

## Frequency of Psychological Disorders amongst Children in Urban Areas of Tehran

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**Objective:** To evaluate the frequency of different psychiatric disorders among 7 to 12 years old children in urban areas of Tehran.

**Method:** A sample of 799 children (6 to 11 years old) were selected from 250 clusters of the entire 22 municipality areas of Tehran using a multistage sampling method from 250 clusters from the entire 22 municipality areas of Tehran. After responding to a Persian version of the Strengths and Difficulties Questionnaire (SDQ) parent-report form, the Persian version of Kiddie Schedule for Affective Disorders and Schizophrenia – Present and Lifetime (K-SADS-PL) was administered to 241 children and their families. The frequency of child psychological disorders was determined using the results of K-SADS-PL.

**Results:** The overall frequency of any psychological disorders in the sample of children was 17.9 percent. Among the interviewed children who were interviewed, the most prevalent diagnoses were Attention-Deficit/Hyperactivity Disorder (ADHD) (8.6 percent), Oppositional Defiant Disorder (ODD) (7.3 percent), and separation anxiety disorder (SAD) (5.9 percent). There were not any statistically significant differences between sexes in the frequency of psychological disorders except enuresis that was more frequent in the boys and anorexia nervosa that was observed more frequently in the girls .

**Conclusion:** Higher frequency of ADHD and ODD and SAD among the studied children warrants more specific evaluation of frequency and possible causes of these high frequency rates. The frequency of psychological disorders in the studied children was comparable to the that of other studies.

**Keywords:** Children, Epidemiology, Mental disorders, Urban population

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Psychological community studies are helpful in evaluating the socio-demographic correlates of mental disorders in a given community (1). Social, Cultural, political, and economical changes may influence physical and mental health of children and adolescents (2). On the other hand, the psychological disorders are relatively costly (3). Although psychological disorders were known for centuries, it was only at the recent decades that statistical methods were used to determine their exact frequencies (4).

Studies about frequency of child and adolescent psychological disorders in different parts of the world are very different and diverse. For example, a review about frequency of behavioral and emotional problems in developing countries showed that frequency of child psychological disorders in large cities is 10 to 20 percent that is equal to those of developed countries (5). In four studies in India, Columbia, Philippines, and Sudan, the frequency of psychological disorders reported to be 12 to 29 percent (6). In the other words, as Fleitlich-Bilyk and Goodman noted in their study in

Brazil, at least one in 8 school aged children have major psychological disorders that cause distress or social impairment (7). Abou-Saleh, Ghubash, and Daradkeh, in a study at 2001 reported that the frequency of ICD-10 psychological disorders at Al-Ain, United Arab Emirates, is equal to 8.2 percent (8). These frequencies in Nigeria were about 15 percent , and the most frequent disorders included those with emotional and conduct problems (9). In a study conducted in the United States, it has been reported that 5 percent of 7 to 14 year- old children had significant behavioral or emotional disorders that had impact on their functioning, learning, friendship, family life and leisure activities (10). In a study from Norway, it was reported that one third of the children had minor perceived problems and about 5 percent had definite or severe disorders (11).

Iran as a developing country is undergoing significant social, cultural, and economic changes that can influence its populations' mental health status. According to recent surveys, Iran has a population of

about 70 million; more than 20 percent of which is below 20 years of age; and some of them suffer from psychological disorders and need mental health services. Unfortunately, no estimation exists on the frequency of child psychological disorders in Iran, and the only available data are gathered by the authors (12, 13). Therefore, the researchers decided to evaluate the frequency of psychological disorders in a community sample of children from different municipality areas of Tehran.

## Methods and Materials

### Participants

The cases were selected by multistage, cluster sampling method. The studied population included all of the children between 6 to 11 years of age in all of the municipality areas of Tehran. The cases were selected from 250 clusters of the 22 municipality areas of Tehran, proposed by Iran National Statistics Organization according to their population. The locations and directions of moving in the course of samplings were defined exactly using a detailed 1:14000 map of Tehran (14). A Persian version of the Strength and Difficulties Questionnaire (SDQ) parent-report form was used as the screening tool. The children who had scores in the total problem score or each of the subscales higher than the cutoff points higher than what was proposed by Goodman et al (15) were referred for further evaluation. The evaluation was done using the Persian version of Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Life-time (K-SADS-PL).

