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RESEARCH ARTICLE

PREVALENCE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AMONG SCHOOL CHILDREN  
OF WORKING AND NON-WORKING MOTHERS

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ABSTRACT

**Introduction:** Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood onset psychiatric disorders that affect 2.0 – 14.0% of school age children. The World Health Report 2001 estimated that 10% to 20% of children experience one or more mental health problems. Children with mental health problems are also at risk of later psychopathic conditions. Maternal employment and time spent with children is assumed to be important as the time mothers spend with children has a significant impact on congenital developments and overall well-being of children.

**Aims and Objectives:** We conducted a cross sectional survey to assess the prevalence of attention deficit hyperactivity disorder among school children of working and non-working mothers.

**Methods:** A Quantitative Research approach and Non-Experimental Comparative research design was used to assess the prevalence of ADHD among school children of working and non-working mothers in selected schools of Ludhiana, Punjab. Using simple random sampling technique a sample of 120 school children including 60 school children of working mothers and 60 school children of non-working mothers aging 6 – 12 years were selected. Parents of these children studying in selected schools were informed regarding the study and after taking consent; children were assessed for presence of ADHD using Vanderbilt ADHD Diagnostic Teacher Rating Scale.

**Results:** The findings of the present study reveals that the prevalence of ADHD among school children of working mothers was higher (33.33%) as compared to children of non-working mothers (23.33%) but the difference was not found to be statistically significant at  $p < 0.05$  level. Overall prevalence of ADHD was 28.33%.

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INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is the most common mental health condition among children and adolescents, with an estimated worldwide-pooled prevalence of 5.29%. (Polanczyk *et al.*, 2007; Alipasha *et al.*, 2011) Child mental and behavioural disorders will rise to become one of the five most common causes of morbidity, mortality and disability among children by the year 2020 (WHO, 2001). (<https://www.bora.uib.no/bitstream/1956/1122/1/Main%20Thesis.pdf/> retrieved on 18/3/2012) The prevalence of ADHD increases with age from 5.2% to those aged 3 – 4 years, up to 29.2% in those aged 11 – 12 years. (<http://pediatrics.aappublications.org/content/128/5/1007.full> retrieved on 11/1/2012) Parents are the child's major resources or support system for learning and development. (Betz and Hunsberger 1994) Separation from parents, lack of parent's care, working parents, especially working mothers may be damaging to their emotional, behavioural and social development. (Broadwell 2000). The relationship between maternal employment and time spent with children is assumed to be important as the time mothers spend with children has a significant impact on congenital developments and over all well-being of children (Betz and Hunsberger 1994). In other words, reduction in maternal time devoted

to child rearing may be directly related to child health, through the loss of specific childcare activities. (Muthusamy Sivakami 2006) American Academy of Paediatrics advocated that mothers should not work outside the home from their child's infancy to early school age. The connection of children with their mothers at a young age will allow a close bond. This will make the communication between parent and child easier especially during the middle school and high school years. The attention and moral values the child receives will help to guide the child in a positive direction as they get older. (American academy of pediatrics 1999)

Aim and objectives

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common childhood onset psychiatric disorders that affect 2.0 – 14.0% of school age children. The onset is usually by three years of age but the diagnosis is not made until the child is in elementary school. Evaluation of the prevalence of ADHD in school going children can help clinicians to consider the diagnosis of ADHD. Moreover, very few studies had been conducted on this subject. Hence, there is a need to study the difference in prevalence of ADHD among school children of working and non-working mothers. Therefore, this study was conducted to assess the prevalence of ADHD among school children of working and non-working mothers.

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## MATERIALS AND METHODS

This was comparative cross sectional survey, carried out in 120 school children (60 children of working mothers and 60 children of non-working mothers) at selected schools, Ludhiana, Punjab. The sample was chosen by simple random sampling, was comprised of 120 school children with the following inclusion criteria: male and female school children, age group of 6 – 12 years, school children residing with their mothers. Exclusion criteria were: school children not available at the day of data collection, school children of self employed mothers and handicapped, emotionally disturbed children. Validity of socio-demographic sheet was determined by expert's opinion and suggestions on the relevance of items. The tools for data collection have following parts:

### Part I – Socio-Demographic Profile

This part included 11 items to gather information from parents regarding socio-demographic characteristics and family background and these are age, gender, class of study, birth order, type of family, religion, mother's education, father's education, father's occupation, relationship status of parents and socio-economic status.

