



Original Article

# Prevalence of behavioral disorders among preschool children

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## Abstract

**Introduction:** Detailed assessment of behavioral disorders is of high importance, especially in preschool children. The present study aimed to compare the prevalence of behavioral disorders between preschool boys and girls and suggestion about strategies for reduction these problems.

**Materials and Methods:** Statistical community of this descriptive study was all preschool children aged 1.5-7 years residing in Tehran during 2010-11. The study population included 2000 children were selected through multistage sampling. Each child's mother completed the Child Behavior Checklist (CBCL) and the data were analyzed using descriptive statistics, chi square and SPSS software version 18.

**Results:** Total cases are 1977 persons included 957 boys (48.4%) and 1020 girls (51.6%). Findings indicated that attention problem was the most common disorder among preschool boys (6.1%) while emotionally reactive was the most common problem among preschool girls (17.2%). In addition, the most prevalent disorder before age 5 was emotionally reactive (11.3%). The most common disorders between ages 5 to 7 were emotionally reactive (10.7%) and somatic complaints (10.3%). In most of the behavioral problem subscales, girls experienced more problems compared to boys ( $P=0.001$ ).

**Conclusion:** Based on the results, in most of the behavioral problem subscales, girls experienced more problems compared to boys. The prevalence rate of behavioral disorders is relatively high in preschools. The issue therefore requires serious attention from mental health services authorities.

**Keywords:** Behavioral disorders, Children, Prevalence

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## Introduction

Every society needs physically and mentally healthy individuals in order to progress in various socio-economical and cultural domains. In developing countries 50 percent of the population consists of children (1). The well being of this great population is significantly influential on the future health and flourishing of the society and next generations. It is therefore necessary to focus an increased attention on children's mental and physical health in order to take essential measures for preventing and treating psychological and behavioral disorders. Behavioral disorders are common debilitating problems that cause many difficulties for

children and their families. These problems have a broad spectrum including: short attention span, low self-esteem, low social competence and problems in communication with family members and friends (2,3).

Childhood has been recognized as a significant life stage laying the foundations for future personality. Most disorders and behavioral maladjustments result from neglecting the sensitive period of childhood and a lack of correct guidance in the process of development.

The onset of many behavioral problems is during the preschool age and they continue to prevail in further developmental stages (4). Hence the diagnosis and treatment of behavior disorders in preschool children is of high importance (5). If not diagnosed and treated early on, there is a high risk of serious behavioral problems (6,7), poor social skills

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(3) and educational problems (4) for these children in future. Furthermore, experimental studies have demonstrated that children who exhibit symptoms of behavioral disorders experience more peer rejection, which in turn may lead to their engagement in antisocial behaviors in early adolescence and also to the development of externalizing behavioral problems (10).

Epidemiology, often known as the cornerstone of public health practice, is crucial for the identification and diagnosis of behavioral disorders in the general population. Estimating the prevalence rate of behavior disorders is also an important step towards the development of comprehensive public health plans and prevention strategies.

Although previous studies (11-13) have revealed the long-term benefits of early detection and diagnosis of behavioral disorders in school settings, there is a paucity of research regarding the epidemiology of behavioral disorders among preschool children (14) and most of the studies have focused on children elder than 6 years.

The World Health Organization (WHO) has reported a prevalence rate of 5 to 15% for mental health problems among children aged 2 to 5 in developing countries (15). In Wogelius's cross-sectional study, the prevalence rate of anxiety disorders was found to be about 5.7% among children aged 6 to 8 (16).

Overall according to the prevalence rates marking an increase in the number of children experiencing behavioral problems, and given the fact that behavioral problems have a detrimental influence on various personal and social domains of children's lives, neglecting the issue may result in the further increase and persistence of children's disorders. In this regard, any efficient preventative measure would require an assessment of the pervasiveness of problems and the type and extent of services needed by the public.

Despite the exigent need for detailed epidemiological assessments in this area, research is scarce on the pervasiveness of behavioral disorders among preschool children in Iran. The goal of the present study was therefore to investigate common behavioral problems and their prevalence among preschool children of Tehran.