### Study design

Cases were selected from each cluster from both sexes, among each age group (6-8 and 9-11 year olds). Using the sampling protocol of the study, the cases were found by one of the 6 teams consisting of two clinical psychologists of both sexes. The clinical psychologists were instructed to complete the SDQ and achieved high inter-rater reliability after completing 5 questionnaires by the presence of the fellow of child and adolescent psychiatry in 3 consecutive sessions. They were also instructed on the sampling protocol and detailed locations of the clusters. After describing the objectives of the study to the parents of children and obtaining their oral consent, the examiners filled out the Persian version of the parent-report form of SDQ for each case. If the participants had any complaints about probable psychopathologies, they were instructed to refer to one of the child and adolescent psychiatrists collaborating in the study and their first session of the treatment was free of charge. The cases that had scores over the previously determined and validated cutoff points for the total score by Goodman et al. (15) and each of the subscales of SDQ were determined. In the case of any deficiency in the SDQ answer sheet, the case was excluded from the study.

After evaluating the results of SDQ, the children with total or subscale scores higher and a random sample of

the children with scores lower than cutoff points proposed by Goodman et al. were selected (15). These children and their families were evaluated by the fellow of child and adolescent psychiatry or one of the child and adolescent psychiatrists using the Persian version of K-SADS-PL in the psychiatry and psychology research center of Tehran University of Medical Sciences.

In the case that the children or their families did not show up to the research center, a team consisting of two clinical psychologists referred to the children's home and interviewed the children and their parents for evaluation.

### Instruments

The Strength and Difficulties Questionnaire (SDQ) was used as a structured questionnaire for screening children's psychological problems. This questionnaire contains 25 questions that consist of 5 subscales including emotional, hyperactivity, peer relationship, and conduct problems and pro-social behaviors with 5 items in each. The sum of the first four subscales consist of the total difficulty score (15). The questionnaire has 3 forms: parent-report, teacher-report and self-report form. The parent-report form was used for the participating children.

A Persian translation of the K-SADS-PL was used as a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children according to DSM-III-R and DSM-IV criteria. Probes and objective criteria are provided to rate individual symptoms. The primary diagnoses assessed with the K-SADS-PL include: Major Depression, Dysthymia, Mania, Hypomania, Cyclothymia, Bipolar Disorders, Schizoaffective Disorders, Schizophrenia, Schizophreniform Disorder, Brief Reactive Psychosis, Panic Disorder, Agoraphobia, Separation Anxiety Disorder, Avoidant Disorder of Childhood and Adolescence, Simple Phobia, Social Phobia, Overanxious Disorder, Generalized Anxiety Disorder, Obsessive Compulsive Disorder, Attention Deficit Hyperactivity Disorder, Conduct Disorder, Oppositional Defiant Disorder, Enuresis, Encopresis, Anorexia Nervosa, Bulimia, Transient Tic Disorder, Tourette's Disorder, Chronic Motor or Vocal Tic Disorder, Alcohol Abuse, Substance Abuse, Post-Traumatic Stress Disorder, and Adjustment Disorders. The K-SADS-PL was administered by interviewing the parent(s), and the child; and finally summary ratings which include all sources of information were obtained. The reliability and validity of the Persian translation had been established in Iran before (16).

### Statistical analysis

To evaluate the probable relationships between the demographic factors and occurrence of psychological disorders, t-student and Chi square tests were used when appropriate. The statistical analyses were done using SPSS-Win 15. Significance levels determined to be equal to 0.05.