### Part II - Vanderbilt ADHD Diagnostic Teacher Rating Scale

The Vanderbilt ADHD Diagnostic Teacher Rating Scale screen for symptoms that meet DSM – IV criteria for Inattention ADHD (Questions 1 - 9), Hyperactive ADHD (Questions 10 - 18) and ADHD Combined (Inattention/Hyperactivity) which requires meeting the criteria for both inattention and hyperactivity from above.

### Criterion Measures

The Vanderbilt ADHD Diagnostic Teacher Rating Scale consisted of 18 questions to screen for the symptoms of ADHD. Behaviors are counted if they are scored 2 (often) or 3 (very often).

Inattention	Requires six or more counted behaviors from questions 1–9 for indication of the predominantly inattentive subtype.
Hyperactivity	Requires six or more counted behaviors from questions 10–18 for indication of the predominantly hyperactive/impulsive Sub-type.
Combined subtype	Requires six or more counted behaviors each on both the inattention and hyperactivity/impulsivity dimensions.

Pilot study was conducted in the last week of November 2012, on 1/10<sup>th</sup> of total sample (6 belonging to children of working mothers and 6 from school children of non-working mothers) to ensure the reliability of tool and feasibility of the study. The reliability of the tool was calculated by test-retest method and was found to be 0.77. Before commencing the task of data collection, written permissions were obtained from the Principals of selected schools.

### Procedure

After selecting a total of 120 school children, of which 60 were the school children of working mothers and other 60 were the school children of non-working mothers, school children were screened with ADHD symptoms after administering semi-structured questionnaire to their parents and standardized rating scale i.e., Vanderbilt ADHD Diagnostic Teacher Rating Scale to their class teachers. School children were assessed by their class teachers for the duration of 5 days. Socio-demographic data was collected from parents of selected school children. Socio-demographic sheet was sent to subject's parents with the remarks on the diaries along with researcher's contact number so that the parents could reach to the researcher if they found any problem to fill the questionnaire.

## RESULTS

The analysis of data was done in accordance with the objective of the study. The findings have been organized and presented under following sections:

**Section – I:** Demographic characteristics of sample.

**Section – II:** Comparison of assessment of ADHD among school children of working and non-working mothers.

**Section – III:** Comparison of types of ADHD among school children of working and non-working mothers.

**Section – IV:** Association between the prevalence of ADHD with the selected demographic characteristics.

**Table 1. Comparison of frequency and percentage distribution among school children of working and non-working mothers with their selected demographic variables**

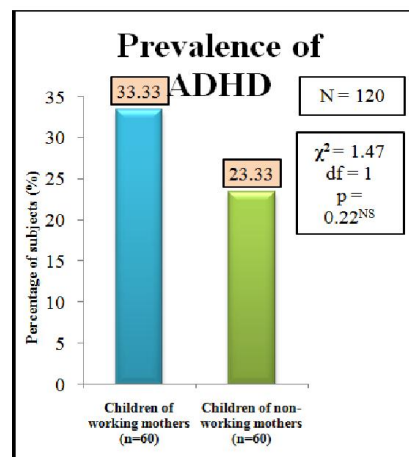
Socio-demographic variables	Children of working mothers (n = 60) f (%)	Children of non-working mothers (n = 60) f (%)	Total f (%)	$\chi^2$ statistics
				N=120
Age				
6-<8	17 (28.33)	18 (30.00)	35 (29.16)	0.05
8-<10	20 (33.33)	19 (31.66)	39 (32.50)	df=2
10-12	23 (38.33)	23 (38.33)	46 (38.33)	p=0.97 <sup>NS</sup>
Gender				
Male	34 (56.66)	31 (51.66)	65 (54.20)	0.30
female	26 (43.33)	29 (48.33)	55 (45.80)	df=1 p=0.58 <sup>NS</sup>
Birth order				
First	26 (43.33)	31 (51.66)	57 (47.50)	0.84
Second	27 (45.00)	23 (38.33)	50 (41.70)	df=2
More than two children	07 (11.66)	06 (10.00)	13 (10.80)	p=0.65 <sup>NS</sup>
Relationship status of parents				
With spouse	51 (85.00)	58 (96.66)	109 (90.8)	3.60 <sup>#</sup>
Separated/divorced	05 (08.33)	01 (01.66)	006 (05.0)	df=1
Widow/widower	04 (06.66)	01 (01.66)	005 (04.2)	p=0.05*