### Materials and Methods

This descriptive sectional study was performed on preschool children aged 1.5 to 7 in Tehran during 2010-2011. The study population consisted of 957 boys (48.4%) and 1020 girls (51.6%) who were

selected by multi-stage sampling.

The sample size was defined as 2000 subjects based on Morgan's sampling table, which, dropout rate was (27 subjects). According to Morgan's formula, when the population size is more than 100000 the sample size must be equal to or more than 365 individuals (17). Since the proportion of the target population was unequal in terms of sex and city area (North, West, East, South and inner-city area) five equal samples of 400 individuals were drawn from each area, maintaining an equal proportion of both sexes in order to be representative of the real population.

### Research instruments

- *Child Behavior Checklist (CBCL)*: The Child Behavior Checklist (CBCL) developed by Achenbach (18,19) consists of 99 items evaluating behaviors of children aged 1.5-7 years within the past 6 months. Mothers completed the Farsi version of CBCL, normalized and translated by Mohammad Esmaeel (20). In addition to a total problems score, CBCL contains 2 broadband scales (externalizing problems and internalizing problems) and 8 narrow-band syndrome scales including: Emotionally reactive, somatic complaints, anxiety/depression, withdrawal, sleep problems, attention problems, aggressive behaviors, and other problems. The latter involves a range of heterogeneous problems including jealousy, disobedience, food refusal, over eating, overweight, nail biting, nightmares, etc. Good test-retest reliability was found with correlation coefficients ranging from 0.37 to 0.91 for each individual item. The average test-retest reliability coefficients for the total competence score and the total problems score were 0.80 and 0.79 respectively (21). In the test re-test analyses (n=89) conducted by Achenbach, Dumenci, and Rescorla (22) with a two-week interval, a test-retest coefficient of 0.87 was reported for behavioral problems.

In order to differentiate between the prevalence of behavioral problems with regard to sex and age groups (1.5-5 and 5-7 years old) chi-square test was conducted and data were analyzed by SPSS-18.

### Results

Total cases included 1977 persons that 957 persons of them were boy (48.4%) and 1020 persons were girl (51.6%).

The results of prevalence of behavioral problems between preschool girls and boys have been presented in Table 1.

**Table 1.** Differences in the prevalence rate of behavioral problems between preschool children based on gender

	Without disorder		With disorder		Total		x <sup>2</sup>	df	P
	Freq	Percent	Freq	Percent	Freq	Percent			
Anxiety/depression									
Boy	848	97.1	25	2.9	873	100			
Girl	902	89.9	101	10.1	1003	100			
Total	1750	93.3	126	6.7	1876	100	38.68	1	<0.001
Withdrawal									
Boy	862	98.7	11	1.3	873	100			
Girl	907	90.4	94	9.6	1003	100			
Total	1769	94.3	107	5.7	1876	100	59.94	1	<0.001
Somatic complaints									
Boy	851	97.7	20	2.3	871	100			
Girl	838	83.5	165	16.5	1003	100			
Total	1689	90.1	185	9.9	1874	100	104.97	1	<0.001
Sleep problems									
Boy	864	99.0	9	1.0	873	100			
Girl	884	88.1	119	11.9	1003	100			
Total	1748	93.2	128	6.8	1876	100	86.16	1	<0.001
Emotionally reactive									
Boy	840	96.1	34	3.9	874	100			
Girl	830	82.8	173	17.2	1003	100			
Total	1670	89.0	207	11.0	1877	100	84.93	1	<0.001
Attention problems									
Boy	821	93.9	53	6.1	874	100			
Girl	895	89.2	108	10.8	1003	100			
Total	1716	91.4	161	8.6	1877	100	13.16	1	<0.001
Aggressive behaviors									
Boy	842	96.4	31	3.6	873	100			
Girl	966	96.3	37	3.7	1003	100			
Total	1808	96.4	68	3.6	1876	100	0.02	1	0.87

As evident in Table 1, the most common disorder among preschool boys was attention disorder (6.1%), while the most common disorder among preschool girls was emotionally reactive (17.2%). Findings revealed significant gender differences in behavioral problems (p<0.01) except in the

aggressive behaviors subscale.

