

**Original Article**

## **Children with Behavioral Problem and/or Cognitive Deficit: It's Correlation with Maternal Employment**

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Received: 08 November 2019 Accepted: 09 July 2020

doi: <https://doi.org/10.3329/jemc.v10i3.59355>

### **Abstract**

**Background:** Hospital records reveal a gradual increase in the number of children with behavioral and cognitive problems. Maternal employment has also been rising steadily. However, little is known about the relationship between maternal employment and child's behavioral and cognitive problems. **Objective:** To evaluate the child's behavioral and cognitive problems and their relationship with maternal employment. **Materials and Methods:** This cross-sectional analytical study was conducted on 30 children aged 3–8 years, having cognitive and/or behavioral problems who fulfilled the enrollment criteria. Data were analyzed descriptively and Chi-square/Fisher's exact tests were used wherever appropriate with significance set at  $p < 0.05$ . **Results:** Children's mean age was  $5.5 \pm 2.0$  years (M:F 1.3:1). Of all children, 73.3% were family's 1<sup>st</sup> child, 83.3% belonged to nuclear family. Among parents 43% spent quality time with children. Among mothers 40% were service holders and others were housewives. All working mothers were employed before 3<sup>rd</sup> year of their children. Among working mothers 84% worked 8 hours per day. Externalizing and internalizing behavior problems, non-satisfactory school performance and non-disciplined activities were found higher among working mothers' children compared to housewife mothers' children (50.0% vs 38.9%; 16.7% vs 11.1%; 91.7% vs 88.9%; 50.0% vs 44.4%, respectively). In this study  $>1$  behavior problems and delayed cognition were found higher among housewife mothers' children (33.3% vs. 38.9%; 41.7% vs. 66.7%). In both groups, 83.3% children were not involved in extracurricular activities. Overall, Risk Ratios did not predict any risk of having behavioral problems with mothers' employment (all  $p$  values  $> 0.05$ ). **Conclusion:** This study demonstrated no significant effect of maternal employment on developing child's behavioral and cognitive problems. To generalize the findings, large-scale study is recommended.

**Key words:** Cognitive deficits; Behavioral problems; Maternal employment

J Enam Med Col 2020; 10(3): 143–152

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## Introduction

Early childhood is the most rapid period of development in human life. The period of life from conception through birth to eight years of age is important to the complete and healthy cognitive, emotional development and physical growth. Early stress can affect behavior, learning and memory adversely.<sup>1</sup> Mother gives her children love, affection care since birth. Her presence and quality time with the children have very strong influence on developing attitudes, learning abilities and behavior. The researchers found that maternal employment during the first year of a child's life had a negative effect on cognitive outcomes for the child by age three or four and even by age seven or eight.<sup>2</sup> With the emergence of a new economic pattern, increasing opportunities for education, rising living standard and increased modernization, women from the middle and upper class families have also started coming out from their traditional role as a home maker to join the work force. The number of working women has been increasing worldwide. According to the Bangladesh Bureau of Statistics (BBS), Labor Force Participation of young women in Bangladesh has increased about two and half times over the period of 1991 to 2000. For this increasing number of women employed created a concern on the children's long term academic success, behavior and mental health.

Mothers entering the workforce might also have a positive effect on children. Dual earning families are able to provide much more for their children. Increased financial opportunities increase facilities in healthcare, nutrition, and educational opportunities. Researchers have found that mothers report many positive effects of working. Working mothers in one study felt that they were helping to meet the needs of their families by providing financial support, but on occasions their family relationships did suffer as a result of their employment. Many working mothers also felt that they were being good role models for their children. In addition, they felt that they highly valued what time they were able to spend with their children.

But they also felt short of time to guide their children while they were interested to do so.<sup>3</sup> However, it was not suggested that mothers should not have a job but it is probably not the encouraging for their children.

There are some studies that focused not only the mothers' profiling but also on the children's perception of the mothers' employment. A study examined people's perceptions of their mothers' employment during their childhood. Regardless of hours worked, children of working mothers were reported less disciplined than those whose mothers did not work outside the home; they also reported less support and more verbal assaults than those whose mothers did not work.<sup>4</sup> In addition to differences in discipline and support that children receive, maternal employment may also affect school performance. A survey among the urban families found that children of stay-at-home mothers were more likely to have above average school performance compared to children of working mothers. Children of employed mothers were also found to be more likely to skip school than children of non-working mothers in the same study.<sup>5</sup>

It has been proved through experiments and researches that a major part of children's cognitive, affective and psychomotor development takes place at an early age before three years. New research provides a scientific basis for the obvious fact that children who experience extreme stress in their earliest years are at greater risk for developing problems in later life.<sup>1</sup>

