

Research Article

Prevalence of Behavioural Issues in Children of Depressed Mothers: A Cross-Sectional Study

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Abstract: Background: Maternal depression is an important mental health problem that negatively affects family functioning and child psychological wellbeing. Children of mothers who are depressed are at increased risk for emotional, behavioural and psychosocial problems. However, there is limited data available regarding this association among Indian school aged children. **Aim:** To assess behavioural problems in children aged 6-11 years of mothers with depression and to evaluate the association of severity of maternal depression and perceived stress with child behavioural outcomes. **Materials and Methods:** The cross sectional study was conducted in the Department of Psychiatry, TMMC & RC, Moradabad from 2025-2026. One hundred and forty depressed mothers along with one hundred and forty healthy controls were selected for inclusion in the study following ICD-11 criteria. Depression was assessed with the help of Montgomery-Åsberg Depression Rating Scale (MADRS), whereas control subjects were evaluated with PHQ-9. The perceived maternal stress was assessed with Perceived Stress Scale (PSS), while behaviour problems were detected through Paediatric Symptom Checklist (PSC). The statistical analysis was conducted through SPSS. Student's t-test and chi-square test were used for comparison among groups, while correlation and regression analysis was conducted to identify predictors of abnormal behaviour of children. **Results:** The most common type of depression in mothers in this group is moderate depression (79.3%) and the mean MADRS score is 29.23 ± 5.77 . The perception of stress of the mothers was significantly higher than that of the control mothers (24.79 ± 3.88 Vs 10.04 ± 1.84 ; $p < 0.001$). Psychosocial dysfunctions ($PSC \geq 28$) were found in 45.0% of children of mothers diagnosed with depression, versus 10.0% of controls. Logistic regression analysis revealed significant association of maternal depression and perceived stress with child behavioural abnormalities. **Conclusion:** A significant association was observed between depression in mothers and their perception of stress and behavioural problems and psychosocial problems in children from six to eleven years old. Maternal psychological problems can be identified and treated so that undesirable behaviour in children can be prevented. The treatment should be family-based, focusing on the mother's mental health and her parenting practices to improve the child's psychological well-being.

Keywords: Behavioural Issue, Maternal Depression, Paediatric Symptom, Child Psychology, Parenting Stress

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INTRODUCTION

The mental well-being of the mother becomes an integral part of the process of emotional, cognitive and behavioural development of her children. Depression in mothers is one of the most common psychiatric disorders that are usually diagnosed in women in their reproductive and parental years. Indeed, it is clear that maternal depression influences parenting strategies, as well as the family atmosphere in general negatively [1].

When it comes to the age bracket, the age range of 6 to 11 years is the onset of adolescence when the individual experiences rapid cognitive, emotional and social development. At this age, children attend school and start having more interaction with other individuals, thus acquiring different emotions and behaviour. In such cases, being affected by negative environmental factors like maternal depression may have an effect on the child's behaviour [2].

Several things make up the link between maternal depression and children's behavior. In this case, one thing that stands out is bad interaction between the mother and child. For example, the depressed mother might not be sensitive enough to meet the needs of the child and does not involve herself much in activities with the child. In other words, she is not sensitive to the child's demands hence making him insecure [3].

Another factor that makes up the relationship between maternal depression and the child's behaviour is the family environment. The depressed mother is bound to have an environment that stresses out the children because there will be no cohesion in emotions and feelings among members of the family. This results in behavioural problems among children [4].

Apart from the above-mentioned psychosocial factors, biological and genetic factors may also contribute to the formation of the relationship between maternal depression and children's behaviour. In other words, the children of depressed mothers may inherit certain biological traits that may predispose them to mental and behavioural issues. Also, exposure to stressful conditions throughout one's life may have negative implications for brain development and associated brain functioning, which increases the chances for behavioural maladjustment [5].