Chi-square test was performed to comparatively examine the prevalence of behavioral problems' in the two age groups of before 5 and 5 to 7 years old. The results are displayed in table 2.

**Table 2.** Differences in the prevalence rate of behavioral problems across age groups

	Without disorder		With disorder		Total		x <sup>2</sup>	df	P
	Freq	Percent	Freq	Percent	Freq	Percent			
Anxiety/depression									
1.5-5	846	93.2	62	6.8	908	100			
5-7	904	93.4	64	6.6	968	100			
Total	1750	93.3	126	6.7	1876	100	0.85	1	0.85
Withdrawn									
1.5-5	859	94.6	49	5.4	908	100			
5-7	910	94.0	58	6.0	968	100			
Total	1769	94.3	107	5.7	1876	100	0.58	1	0.31
Somatic complaints									
1.5-5	821	90.6	85	9.4	906	100			
5-7	868	89.7	100	10.3	968	100			
Total	1689	90.1	185	9.9	1874	100	0.55	1	0.47
Sleep problems									
1.5-5	852	93.8	56	6.2	908	100			
5-7	896	92.6	72	7.4	968	100			
Total	1748	93.2	128	6.8	1876	100	0.27	1	1.19
Emotionally reactive									
1.5-5	840	96.1	34	3.9	874	100			
5-7	830	82.8	173	17.2	1003	100			
Total	1670	89.0	207	11.0	1877	100	0.67	1	0.18
Attention problems									
1.5-5	841	92.5	68	5.7	909	100			
5-7	875	90.4	93	9.6	968	100			

Total	1716	91.4	161	8.6	1877	100	0.10	1	2.70
Aggressive behaviors									
1.5-5	873	96.1	35	3.9	908	100			
5-7	935	96.6	33	3.4	968	100			
Total	1808	96.4	68	3.6	1876	100	0.60	1	0.27

As evident in Table 2, the most common disorder before age 5 was emotionally reactive (11.3%) and the most common disorders between ages 5 to 7 were emotionally reactive (10.7%) and somatic complaints (10.3%). No significant differences were evident for the prevalence of behavioral problems between the two age groups.

Chi-square test was conducted in order to assess the prevalence of behavioral problems among preschoolers according to father's occupation. The results indicated that emotionally reactive was the most common disorder in preschoolers whether their fathers were government employees (9.2%) or self-

employed (11.5%). No significant difference was found for the prevalence of behavioral problems between the two groups.

A chi-square test was also used to assess the prevalence of behavioral problems among preschoolers according to mother's occupation. The results are exhibited in table 3.

As seen in table 3, emotionally reactive was the most common disorder both in children of housewife mothers (11.1%) and employed mothers (11.2%). There was no significant difference for the prevalence of behavioral problems between the two groups.

**Table 3.** Differences in the prevalence rate of behavioral problems according to mother's occupation

	Without disorder		With disorder		Total		$\chi^2$	df	P
	Freq	Percent	Freq	Percent	Freq	Percent			
Anxiety/depression									
Un-employed	1521	93.2	111	6.8	1632	100			
Employee	143	94.1	9	5.9	152	100			
Total	1750	39.3	120	6.7	1784	100	0.52	1	0.37
Withdrawn									
Un-employed	1540	94.4	92	5.6	1632	100			
Employee	144	94.7	8	5.3	152	100			
Total	1684	94.4	100	5.6	1784	100	0.49	1	0.47
Somatic complaints									
Un-employed	1468	90.1	162	9.9	1630	100			
Employee	141	92.8	11	7.2	152	100			
Total	1609	90.3	173	9.7	1782	100	0.52	1	0.40
Sleep problems									
Un-employed	1521	93.2	111	6.8	1632	100			
Employee	142	93.4	10	6.6	152	100			
Total	1663	93.2	121	6.8	1784	100	0.74	1	0.10
Emotionally reactive									
Un-employed	1452	88.9	181	11.1	1633	100			
Employee	136	89.5	16	10.5	152	100			
Total	1588	89.0	197	11.0	1785	100	0.15	1	2.04
Attention problems									
Un-employed	1498	91.7	135	8.3	1633	100			
Employee	135	88.8	17	11.2	152	100			
Total	1633	91.5	152	8.5	1785	100	1.64	1	0.21
Aggressive behaviors									
Un-employed	1571	96.3	61	3.7	1632	100			
Employee	150	98.7	2	1.3	152	100			
Total	1721	96.5	63	3.5	1784	100	1.84	1	0.17

