analyses revealed that mother's depression was associated with child's frequent complaint of headaches or stomachaches (aOR=13.19, 95% CI 3.03-57.37), having an injury (aOR=4.05, 95% CI 1.44-11.41), and unfriendly relationship with mothers (aOR=21.46, 95% CI 5.04-91.28).

Conclusion:

Findings of the present study identified several child-related factors such as sickness, injury, and unfriendly relationships with mothers are associated with depression among mothers of school-going children. Policymakers and public health practitioners should address the child-related factors linked to mother's depression as part of the management of overall depression among mothers in urban Bangladesh.

Introduction

Depressive disorders are widespread [1], chronic [2], and a major source of disability worldwide, particularly among women [3]. According to an epidemiological research, about 15% of the women are depressed at any given moment [4]. Women are one-and-a-half to three times more likely than men to have a major depressive episode at some point in their lives, with rates ranging from 6% to 17% [5].

Young parents frequently experience depressive symptoms [6,7]. Depressive symptoms are reported by up to 12% of young parents [8-10]. Women are especially vulnerable to depression after the birth of a child, especially in the first year [10]. It is estimated that 5–50 percent of moms of young children may experience depression at some point in their lives [7,11-13]. Sadness, negative affect, loss of interest in daily activities, fatigue, difficulty thinking clearly, and bouts of withdrawal and intrusiveness are all symptoms of depression among mothers, and they can make it difficult to provide consistent, attentive, and responsive care, disrupting effective parenting [14].

Although approximately 90% of the world's children reside in low- and middle-income countries [15], little is known about the prevalence of depression among the mothers of these children [16,17]. In low- and middle-income nations, maternal depression is estimated to be 15–28 percent in Africa and Asia [18]. A recent study conducted in Bangladesh documented that 57.7% of the mothers were depressive. This study also pointed to the interconnection between children's lifestyles and behavioral factors, such as child's temperament, television watching, and internet use with the elevated level of depression among mothers [19].

Previous research has documented a link between incidence of child injuries and depression among mothers [20,21]. Postpartum depression, as well as depression later in a child's life, has been found as a risk factor for a child's development [22-24]. Infants born to depressive mothers had higher levels of negative affect and self-directed regulating behaviors [25,26]. Evidence suggests that children who have experienced good mother attachment as children are more likely to have better physical, cognitive, and psychosocial results as adults. Positive bonding is linked to a child's healthy connections and interactions with others, as well as their future parenting experiences [27,28]. Others believe that bonding begins during pregnancy and continues throughout the life of the child [29]. For instance, a high level of bonding with the baby during pregnancy is associated to a high level of maternal-infant bonding after birth [30]. On the other hand, poor mother-child bonding has been related to long-term negative consequences for a child's development and mother-infant relationships [31,32]. Low mood, lack of joy, low energy, low self-esteem, sleep disorders, mood swings, changes in appetite, fear of injury, serious concerns about the baby, sadness, crying, sense of doubt, difficulty concentrating, lack of interest in daily activities, thoughts of death and suicide [33] can all have a negative impact on maternal-infant relations [34], which then contribute to the child's cognitive and emotional development during infancy and later life [35]. A more negative mother-child relation is linked to maternal depression [36].

There is international evidence that several child-health related outcomes and mother-children bonding are associated with depression among mothers [37-43]. However, to our best knowledge, no study has yet been conducted which explored the child-related factors (health, injury, school functioning, and bonding) associated with depression of mothers. Therefore, this study examined the child-related factors associated with depression among mothers of urban Bangladesh.

Methods

Study design and participants:

This cross-sectional study was conducted between June and December 2019 in Dhaka City of Bangladesh through face-to-face interviews. We randomly selected 12 schools from two city corporations of the Dhaka division of Bangladesh. Considering 18% [44] prevalence with a 4.18% margin of error, at the 95% level of confidence, a sample size of 324 was calculated.