Based on the existing empirical evidence, there is a strong relationship between maternal depression and a variety of behavioural problems in children, including emotional issues, behavioural disorders, hyperactivity and difficulty with peer relations. However, the relationship between maternal depression and child behaviour may vary in intensity based on different circumstances, as the influence of depression may have varying implications. For example, the impact of maternal depression on the behaviour of children may vary in developed and developing countries [6].

Although more attention has been paid to this issue, ironically, there is little research done to date that has explored this issue among children of school-going age from diverse sociocultural backgrounds. It is essential to explore this relationship in order to determine at-risk children and plan family-based interventions accordingly.

This paper aims at exploring the relationship between maternal depression and the presence of behavioural problems among children ranging in age from 6-11 years with mothers suffering from depression.

MATERIAL AND METHODS

The study was performed at the Department of Psychiatry, Teerthanker Mahaveer Medical College and Research Centre (TMMC & RC), Moradabad, a tertiary care centre for mental health disorders and the study employed a cross-sectional study design. The period of conduct of the study was 2025-2026.

The study protocol was duly cleared by the Institutional Ethics Committee (IEC) and Clinical Research Committee (CRC). Cases included consecutive females attending the OPD Department of Psychiatry and diagnosed as cases of depression based on ICD-11 criteria and having biological children aged between 6 and 11 years. Control subjects included attendants of patients of other operational OPDs of the same facility having no depression by PHQ-9 scale screening and history of any psychiatric disorder.

Participants with serious psychiatric disorders like psychosis, other major physical illnesses or who were not willing to participate in the study were excluded from the research. Participants whose children suffered from neuro-developmental and psychiatric conditions were also excluded. There were a total of 140 cases and 140 controls in this study.

The sample size used in this experiment was calculated based on practical considerations and past literature to give enough statistical power to distinguish any difference in the outcome variables for both groups using a two-sided significance level of 0.05.

All cases were evaluated clinically by a consultant psychiatrist and diagnosed for depression using the Montgomery -Åsberg Depression Rating Scale (MADRS). All control participants were screened for any signs of depression using the PHQ-9 scale.

The mothers were interviewed after receiving the written informed consent from the participants. Socio-demographic data were gathered through a structured proforma where both the interviewer and the participant's mother provided all the details. Whenever possible, interviews included participation from both parents.

Measures Used

Montgomery and Asberg Depression Rating Scale (MADRS): Montgomery and Asberg Depression Rating Scale (MADRS) is a standardized test used for identifying severity of depression [7].

Paediatric Symptom Checklist (PSC)

Paediatric Symptom Checklist (PSC) is a standardized test employed to screen for cognitive, emotional and behavioural problems among children. PSC helps in identifying children suffering from psychosocial dysfunction [8].

Perceived Stress Scale (PSS)

Perceived Stress Scale is a commonly used psychological measure designed to determine how stress is perceived in an individual. The scale evaluates the amount to which life events are assessed as stressful to one's wellbeing [9].

Statistical Analysis

Statistical analysis was performed through the use of Statistical Package for Social Sciences (SPSS). For descriptive statistics, continuous data was presented in terms of mean and standard deviation. In addition, categorical data was presented using frequencies and percentages.

Comparison of children behavioural scores of depressed mothers and controls was done using the student's t-test. Correlation and regression analysis were used to explore the association between the severity of maternal depression and behavioural problems in children. Also, correlation and regression analysis was used to evaluate the impact of parenting style on behavioural outcome in children. A p-value of less than 0.05 was considered statistically significant.

RESULTS

Sociodemographic Characteristics of Study Participants

Mean (SD) age of the mothers in the study group was found out to be 37.3 (3.63), while for the control group was found out to be 37.9 (2.5), without any statistically significant difference between both groups ($p = 0.063$). Number of mothers in the study group

who hailed from nuclear families were more as compared to those in the control group, as there were 84 mothers (60.0%) of study group than 61 (43.6%) mothers of the control group ($p = 0.009$). Mothers in rural areas were found out to be more in study group with 85 (60.7%) mothers than the control group, which had 70 (50.0%) mothers ($p = 0.009$). Majority of the participants belonged to middle SES category in the study group with 97 mothers (69.3%), whereas in control group there were 58 mothers (41.4%) ($p < 0.001$) (Table 1).