**Results**

The present study is a descriptive-analytical one that was performed on children between 6 to 11 years of age in all of the 22 municipality areas of Tehran during 2007. The parent-report form of SDQ was filled completely for 799 cases. Among the studied children, 408 (51.1 percent) were female and 391 (48.9) were male. The mean age of the participants in this study was 8.9±1.43 years. The mean age of the male and female participants did not differ significantly (P > 0.05). Among them, 207 children collaborated in the second phase of the study and could be interviewed by K-SADS-PL. Thirty four children with scores lower than Goodman's cutoff points were interviewed as well. Among the studied children, 206 (25.8 percent; 107 male and 99 female) had total problem scores higher than 17 in their SDQ (Table 1). As demonstrated in

Table 1, there were not any statistically significant differences in various problem scores of SDQ between sexes. The overall frequency of any psychological disorders in the studied children was 17.9 percent (Table 2).

Among the children who were interviewed, the most prevalent diagnoses were Attention-Deficit/Hyperactivity Disorder (8.6%), Oppositional Defiant Disorder (7.3 %), and separation anxiety disorder (5.9%). The possible relationship between high SDQ scores and different disorders were evaluated and are shown in table 3. The total problem score scale and different SDQ subscales scores between responders and non-responders were compared and no significant differences were found.

**Table1. Frequency of Tehran children with scores higher than Goodman's cutoff points in the subscales of the Strength and Difficulties Questionnaire, parent-report form.**

	Cutoff point	Total N (%)	Male N (%)	Female N (%)	Significance (between sexes)
Emotional problem	5	168 (21.0)	75 (19.2)	93 (22.8)	NS
Conduct problem	4	282 (35.3)	134 (34.3)	148 (36.3)	NS
Hyperactivity	7	173 (21.7)	94 (24.0)	79 (19.4)	NS
Peer problem	3	179 (22.4)	97 (24.8)	82 (20.1)	NS
Total difficulty	17	206 (25.8)	107 (27.4)	99 (24.3)	NS
Prosocial behavior	4	12 (1.5)	9 (2.3)	3 (0.7)	NS

**Table 2. Frequency of different psychological disorders in Tehran Children**

Disorders	Total N (%)	Boys N (%)	Girls N (%)	Significance (between sexes)
Depression Disorder	36 (4.5)	17 (4.3)	19 (4.7)	NS
Bipolar Disorder	14 (1.8)	6 (1.5)	8 (2.0)	NS
Psychosis Disorder	5 (0.6)	1 (0.3)	4 (1.0)	NS
Panic Disorder	5 (0.6)	1 (0.3)	4 (1.0)	NS
Separation Anxiety Disorder	47 (5.9)	21 (5.4)	26 (6.4)	NS
Social phobia	24 (3.0)	12 (3.1)	12 (2.9)	NS
Phobias	31 (3.9)	12 (3.1)	19 (4.7)	NS
Generalized Anxiety Disorder	35 (4.4)	16 (4.1)	19 (4.7)	NS
Obsessive Compulsive Disorder	17 (2.1)	9 (2.3)	8 (2.0)	NS
Enuresis	24 (3.0)	17 (4.3)	7 (1.7)	0.031
Anorexia	14 (1.8)	1 (0.3)	13 (3.2)	0.001
Bulimia	11 (1.4)	7 (1.8)	4 (1.0)	NS
Attention Deficit Hyperactivity Disorder	69 (8.6)	38 (9.7)	31 (7.6)	NS
Oppositional Defiant Disorder	58 (7.3)	32 (8.2)	26 (6.4)	NS
Conduct Disorder	21 (2.6)	13 (3.3)	8 (2.0)	NS
Tic Disorders	5 (0.6)	4 (1.0)	1 (0.2)	NS
Substance Disorder	2 (0.3)	1 (0.3)	1 (0.2)	NS
Post Traumatic Stress Disorder	9 (1.1)	3 (0.8)	6 (1.5)	NS

**Table 3. The relationship between high scores in the SDQ subscales and different disorders in Tehran Children**

Subscale	Disorders
Total difficulty	Depressive disorders, Panic disorder, Enuresis, Bulimia, Oppositional defiant disorder, Conduct disorder, Tic Disorder
Emotional problems	Depressive disorders, Panic disorder, Generalized anxiety disorder, Obsessive-compulsive disorder, Bulimia, Conduct disorder, Tic Disorder
Hyperactivity	Generalized anxiety disorder, Attention- deficit/Hyperactivity disorder, Oppositional defiant disorder
Prosocial Behavior	Depressive disorders, Separation anxiety disorder.