A multistage randomized sampling technique (figure 1) was followed. Initially, the list of all private and public schools from both of the city corporations of Dhaka (Dhaka North and South) was collected. In the next phase, six public and six private schools were selected using a simple random sampling technique from both city corporations. Subsequently, a list of students (class V-VIII) was collected from the selected schools and mothers of these students were randomly recruited to achieve the sample size. Our inclusion criteria were the mothers of children studying in the same school for at least six months. We excluded the mother's who were not willing to participate.

Measures

Outcome measure:

The study's primary outcome was depressive among mothers, measured using the 20-item Zung Self-Rating Depression Scale (SDS). The SDS is useful for classifying the level of depression in adult people [45,46]. There are ten positively worded and ten negatively worded questions. Each question is scored on a scale of 1-4 (a little of the time, some of the time, good part of the time, most of the time). The scores have been weighted to 100 percent, with 25-49 categorized as no depression, 50-59 as mild depression, 60-69 as moderate depression, and 70 or above as severe depression [47]. The SDS-20 scale has previously been validated and used among the Bangladeshi population [48]. We also found it to be a reliable scale, indicated by the high internal consistency (Cronbach's alpha 0.89) among our study participants.

Explanatory variables:

Explanatory variables considered in this study were age, religion, educational qualification, occupation, gender of the child, monthly family income (BDT), family type, child's sickness, chronic disease, injury, friendly relationship with mom, overall relationship with mom, school attendance and academic performance.

Data collection tools and techniques:

A pre-tested semi-structured questionnaire was used to collect the information through face-to-face interviews. Although data collection was accomplished physically by Principal Investigator (PI), before data collection, the PI clearly described the aim of this study to the respondents.

The English version of the questionnaire was first translated to Bengali language and then back-translated to English by three researchers to ensure the contents' consistency. The questionnaire was then piloted among a small sample (n=17) of mothers of school-going children to refine the language in the final version. The tool used in the pilot study did not receive any corrections/suggestions from the participants in relation to the contents developed in the Bengali language.

Statistical analysis:

The distribution of the variables was assessed through descriptive analysis. The Chi-square test was performed to compare differences in the prevalence of depressive symptoms by explanatory variables, with a 5% level of significance. We used binary logistic regression models to explore the factors associated with depressive symptoms. The variables with $P < 0.25$ were only included in the multivariable model. The crude odds ratio (COR), adjusted odds ratio (AOR), and associated 95% confidence interval (CI) were reported. All analyses were performed using the statistical software package Stata (Version 14.0).

Results

Socio-demographic characteristics of the participants:

Among the 324 study participants, more than half of the participants (54.3%) were ≥ 40 years, 85.5% were Muslims, 52.5% had up to HSC level of education, 67.0% were homemakers, and 53.1% had a girl child. In addition, over half of the participants (52.8%) had a family income of $\geq 50,000$ BDT, and the majority (82.1%) of participants lived in the nuclear family (Table 1).

Table 1: Socio-demographic status of the participants (n=324)

Characteristics	n	%
Age (year)		
< 40	148	45.7
≥ 40	176	54.3
Religion		
Muslim	277	85.5
Non-Muslim	47	14.5
Educational qualification		
Up to HSC	170	52.5
Above HSC	154	47.5
Occupation		
Working at home (Home maker)	217	67.0
Working outside (Job, business)	107	33.0
Gender of child		
Boy	152	46.9
Girl	172	53.1
Monthly family income (BDT)		
< 50,000	153	47.2
≥ 50,000	171	52.8
Types of family		
Nuclear	266	82.1
Joint	58	17.9

Bivariate analysis of child's factors and mothers' depressive symptoms

Among the 324 participants, we found 13.0% of children frequently complained sickness. The study found that 5.2% of children had a chronic disease, and 12.3% had an injury. Above four-fifths (84.0%) of children had a friendly relationship with their mothers. Almost 90.0% of children had satisfactory bonding with their mother. Most of the children (84.6%) were regular in their class, and 88.9% got satisfactory results in their last examination (Table 2).

Mothers' depression was significantly associated ($p < 0.001$) with a child's frequent complaints of sickness (headache, stomachache), a chronic disease, injury, an unfriendly relationship, unsatisfactory mother-child bonding, irregular in their class, and unsatisfactory academic performance (Table 2).