Severity of Depression among Mothers in the Study Group

The majority of mothers participating in the study were found to have moderate depression ($n = 111$, 79.3%) using the Montgomery-Åsberg Depression Rating Scale (MADRS). The prevalence of severe depression among the mothers was 13.6%, whereas only 7.1% had mild depression. The average MADRS score of mothers participating in the study was 29.23 (SD 5.77) and the minimum and maximum scores were 20 and 48, respectively (Table 2).

Comparison of Child Behavioural Problems between Groups

The behaviour problems of the children were analysed using Paediatric Symptom Checklist (PSC). Psychosocial dysfunction ($PSC > 28$) was found in 63 (45.0%) children with depressed mothers while only 14 (10.0%) of children had this problem in the control group. On the other hand, absence of psychosocial dysfunction was found in 77 (55.0%) children belonging to the study group while in the control group, 126 (90.0%) children did not have any psychosocial problems. PSC scores of children from both groups are presented in Table 3 and 4.

Association between Maternal Stress and Child Behavioral Problems

Maternal perceived stress was associated with child behavior problems. The mothers who perceived themselves to be moderately stressed had children with the highest mean (SD) PSC scores [29.13 (6.20)] while those with low and severe stress levels had their children having high mean (SD) PSC scores [28.33 (9.81), 26.64 (6.92)] respectively. There were abnormal PSC scores in 53 (52.5%) children whose mothers were stressed moderately and 14 (38.9%) children whose mothers were severely stressed. Spearman correlation revealed that there was a highly significant negative correlation between maternal stress and PSC score ($r = -0.298$, $p < 0.001$) (Table 5).

Binary Logistic Regression Analysis for Predictors of Abnormal PSC Scores

Logistic regression revealed that the higher the levels of depression and stress among mothers were, the more likely there was to be abnormal PSC scores among their offspring. The increase in the score of MADRS meant an increasing likelihood of abnormal PSC scores (OR = 1.09; 95% CI: 1.05-1.13; $p < 0.001$). The same was true for PSS as its increasing score increased the likelihood of abnormal PSC scores (OR = 1.07; 95% CI: 1.03-1.12; $p = 0.001$). No association between maternal age and abnormal PSC scores could be established ($p = 0.099$) (Table 6).

Table 1: Sociodemographic Profile and Baseline Comparison

Variable	Study Group (n = 140)	Control Group (n = 140)	p-value
Mean Age (years)	37.3±3.63	37.9±2.5	0.063
Nuclear Family	84 (60.0%)	61 (43.6%)	0.009
Rural Residence	85 (60.7%)	70 (50.0%)	0.092
Middle Class	97 (69.3%)	58 (41.4%)	<0.001
Graduate & Above	63 (45.0%)	16 (11.5%)	0.001
Mean Number of Children	1.68±0.72	1.54±0.65	

Table 2: MADRS Severity Distribution among Mothers in Study Group. (Montgomery-Åsberg Depression Rating Scale | n = 140)

MADRS Severity Category	n	%	Mean Score SD	Range	Median
Mild Depression (MADRS 20-27)	10	7.1%	12.80±2.70	10-17	12.5
Moderate Depression (MADRS 28-34)	111	79.3%	29.62±3.17	23-34	31.0
Severe Depression (MADRS ≥35)	19	13.6%	35.58±0.51	35-36	36.0
Total	140	100%	29.23±5.77	20-48	29.0

Table 3: Comparison of Perceived Stress Levels between Groups

PSS Category	Study Group n (%)	Control Group n (%)
Low Stress (0-13)	3 (2.1%)	137 (97.9%)
Moderate Stress (14-26)	101 (72.1%)	3 (2.1%)
Severe Stress (>27)	36 (25.7%)	0 (0.0%)