Dr. M R Khan Shishu Hospital and Institute of Child Health data reveal that the number of children with behavioral and cognitive problems is increasing (15.6% in 2010, >30% in 2012). There might be multiple reasons for that (i.e. small families, increased awareness, and available service). Number of working women in Bangladesh is also increasing (BBS). There is no study available in this country which correlates child's behavioral and cognitive problems with the mothers' employment. This study targets to describe the pattern of cognitive and behavioral problems among the children of working mothers and stay-

at-home mothers and to explore whether behavioral and cognitive functions of children of non-working mothers really differ from the children of working mothers.

## Materials and Methods

This cross sectional study was conducted in the OPD of Pediatric Neurosciences, Institute of Child Health & Shishu Sasthya Foundation, Mirpur, Dhaka over a period of 6 months from April to September 2014. Children aged from 3 to 8 years of either gender having cognitive and/or behavioral problems who visited the above mentioned place were the study population with their parents' informed consent to participate in the study. The age appropriate assessment tools are 1) Independent Behavior Assessment Scale (IBAS) for 2–9 years and 2) Bayley scale for 0–42-month age used to assess the behavioral and cognitive functions of the children. Behavioral problems in this study are categorized as 1) Externalizing, 2) Inner directed and 3) Other problems. Children having other morbidity such as cerebral palsy, autism, chronic illness i.e., congenital heart disease, epilepsy, diabetes, asthma, history of recent major illness (CNS infection), children from broken family were excluded from the study.

The sample size was determined by using  $Z^2 pq/d^2$  formula where,  $z$  = Standard normal deviate set at 1.96;  $p$  = Proportion in the population (2% assumed);  $q = 1-p = 0.98$ ;  $d$  = Degree of accuracy which is considered as 0.05. Therefore, the required sample size =  $\{1.96^2 \times 0.02 \times 0.98\} / (0.05)^2 = 30$ .

The required numbers of children were consecutively included in the study. A structured data collection form was developed containing all the variables of interest which was finalized following pretesting. Data were collected through interview with parents and clinical examination.

The demographic variables of children were age, sex, position of the children in family, academic performance, extracurricular activities and discipline in daily activities. The demographic characteristics of parents were family type, father's education, father's

occupation, mother's education, mother's occupation, working hour of mother per day, quality time spending with children, when mother started her job, care giver and history of similar problems in the family. The clinical presentations of children were type of behavioral problem and period of problem noticed first. The domains of early childhood development such as gross motor, fine motor, speech, cognition, vision and hearing were also recorded.

Data were processed and analyzed using software SPSS (Statistical Package for Social Sciences) version 17.0. The test statistics used to analyze the data were Chi-square ( $\chi^2$ ) Test and Fisher Exact Test. For all analytical tests, the level of significance was set at 0.05 and  $p < 0.05$  was considered significant.

Prior permission was taken from Ethical Review Committee, Institute of Child Health & Shishu Sasthya Foundation, Mirpur, Dhaka, Bangladesh to conduct this study. Keeping compliance with Helsinki Declaration for Medical Research Involving Human Subjects 1964, parents of the study subjects were informed verbally about the study design, the purpose of the study and right for withdrawing their children from the project at any time, for any reason, what so ever. Parents who gave informed consent to allow their children to participate in the study were included as study sample.

## Results

A total of 30 children aged be 3–8 years having cognitive and/or behavioral problem attending OPD of Institute of Child Health & Shishu Sasthya Foundation, Mirpur, Dhaka were enrolled in this study. The mean age of children was  $5.5 \pm 2.0$  years and 47% of all children were aged under 4 years. Proportion of male children was slightly higher (56.7%). Nearly three-quarters of the children were 1<sup>st</sup> child in the family. A small portion of children (10%) exhibited satisfactory academic performance and engagement in extracurricular activities (16.7%). Among the children 53.3% were reported to maintain positive discipline in their daily activities (Table I).

Table I: Distribution of children by demographic characteristics (N=30)

Demographic characteristics	Frequency	Percentage
<b>Age (years)</b>		
<4	14	46.6
4–6	05	16.7
>6	11	36.7
<b>Sex</b>		
Male	17	56.7
Female	13	43.3
<b>Position of the children in family</b>		
Only child	22	73.3
2 <sup>nd</sup>	05	16.7
3 <sup>rd</sup>	03	10.0
<b>Academic performance</b>		
Satisfactory	03	10.0
Non satisfactory	27	90.0
<b>Extracurricular activities</b>		
Present	05	16.7
Absent	25	83.3
<b>Disciplined in daily activities</b>		
Yes	16	53.3
No	14	46.7

Majority (83.3%) of the children belong to nuclear family. In fifty percent cases, family members were the caregivers to the child while in 40% cases caregiver was mother herself. It was found that 43% of the parents spend quality time with their children. All the respondents except two reported not having history of such a problem in their family (Table II).