Table 2: Bivariate analysis of child's factors and mothers' depressive symptoms (n=324)

Characteristics	Depression		Total n (%)	P-value
	No n (%)	Yes n (%)		
Overall	137 (42.3)	187 (57.7)		
Child often complains of sickness (headaches, stomach-aches)				
Yes	2 (1.5)	40 (21.4)	42 (13.0)	<0.001
No	135 (98.5)	147 (78.6)	282 (87.0)	
Child have a chronic disease				
Yes	0 (0.0)	17 (9.1)	17 (5.2)	<0.001
No	137 (100.0)	170 (90.9)	307 (94.8)	
Child injury				
Yes	5 (3.6)	35 (18.7)	40 (12.3)	<0.001
No	132 (96.4)	152 (81.3)	284 (87.7)	
Child - mother-friendly relationship				
No	2 (1.5)	50 (26.7)	52 (16.0)	<0.001
Yes	135 (98.5)	137 (73.3)	272 (84.0)	
Child - mother overall relationship				
Unsatisfactory	0 (0.0)	43 (23.0)	43 (13.3)	<0.001
Satisfactory	137 (100.0)	144 (77.0)	281 (86.7)	
Child's school attendance				
Irregular	0 (0.0)	50 (26.7)	50 (15.4)	<0.001
Regular	137 (100.0)	137 (73.3)	274 (84.6)	
Child's academic performance in the last examination				
Unsatisfactory	0 (0.0)	36 (19.3)	36 (11.1)	<0.001
Satisfactory	137 (100.0)	151 (80.7)	288 (88.9)	

Factors associated with depressive symptoms of mothers

The child frequently complains of sickness was associated with higher odds of depressive symptoms in both unadjusted and adjusted analysis (cOR=18.37, 95% CI: 4.36-77.46) and (aOR=13.19, 95% CI: 3.03-57.37). Similarly, the child has injury was associated with higher odds of depressive symptoms in both unadjusted and adjusted models (cOR=6.08, 95% CI: 2.31-15.97) and (aOR=4.05, 95% CI: 1.44-11.41). Also, an unfriendly relationship with the child was associated with higher odds of depressive symptoms in both models (cOR = 24.64, 95% CI: 5.88–103.27; aOR = 21.46, 95% CI: 5.04-91.28) (Table 3).

Table 3: Unadjusted and adjusted analysis (binary logistic regression) of dependent (depression yes or no) and independent variables (child-related factors) (n=324)

Characteristics	cOR ¹	95% CI	P	aOR ²	95% CI	P
Child often complains of sickness (headaches, stomach-aches)						
Yes	18.37	4.36, 77.46	<0.001	13.19	3.03, 57.37	0.001
No	Ref			Ref		
Child injury						
Yes	6.08	2.31, 15.97	<0.001	4.05	1.44, 11.41	0.008
No	Ref			Ref		
Child - mother-friendly relationship						
No	24.64	5.88, 103.27	<0.001	21.46	5.04, 91.28	<0.001
Yes	Ref			Ref		

¹Crude odds ration; ²Adjusted odds ration; some factors were excluded from the regression model due to collinearity; Adjusted by child's sickness, injury, and friendly relationship with mom

Discussion

The present study aimed to investigate the child-related factors associated with mother's depression in Urban Bangladesh. We found that mother's depression was associated with several child-related factors such as frequent complaint of headaches or stomachaches, injury, and unfriendly relationship with mothers.

We found that depression was present among 57.7% of the mothers which is close to what is reported in a similar study conducted in Bangladesh where the prevalence was 52.0% [49]. Our study found that child's sickness was associated with depressive symptoms among mothers. A similar finding was also reported in a nationally representative study where parental depressive symptoms were greater among children with asthma and attention-deficit/hyperactivity disorder than healthy children [50]. Likewise, a comparative study reported that parents of a chronically ill child had significantly higher levels of anxiety and depression [51]. It is understandable, when a child becomes ill, mother becomes anxious about the recovery, how child's best treatment can be ensured [52] and how child's education and other social interaction can be redeemed soon [53]. It was also reported in a study that mothers often remain anxious whether their children are going to be ill [54].