## Discussion

This study was conducted to investigate common behavioral problems and their prevalence rate in preschool children of Tehran. Findings demonstrated that attention deficit was the most common disorder among preschool boys (6.1%) while emotionally reactive was the most common disorder among preschool girls (17.2%). This was consistent with the findings of Syed, Hussein, and

Heidary (23) who reported that emotionally reactive was the most common diagnosis in girls. In addition, significant differences were evident between boys and girls in all subscales of behavioral problems except for aggressive behaviors. This result was in line with result of Syed, Hussein and Heidary (23), Syed, Hussein and Mahmud (24) and Samarakkody et al. (25).

According to the results, the most common

disorder before age 5 was emotionally reactive (11.3%) whereas the most common disorders between ages 5 to 7 were emotionally reactive (10.7%) and somatic complaints (10.3%). There was no significant difference in the prevalence rate of behavioral problems between ages 1.5 to 5 and 5 to 7 years old.

Emotionally reactive was the most common disorder among preschoolers, whether their father was a government employee (9.2%) or self-employed (11.5%). No significant difference was reported for the prevalence of behavioral problems between the two groups. This result did not conform to findings by previous observers such as Prior, Virasinghe and Smart (26), Sawyer et al. (27), and Samarakkody (25) denoting that the prevalence of behavioral problems is related to socioeconomic status, and furthermore that father's occupation is one of the most important factors in determining the socioeconomic status of a family.

The findings also indicated that the most common disorder in both children of housewife mothers (11.1%) and employed mothers (11.2%) was emotionally reactive. No significant difference was found between the prevalence of behavioral disorders between the two groups. This was consistent with findings of Syed, Hussein, Mahmood (24). Previous research has also reported a link between socio-economic status and the prevalence of behavioral disorders (25-27).

An investigation of the prevalence of behavioral disorders in Khorramabad, Iran, indicated that 73% of urban and 68% of rural preschool children met the criteria for at least one sub-type of behavioral disorders (28). In another study in Hamedan, Iran, the prevalence rates of attention deficit disorder and aggressive behavior were both reported approximately to be 15% among school children (29). In Taiwan, the prevalence rate of behavioral disorders in children aged 24 to 71 months has been estimated about 25% (30).

To sum up, it appears that many preschool children in Iran suffer from some type of behavioral problem

and it is hence necessary for mental health service authorities to devote attention to this area of concern. In this regard, a detailed and comprehensive nationwide program for the promotion of public mental health status is required. It is therefore crucial to screen behavioral problems in children before age 5 through interviews and questionnaires completed by parents in order to prevent and treat disorders. In addition, training parents in mental health issues and parenting skills can be influential particularly for parents with low levels of education. The fact that national media play a key role in promoting the community's basic knowledge of mental health issues is inescapable.

One of the limitations of the present study was the unwillingness of some parents to participate. It is likely that these parents had children with behavioral problems and their absence thus might have exerted an influence on the final results.

Good communication between parents, kindergartens, and schools in order to assess children's mental health and also providing mental health services in schools and kindergartens for the prevention, early diagnosis and treatment of behavioral disorders in children seems necessary. In addition, training parents in mental health issues and familiarizing them with the stages of children's psychological development must be taken into consideration.

### Conclusion

Based on the results, in most of the behavioral problem subscales, girls experienced more problems compared to boys. The prevalence rate of behavioral disorders is relatively high in preschools. The issue therefore requires serious attention from mental health services authorities.

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