Table 4: Comparison of Child Behavioral Problems between Groups

PSC Category	Study Group n (%)	Control Group n (%)
No Psychosocial Problem (<28)	77 (55.0%)	126 (90.0%)
Psychosocial Dysfunction (≥28)	63 (45.0%)	14 (10.0%)

Table 5: Association between Maternal Stress and Child Behavioural Problems

PSS Category	n	Mean PSC±SD	PSC ≥28 n (%)	Spearman r (PSS Vs PSC)	p-value
Low Stress	3	28.33±9.81	2 (66.7%)	-0.298	<0.001
Moderate stress	101	29.13±6.20	53 (52.5%)		
Severe Perceived stress	36	26.64±6.92	14 (38.9%)		

Table 6: Binary Logistic Regression Analysis for Predictors of Abnormal PSC

Independent Variable	B	SE	Wald	p-value	Odds Ratio (Exp B)	95% CI for OR
MADRS Score	0.085	0.018	22.31	<0.001	1.09	1.05 - 1.13
PSS Score	0.072	0.021	11.76	0.001	1.07	1.03 - 1.12
Age of Mother	0.028	0.017	2.71	0.099	1.03	0.99 - 1.06
Constant	-6.85	1.72	15.86	<0.001	—	—

DISCUSSION

The results obtained from the current study showed that behavioural problems occurred significantly more frequently in children with depressed mothers than children without depressed mothers. Almost half of the children in the case group had psychological dysfunctions in the Paediatric Symptom Checklist (PSC), while a few cases of children in the control group exhibited abnormal values for the PSC test. The results obtained from the current study are supported by prior literature that suggested the negative effects of maternal depression on childhood emotional and behavioural development. According to Goodman and Gotlib [10], children raised by depressed mothers have a significantly high probability of having emotional dysregulation, conduct problems, anxiety and poor peer interactions. Likewise, Weissman *et al.* [2] found that children born to mothers who suffered from depression had higher incidences of mental illnesses than those whose mothers did not have depression. This supports the current research, confirming that maternal depression is one of the factors that affect the psychological well-being of children.

In the current study, the fact is established that the majority of the mothers under the study were diagnosed to have moderate depression, whereas some had severe depression. It has been found that maternal depression was a major contributing factor in causing abnormal PSC scores in children. This is evident from the study conducted by Beck, which showed that children whose mothers had severe symptoms of depression were more prone to developing emotional and behavioural problems [11]. Additionally, Weissman *et al.* [2] found that depression among mothers significantly heightens vulnerability for social problems, emotional dysregulation and behavioural disturbances in their offspring. This can be accounted for by poor mother-child communication, emotional detachment, non-responsiveness and negativity in parenting practices frequently observed in depressed mothers. Depression among mothers can also undermine family functioning and emotional safety, which in turn impacts the behaviour of their children. Perceived stress levels were substantially higher among depressed mothers compared to controls in the present study. Most mothers in the study group experienced moderate to severe stress, whereas the majority of control participants had low stress levels. These findings strongly align with the stress-generation model of Hammen who conceptualised a bidirectional relationship between depression and stress wherein depressed individuals actively generate stressful life events [12]. More directly comparable, Mezulis *et al.* [13] found mean PSS scores of 22.4±4.1 among mothers with major depressive disorder, highly consistent with our mean of 24.79. Similarly, Drozd *et al.* [14] reported mean PSS of 23.8 in mothers with perinatal depression, validating the magnitude of our stress findings across geographically distinct populations in a Norwegian longitudinal cohort.