Table II: Distribution of children by family characteristics (N=30)

Demographic characteristics of parents	Frequency	Percentage
<b>Family type</b>		
Joint family	05	16.7
Nuclear family	25	83.3
<b>Caregiver</b>		
Family member	15	50.0
House keeper	03	10.0
Mother	12	40.0
<b>Parents spend quality time with children</b>		
Yes	13	43.3
No	17	56.7
<b>H/O similar problems in the family</b>		
None	28	93.3
Others	02	6.7

Both mother and father of all children were literate and majority of them were graduates. Over half (53.3%) of children’s fathers were service holders. Among the mothers, 60% were housewives and rest 40% were employed and mostly involved with banking sector. All of the working mothers started their jobs before their child reaching at 3 years of age and majority (83.4%) of them had to work 8 hours per day. The mean working time of the mothers was  $9.8 \pm 1.3$  hours (Table III). Majority of the parents (56.7%) did not spend quality time with their children.

Table IV shows the clinical presentation exhibited by the children. Among the children, 43.3% had externalizing behavior problem and 13.3% had inner directed problem. A large portion (36.7%) developed more than one problem. Over one-third (36.7%) of the children first noticed their behavioral problem at the age between 1–2 years, 20% between 3–4 years, 36.7% between 5–6 years and 6.7% at the age of 7 years.

Table III: Distribution of children by parent's education and occupational characteristics (N=30)

Parent's education and occupational characteristics	Frequency	Percentage
<b>Father's education</b>		
Up to SSC	03	9.9
HSC	05	16.7
Graduate	22	73.3
<b>Father's occupation</b>		
Teachers	03	10
Service holders	16	53.3
Engineers	01	3.3
Doctors	01	3.3
Businessmen	09	30
<b>Mother's education</b>		
Up to SSC	07	23.3
HSC	08	26.7
Graduate	15	50.0
<b>Mother's occupation</b>		
Banker	10	33.3
Garment workers	01	3.3
Doctor	01	3.3
Housewives	18	60.0
<b>Working hour of mother per day (n=12)</b>		
6 hours	01	8.3
8 hours	10	83.4
12 hours	01	8.3
Mean (SD) working hours	9.8 ± 1.3 hours	
<b>Mother started job</b>		
before 3 years of child	12	100.0

Table IV: Distribution of children by clinical presentations (N=30)

Clinical presentation	Number	Percentage
<b>Types of behavioral problem</b>		
Externalizing problem	13	43.3
Inner directed	04	13.3
Other problems	02	6.7
>1 problems	11	36.7
<b>Problem noticed first</b>		
1-2 years	11	36.7
3-4 years	06	20.0
5-6 years	11	36.7
7 years	02	6.7

Table V: Distribution of children by early developmental milestone (N=30)

Domains	Frequency	Percentage
<b>Gross motor</b>		
Age appropriate	30	100.0
<b>Fine motor</b>		
Age appropriate	29	96.7
Slow for age	01	3.3
<b>Speech</b>		
Age appropriate	25	83.3
Slow for age	05	16.7
<b>Cognition</b>		
Age appropriate	21	70.00
Slow for age	09	30.00
<b>Vision</b>		
Normal	30	100.00
<b>Hearing</b>		
Normal	30	100.00

Regarding early developmental milestone of children, age-appropriate development was observed in every child concerning gross motor skills. It was 96.7% for fine motor skills, 83.3% for speech and 70% for cognitive skills. Slow development of fine motor skills, speech and cognitive skills were observed in 3.3%, 16.7% and 30% of the children respectively. Normal hearing and vision were found among all the children (Table V).

Fig 1 shows the pattern of child’s behavioral problems among working mothers and housewife mothers. The proportion of children with externalizing behavior problems and inner directed problems were found slightly predominant among working mothers compared to housewife mothers (50% vs. 38.9%; 16.7% vs. 11.1%). More than one behavior problems were found more common among children of housewife mothers compared to working mothers group (38.9% vs. 33.3%).