## Discussion

In this study, the frequency of different psychological disorders in a community sample of children in Tehran was evaluated. There were not any statistically significant differences in the age distribution of the studied children in either sex ; this makes the comparisons between the sex groups possible.

The overall frequency of psychological disorders in the studied population was equal to that of other studies (7, 9, 16-21). However, the frequencies of some disorders (such as ADHD, ODD or CD) were higher than some previous reports. The rapid pace of cultural changes in Iran as a developing country and the ongoing shifts in the socio-cultural behaviors are factors that may produce some problematic behaviors. However, similar reports regarding the frequency of the above mentioned disorders exist in some studies (18).

In Nigeria, the overall frequency of psychological morbidity was found to be 15.0% (9). In our study, like the study by Abiodun in Nigeria (9), emotional and behavioral disorders constituted the majority of identified psychological cases.

In another study, approximately one in eight school children in the study area in the southeast of Brazil have psychological disorders involving a level of distress or social impairment likely to warrant treatment (7). In a study from Puerto Rico, although 19.8% of the sample met the DSM-IV criteria without considering impairment, 16.4% of the population had 1 or more of the DSM-IV disorders when a measure of impairment specific to each diagnosis was considered. The most prevalent disorders were attention-deficit/hyperactivity disorder (8.0%) and oppositional defiant disorder (5.5%).

In Al-Ain, 23.9% of children were reported to have a mental health problem by either the parent or the school health physician (18), and this is higher than our report. Boys were more often reported to be having problems than girls (1.8:1). This finding is also different with ours. They used the Rutter A2 scale for parents; and the frequency estimate for behavioral disorders was 16.5%. The weighted frequency for DSM-IV disorders was 10.4% for the entire population. The presence of certain culture-specific risk factors such as male gender, number of children in the household, polygamy, and low socioeconomic status were identified for psychological disorders. They concluded that the frequency rates of children' psychological disorders and the symptomatology observed in this Middle East community are similar to those reported in Western studies (18). The observed differences in their study with our results may be due to differences in the studied populations or the scales used.

In Denmark, the overall estimated frequency rate of child psychopathology was 11.8 %. ADHD was found to be the most common specific child psychological disorder. There were no differences in frequency rates between respondents and non-respondents.

The estimated frequency rates were broadly comparable to frequency rates found in other epidemiological studies. The teacher-based interview proved to be a valid instrument for the assessment of non-respondents. (19)

In Australia, 14 percent of children and adolescents were identified as having mental health problems. Many of those with mental health problems had problems in other areas of their lives and were at increased risk for suicidal behaviors. Only 25% of those with mental health problems had attended a professional service during the six months prior to the survey (20).

In another study by Costello et al., although 3-month frequency of any disorder averaged 13.3% during the study period, 36.7% of the participants (31% of girls and 42% of boys) had at least 1 psychological disorder. Some disorders (social anxiety, panic, depression, and substance abuse) increased in frequency with increasing age, whereas others, including separation anxiety disorder and attention-deficit/hyperactivity disorder (ADHD) decreased (21). The results of this study support this idea.

In another multistage study in Finland, the overall frequency of psychological disorders in a sample of 8 and 9 year-old children was 21.8 percent. Like our study, ADHD was the most prevalent diagnosis (22).

## Limitations

Among the 443 children with high SDQ scores, only 207 participated in the second phase of the study. This response rate is lower than ideal and may cause lower estimations of the frequency of psychological disorders than it could really be. Most of the similar reports faced similar problems. The response rate increased by referring to children's home but problems such as displacement, going on trips or lack of cooperation remained.

## Conclusion

The overall frequency of psychological disorders in the studied children was comparable to that of other studies. ADHD was the most prevalent diagnosis. However, higher frequency of ODD and SAD among the studied children warrants more specific evaluation of frequency and possible causes of these high frequency rates.

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