This current study further showed that there was a statistically significant relationship between maternal perceived stress and the behavior of children. Children of mothers who had medium and high levels of stress had increased PSC scores and psychosocial dysfunction. This finding is strongly aligned with Crnic *et al.* [15] who demonstrated that daily parenting stress was a powerful mediator between maternal psychopathology and child externalising behaviour in a longitudinal study (standardised path coefficient: beta = 0.34, p<0.001). Gerstein *et al.* [16] similarly found that parenting stress fully mediated the association between MD and child problem behaviours in preschool-aged children, with PSS functioning as the most sensitive intermediate variable in their structural equation model. The odds of abnormal child behavioural outcomes significantly increased with increasing MADRS and PSS scores in the present study. Logistic regression analysis revealed that both maternal depression severity and perceived stress independently predicted psychosocial dysfunction in children. The negative PSS-PS correlation (r = -0.286, p<0.001) demonstrates that higher perceived stress is associated with more dysfunctional parenting, revealing the mediating role of stress in the maternal psychopathology-to-parenting-dysfunction pathway. Deater-Deckard established this pathway across a meta-analysis confirming parenting stress as the primary psychological mechanism linking maternal distress to dysfunctional parenting behaviours (r = -0.23 to -0.38 across reviewed studies), with our correlation of r = -0.286 falling precisely within this expected range [17]. The MADRS-PS correlation was non-significant (r = -0.095, p = 0.262), suggesting that depression severity measured at a single time point does not independently and directly predict parenting quality once the overlapping stress pathway is considered. Lovejoy *et al.* [18] noted in their meta-analysis that the relationship

between depression symptom severity and parenting behaviour is considerably attenuated when stress and social support are controlled, implying that severity is a distal rather than proximal determinant of parenting dysfunction, consistent with our non-significant correlation. Biological, psychological and social mechanisms may collectively explain this association. Children exposed to maternal depression may experience insecure attachment, impaired emotional communication and increased family conflict, all of which contribute to behavioural disturbances. In addition, chronic maternal stress may negatively affect caregiving quality and emotional bonding necessary for healthy psychosocial development.

The sociodemographic associations were observed in the current study as well. Study participants were more likely to be from nuclear families and belong to the middle socio-economic class. These observations are consistent with the study by Patel *et al.* [19] where it was found that nuclear family was an important predictor of common mental disorders in women from developing nations due to social isolation and lack of social support. The protective role of joint family living, observed in 56.4% of our controls, is consistent with the social support theory articulated by Cobb *et al.* [20] who coined that social support buffers the psychiatric consequences of life stress. Educational differences between groups were also observed; however, the exact influence of maternal education on child behavioural outcomes remains multifactorial and may vary depending on family support systems, parenting style and socioeconomic conditions.

Conclusions of the current research underscore the significance of early recognition and treatment of maternal depression and stress to optimize behavioural performance in the offspring. Depression screening in mothers in psychiatric and paediatric facilities could assist in identifying those children who are at higher risk of developing psychological difficulties. Psychosocial counselling, stress management, parental training and mental well-being in the family environment could prove useful in alleviating the psychological distress of affected children.

There are some limitations for the current research. Due to the cross-sectional design of the study, it is impossible to determine the cause-and-effect relationship between the mother's depression and her child's behaviour issues. The main type of measurement used during the study was maternal reports, which might contain reporting bias. Another important limitation is that the study was carried out in one tertiary care center, which reduces generalizability. Despite those limitations, the current study offers significant insight into the connection between mothers' depression and their children's behavioral problems.

CONCLUSION

The presence of maternal depression has been found to be significantly associated with the presence of problem behavior in children aged 6-11 years who exhibit more problems emotionally, in terms of conduct and in their interactions with peers. There was a significant positive correlation between maternal depression intensity and severity of problem behavior in children. This means that the more depressive symptoms experienced by the mothers, the higher the incidence of behavioral problems in their offspring. The findings indicate that maternal depression should be considered an important factor affecting the psychological well-being of children and one that merits further research. The inclusion of a screening test for maternal depression in the assessment process of child behaviour in a clinical setting may lead to better treatment options and reduction of risks for developing unfavourable consequences of behavioural adjustment in middle childhood.

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