NS: Non-Significant; #: Yates correction; \*: significant ( $p \leq 0.05$  level)

Note: merging up of variable subtype

- With spouse, separated/divorced + widow/widower

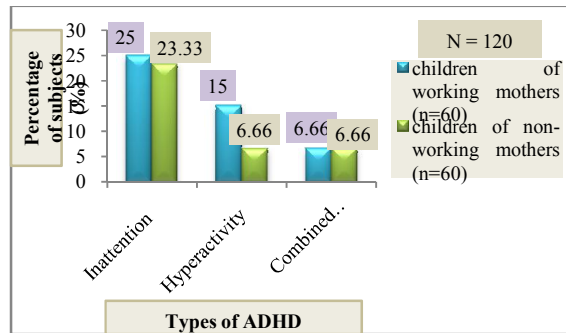
Table 1 show that both the groups were comparable in terms of age, gender, birth order except relationship status of parents.



**Figure 1. Comparison of prevalence of ADHD among school children of working and non-working mothers**

Figure 1 describes that one third of school children of working mothers i.e. 20 (33.33%) had compliant of ADHD, followed by more than one fifth i.e. 14 (23.33%) school children of non-working

mothers. Hence, it reveals that the prevalence of ADHD in school children of working mothers is found to be more as compared to that of school children of non-working mothers. Statistically this difference was not found to be significant at  $p > 0.05$



\*subjects have multiple complaints

**Figure 2. Comparison of prevalence of ADHD among school children of working and non-working mothers**

Figure 2 illustrates the comparison of ADHD in school children of Working and Non-working mothers. Regarding prevalence of ADHD, it reflects that highest and almost equal number i.e. 15 (25.00%) of school children of working mothers and 14 (23.33%) of school children of non-working mothers were found to be having inattention subtype of ADHD, followed by 9 (15.00%) school children of working mothers and 4 (6.66%) school children of non-working mothers, to be affected with hyperactivity / impulsivity subtype of ADHD. Whereas, least an equal number of school children of working and non-working mothers i.e. 4 (6.66%) were found to have combined subtype of ADHD. Hence, it concludes that maximum number of school children had inattention subtype of ADHD among both the groups. However, the findings suggest significant association of age with the prevalence of ADHD among school children of working mothers ( $p < 0.05$ ) and significant association of gender with the prevalence of ADHD among school children of non-working mothers ( $p < 0.05$ ).

## DISCUSSION

The results of our study suggest that the prevalence of ADHD symptoms is high among school children of working mothers as compared to children of non-working mothers. However variations in prevalence figures occur both within and between countries depending on a number of factors, including the diagnostic criteria used, age and gender of the population, socioeconomic status and urban living. The findings of the present study revealed that the overall prevalence of ADHD was 28.33% (34) which was higher than the previous studies conducted in Indian population. A study carried out in Government Institute for Mentally Retarded Children (GIMRC), Chandigarh, by Kaur and Chavan, in 2004, on children attending the early intervention programme, showed 12% prevalence of ADHD. Another study conducted in Kolkata, by Mukhopadhyay and Misra, revealed 15.5% prevalence of ADHD among children of age group 5 – 12 years. In a large study by Bhatia *et al.* (1999) at Delhi reported 11.2% prevalence of ADHD among 3 – 12 years of children. But none of the study has focused on comparison of ADHD among school children of working and non-working mothers. (Kaur *et al.*, 2006; Mukhopadhyay *et al.*, 2003; Bhatia *et al.*, 1999). In the present study prevalence of ADHD was found to be 33.33% and 23.33% in school children of working and non-working mothers respectively. In contrast (Hamed Jamal H Al, *et al.*, 2008) conducted a study to determine the prevalence of ADHD among male primary school children and they examined that school boys whose mothers were housewives had high prevalence i.e. 17.9% as compared to those whose mothers were working i.e. 9.9%. (Hamed *et al.*, 2008).

## Conclusion

The study assumed that the prevalence of ADHD may be higher among school children of working mothers which is supported by the study. There is a difference in the prevalence of ADHD among school children of working and non-working mothers.

## Limitations

Number of school children was less, researcher had to rely on teacher's evaluation of study subjects, multiple school teachers were asked to evaluate school children according to their study class and schools selected for data collection were according to the researcher's convenience which restricts the generalization of the study.

## Conflict of interest

There are no conflicts to be reported for any of the listed authors.

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