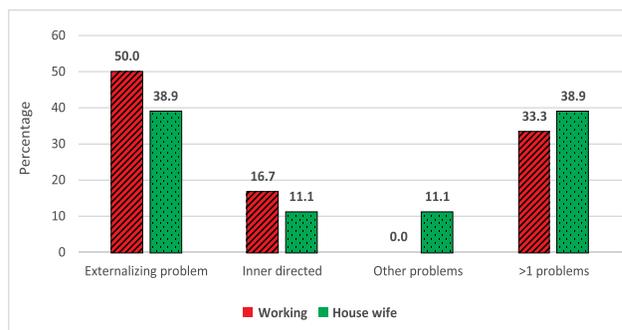


Fig 1. Comparison of behavioral problems of children between groups (N= 30)

Table VI shows the association between maternal occupation and factors related to child behavior. The proportion of children with behavioral problem more than one and delayed cognition were found higher in housewife mothers group compared to working mothers group (38.9% vs. 33.3%; p = 0.757 and 66.7% vs. 41.7%; p = 0.176 respectively). Majority of the children (83.3%) in both groups were found

Table VI: Association between occupation of mother and factors related to the child behavior

Factors	Mothers’ occupation		Odds ratio (95% CI)	p values (p=0.05)
	Working (n = 12)	Housewife (n = 18)		
<b>Behavioral problem*</b>				
>1 problems	4 (33.3)	7 (38.9)	0.786 (0.17-3.62)	0.757
Single	8 (66.7)	11 (61.1)		
<b>School performance*</b>				
Non satisfactory	11 (91.7)	16 (88.9)	1.38 (0.11-17.09)	0.804
Satisfactory	1 (8.3)	2 (11.1)		
<b>Extracurricular activity**</b>				
None	10 (83.3)	15 (83.3)	1.00 (0.14-7.099)	1.00
Present	2 (16.7)	3 (16.7)		
<b>Disciplined in daily activities*</b>				
Non disciplined	6 (50.0)	8 (44.4)	1.25 (.289-5.407)	0.765
Disciplined	6 (50.0)	10 (55.6)		
<b>Cognition*</b>				
Delayed	5 (41.7)	12 (66.7)	0.36 (.079-1.615)	0.176
Age appropriate	7 (58.3)	6 (33.3)		

\*Data were analyzed using  $\chi^2$  test; \*\*Fisher’s Exact test was conducted to analyze the data. Figures in the parentheses denote corresponding percentage. As test statistics is less than the table  $\chi^2$ -value, results are not significant.

not being involved with any extracurricular activities ( $p = 1.00$ ). However, children with non-satisfactory school performance and non-disciplined in daily activities were somewhat higher in working mothers group compared to housewife mothers, although these differences are not statistically significant ( $p = 0.804$  and  $p = 0.765$  respectively). Computation of risk ratio reveals that all the risk factors related to the child behavior could not predict any outcome ( $p > 0.05$ ).

## Discussion

With the emergence of a new economic pattern, increasing opportunities for education, rising standard of living and increased modernization, women from the middle and upper class families have also started coming out of their traditional role of a home maker to join the work force. Full time job for women very often necessitates staying away from their families for long hours during the day. It creates more disturbances for their children. Employment of women has created number of problems to their children and paved way for controversies regarding maternal employment and child development.<sup>6</sup> In the present study the prevalence of working mother was 40%. Of them, 83.4% worked 8 hours per day. A recent study has found the prevalence of working mother 60% and 30% of them worked more than 8 hours, 40% between 6–8 hours and 15% between 4–6 hours per day.<sup>7</sup>

Behavioral problems were identified in 17 (56.7%) male out of total 30 children which was consistent with study done at Kanpur in psychiatric children attending child guidance clinic of pediatric OPD.<sup>8</sup> Similarly, another study found significant influence of gender on overall prevalence of behavior problems.<sup>9</sup> Most of the times behavior problems of male children are neglected in earlier stage or labeled abnormal for their gender. This may contribute for increased prevalence among male children.

A longitudinal study conducted in Pennsylvania aimed at the effects of family and neighborhood characteristics on the behavioral and cognitive

development of poor black children. The study was conducted among 178 single mothers of black families. It investigates the relations among family resources (mother's employment, income from employment) and child developmental outcomes in the early school years. Result of the study indicated that behavior problems of children depend on mothers' literacy and to some extent her employment status.<sup>10</sup> This study revealed that a higher proportion of children's parents was graduate (73.3% of fathers and 50% of mothers). Over 43% of the parents spend quality time with their children. All of the mothers started their job before their children reach at 3 years, which is not in agreement with the study findings done at Maharashtra, India which revealed that higher prevalence of behavior problems amongst children of illiterate mothers.<sup>11</sup> But, similar result was found in other studies.<sup>12-14</sup> The literacy level of parents, mainly mother's literacy status is more important in recognition of behavior problems in earlier stage of child development. Early recognition will prevent further development of behavior problems among children and will reduce the prevalence. Children coming from families with over-protective parental attitude were having high prevalence rate of behavior problems.