Road traffic injuries are the leading cause of death among children [55]. Mothers of the child with road traffic accident having felt very or moderately frightened and feared their child might have been seriously injured or killed [56]. Our study found that child's injury is associated with depressive symptoms among mothers. Our findings were in a similar vein to a population-based birth cohort study that maternal depression is associated with injuries in children [57]. The national longitudinal survey reported the link between maternal depressive symptoms and the risk of child injury [58]. Also, a population-based cohort study conducted in Denmark revealed that maternal depression was link to injury in the child, especially in the first year of life [59].

Children who have negative bonding with mothers are more likely to have relationship problems, sadness, anxiety, and violence, among other negative consequences [60] as well as this negative child-mother bonding lead to depression among mothers [43]. The present study also reported a similar result and found that unfriendly relationships with children was associated with increased depression among mothers of school-going children. A recently published study also documented that maternal mental health is related with the maternal-infant bonding [41].

Limitations of the study:

To the best of our knowledge this is the first study which explored the child-related factors associated with depression among mothers. However, the study has certain limitations as well. To start with, we can't draw a causal relationship between the child related factors and mothers depression because this is a cross-sectional study. Also, our study is subjected to recall and reporting bias. Moreover, the participants were selected from Dhaka city, so the study findings cannot be generalized for the whole country.

Policy implication:

Bangladesh's Parliament passed a new Mental Health Act in 2018. In addition, the Ministry of Health approved a new Mental Health Policy in 2019 that reflects a move from a medical to a psychosocial treatment approach, with a focus on decentralization and community-based services and support for those living with mental illnesses [61]. In the light of this recent policy inclusion, the findings of the present study have significant policy implications as well. It is very important that child-related health outcomes and mother-children bonding gets due important in the policy discourse when management of depression among mothers are concerned. Policy makers need to consider provision of mental health support for mothers of school-going children with sickness. Focus should also be given on counseling to the mothers who have injured child. Additionally, counseling is also recommended for mothers and their children to ensure a friendly relationship. It may also be crucial from the policy perspectives that awareness raising initiatives are undertaken to increase family understanding of mental health issues among mothers, ensure timely detection of mental health symptoms and support treatment and medical adherence, as well as open discussions about depression to eliminate stigma. Finally, the government of Bangladesh should focus on the findings of the study to achieve the Sustainable Development Goals (2015–2030) aimed to reduce mental health problems through promotion of comprehensive social care in community settings [62].

Conclusions

The findings of the present study highlighted that child's sickness, injury, and unfriendly relationship with mothers are significantly associated with the mother's depression. Parents must be aware of their children's behavior from an early age, and mothers must adjust to their children's behavior rather than becoming anxious. Policy makers and public health practitioners should also consider addressing the child-related factors associated with mother's depression to manage depression among mothers of school-going children.

Abbreviations

AOR: Adjusted Odds Ratio

BDT: Bangladesh taka

CI: Confidence Interval

COR: Crude Odds Ratio

LMICs: Low- and Middle-Income Countries

PI: Principal Investigator

SDS: Self-Rating Depression Scale

Declarations

Ethical issues:

The Research Ethics Committee, Faculty of Allied Health Sciences (REC-FAHS), DIU given the ethical clearance of this study. The reference number of ethical clearance is FAHSREC/DIU/2021/1006-31. Administrative approval was taken from the authority of each school as well. Both written and verbal consents were taken from each participant. Anonymity and confidentiality were strictly maintained.

Consent for publication

All the authors and our institution agreed and approved the content of this article to be published in BMC Psychiatry.

Availability of data and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Competing interests

Not Applicable

Funding

Not Applicable

Authors' contributions

SS conceived and conducted the fieldwork and wrote the first version of this manuscript under the supervision of SKM. FM and ABMAC participated in the data analysis. All authors read and gave their approval to the final version of this manuscript submitted for publication.