Although there were many positive implications attributable to maternal employment, this study revealed some negative effects also. Some authors found that maternal employment sometimes led to behavioral problems in children.<sup>2, 15, 16</sup> This finding could be related to children being cared for by several people (both out-of-home care providers and parents). Children are likely to receive varying amounts and types of discipline in this situation, which could lead to confusion and ultimately behavior problems. In our study, in fifty percent cases, family members were the caregivers to the children while in 40% cases caregivers were mothers themselves and remaining 10% were house-keepers.

One study<sup>17</sup> reported that there is significant impact of socioeconomic status on academic achievement

by children but another study<sup>18</sup> revealed no glaring relationship among the children involved in the study. In this study, children with non-satisfactory school performance and non-disciplined in daily activities were somewhat higher in working mothers group compared to housewife mothers, although these differences are not statistically significant ( $p = 0.804$  and  $p = 0.765$  respectively).

There was statistically significant association between family size and behavioral problems among children. In our study, nearly three-quarters of the children were first child in the family and majority (83.3%) of them belonged to nuclear family. Some studies have found that in small family, the physical and emotional needs of child are not fulfilled which may divert these children towards behavioral problem.<sup>19, 20</sup>

Various factors play role in causation of behavior problems. The internal factors of child include neurobiological and genetic factors, emotions and intelligence. These interact with external factors like family environment or social environment. External factors also include nature of discipline given to children, attachment relationship, size and socioeconomic status of family or family stressors.<sup>21</sup> Many individual studies have reported that maternal employment early in children's age is associated with poorer performance on cognitive tests and more behavior problems,<sup>22,23</sup> but not all studies have reached this conclusion.<sup>24</sup> In the present analysis, we have found that children with externalizing behavior problems and inner directed problems were higher in working mothers than those in non-working mothers children, while more than one behavior problem was found in non-working mother compared to working mother children. In a comparative study<sup>25</sup> to assess the impact of maternal work on child health conducted at Bhilai in India also found similar finding. They compared a sample of 200 working educated mother and their 408 children with 200 non-working mothers and their 440 children by observational method. Results also demonstrated that physical and mental health status showed a significant co-relation with

mother employment. It identified that a significant number of children in study group were reported to have externalizing and inner directed problems.

Compared with earlier research, findings in this study were mixed, but in general they were fairly consistent with earlier findings. Some authors completed a study<sup>5</sup> that examined school performance, disciplinary differences and participation in extracurricular activities. Unlike our study which showed that percentage of patients with behavioral problem more than one and delayed cognition were found higher in non-working mothers compared to working mothers. Majority of the patients in both groups not engaged in extracurricular activities. However, patients of non-satisfactory school performance and non-disciplined were somewhat higher in working mothers than those in housewife mothers. The authors also illustrated those children of stay-at-home mothers were more likely to have above average school performance. That study found that children who attended out-of-home care were more likely to participate in extracurricular activities, with ninety percent of children participating compared to eighty-two percent of children with stay-at-home mothers and children of stay-at-home mothers were reported to not perform as well in school as children of working mother.

This study has some limitations which might have affected the findings of the study.

- The age of the children was taken from their statement at the time of interview, not from the birth registration card, which influence the results.
- The present study was done on a relatively small sample, a large-scale study to be conducted to make the findings of the study generalizable to reference population.
- The study was a cross-sectional study, so the strength of the study is weaker than the case-control study.
- The study was done in a single hospital. So the study may vary from other hospital or community based study.

Based on the findings of our study and studies of other investigators discussed so far, the following conclusions are made. The study observed that children in a nuclear family, aged up to 4 years are vulnerable group for developing behavioral problem. Parents not spend enough quality time with their children and various familial factors are in particular at high risk for it. The findings also indicate that behavioral problems in children were not significantly associated with mother employment and its positive effects upon children. This effort will help to encourage women to enter in service without having any guilt feelings.

### Acknowledgement

It is a great pleasure for me to express my deepest gratitude and thanks to Dr. Selina Husna Banu, Associate Prof. of Neurosciences unit in Institute of Child Health & Shishu Sasthya Foundation for their scholarly guidance, constant supervision and constructive suggestion to carry out this study. I am indebted to all my patients who participated in the study and cooperated whole-heartedly to make the study a success.

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