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Figures

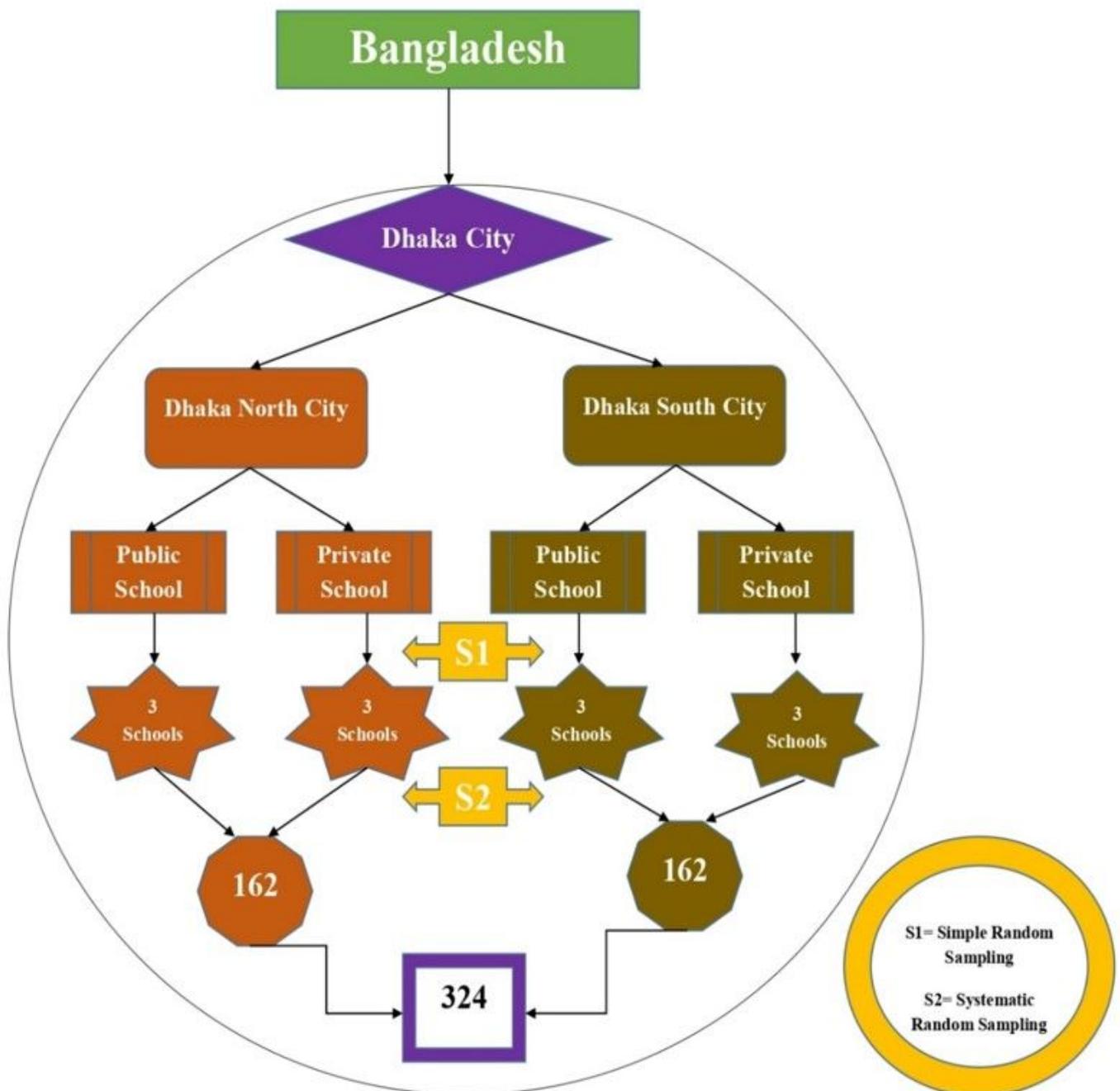


Figure 1

A multistage sampling technique