Prevalence of Psychiatric Disorders amongst Adolescents in Tehran

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Objective: The aim of the present study was to determine the prevalence of different psychiatric disorders among 12 to 17 years old adolescents in urban areas of Tehran.
Method: In this study, 1105 adolescents (12 -17 years old) were selected from 250 clusters of the entire 22 municipality areas of Tehran using a multistage sampling method. After responding to the Farsi version of the Strengths and Difficulties Questionnaire self-report version, the Farsi version of the Kiddie Schedule for Affective Disorders and Schizophrenia – Present and Lifetime version (K-SADS-PL) was administered to 273 adolescents and their families. The prevalence of adolescent psychiatric disorders was determined using the results of K-SADS-PL.
Results: There were not any statistically significant differences between the sexes in the frequency of psychiatric disorders except for ADHD which was observed more frequently in boys. The most prevalent psychiatric disorders were attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder, depressive disorders and separation anxiety disorder.
Conclusion: The frequency of psychiatric disorders among the adolescents in Tehran's urban areas was comparable to the reports from other countries. However, using methods to deal with missing data makes these prevalence rates somehow higher.

Keywords: *Adolescent, Iran, Mental disorders, Prevalence*

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Psychiatric community studies are necessary for planning and developing psychiatric services and are helpful in evaluating the socio-demographic correlations 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). Emotional and behavioral problems of children and adolescent populations cause significant distress for them and their families, and have potential economic and social impacts on their lives(3, 4).

Studies on prevalence of child and adolescent psychiatric disorders in different parts of the world present very different and diverse reports. For example, in a study by Suzuki et al., in Japan, 14.8 percent of the adolescents at the beginning of high school had at least one psychiatric disorder (20.1 percent in male and 8.3 percent in female students). They could not find any cases of schizophrenia and anorexia nervosa (5). In a study conducted by Abou-Saleh, Ghubash, and Daradkeh, in 2001, it was reported that the frequency of ICD-10 psychiatric disorders at Al-Ain of United Arab Emirates (UAE) was equal to 8.2 percent (6). Further et al., reported that 15.6 percent of 12 -15 year-old Irish adolescents met the criteria for a current psychiatric disorder (7). The most prevalent disorders in their report were affective disorders (4.5%), anxiety disorders (3.7%) and attention-deficit/hyperactivity disorder (ADHD) (3.7%). The prevalence of psychiatric disorders in four studies in India, Columbia, Philippines, and Sudan, was reported to be 12 to 29 percent (8). In a study in the United States it was reported that 5 percent of 7 to 14 year- old children had significant behavioral or emotional disorders that influenced their functioning, learning, friendship and family life and leisure activities (3). In a study in Norway, it was reported that one third of children had minor perceived problems; and about 5 percent had definite or severe disorders(9).

Iran, as a developing country, is undergoing significant social, cultural, and economic changes that all can influence its population's mental health status. According to recent surveys, Iran has a population of about 70 million of which more than 20 percent

are below 20 years old; and some of these adolescents suffer from psychiatric disorders and need mental health services. Unfortunately, there is no estimation regarding the prevalence of child and adolescent psychiatric disorders in Iran. The only available data are from small-sized (10). Therefore, the researchers decided to evaluate the frequency of psychiatric disorders in a community sample of adolescents from different municipality areas of Tehran.

Materials and Method

Participants

The cases were selected by multistage, cluster sampling method. The studied population included all the adolescents between 12 - 17 years of age in all 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 sampling were precisely defined using a detailed 1:14000 map of Tehran (11). The Persian version of the Strength and Difficulties Questionnaire (SDQ) self-report form was used as the screening tool. The adolescents whose scores in the total problem score or each of the subscales were higher than the cutoff points proposed by Goodman et al., (12), were referred for further evaluation for Affective Disorders and Schizophrenia-Present and Life-time version using the Kiddie-Schedule.

Study design

The cases were selected from both sexes and from each cluster, among the age groups of 12-14 and 15-17 years old. Using the sampling protocol of the study, 6 teams consisting of two clinical psychologists of both sexes found the cases.

The clinical psychologists were trained to use SDQ by a fellow of child and adolescent psychiatry. They were also instructed regarding the sampling protocol and the detailed locations of the clusters. After the objectives of the study were described to the parents of children and their oral consent was obtained, the participants filled out the self-report form of the SDQ.

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 the 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 (12) 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 adolescents with total or subscale scores higher and a random sample of the adolescents with scores lower than the cutoff points proposed by Goodman (12) were selected. These adolescents and their families were evaluated by a fellow of child and adolescent psychiatry or one of the child and adolescent psychiatrists using Kiddie Schedule for Affective Disorders and Schizophrenia–Present and Lifetime version (K-SADS-PL) in the Psychiatry and Psychology Research Center.

In the case that the adolescents or their families did not come to the research center for evaluation, a team consisting of two clinical psychologists referred to the adolescents' home and interviewed the adolescent and his/her family.

Instruments

The Strength and Difficulties Questionnaire (SDQ) was used as a structured questionnaire for screening the adolescents' psychiatric problems. This questionnaire contains 25 questions and 5 subscales including emotional, hyperactivity, relationship, conduct problems and pro-social behaviors with 5 items in each. The sum of the first four subscales consists the total difficulty score (12). The questionnaire has 3 forms: parent-report, teacher-report and self-report form. The self-report form was applied for the adolescents older than 12 years. The validity and reliability of the Persian version have been assessed previously (13).

The 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 adolescents according to DSM-III-R and DSM-IV criteria. Probes and objective criteria were 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 (ADHD), Conduct Disorder (CD), Oppositional Defiant Disorder (ODD), 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), the children, and finally achieving summary ratings which included all the sources of information. The reliability and validity of the Persian translation was established in Iran before this study was conducted (14, 15).

Statistical analysis

To evaluate the probable relationships between the demographic factors and occurrence of psychiatric disorders, T-student and Chi square tests were used when appropriate. The statistical analyses were done using SPSS-Win 15.0 (release 15.0). Significance levels determined to be equal to 0.05.

Results

The present study is a descriptive-analytical one that was performed on the adolescents between 12- 17 years of age in all the 22 municipality areas of Tehran during 2007. One thousand- one hundred six cases filled the self-report form of SDQ completely. Among the studied adolescents, 552 were female and 554 were male. The mean age of the participants in this study was 14.97±1.99 years. The mean age of the male and female participants did not differ significantly.

One-hundred fifty one adolescents (68 male and 83 female) had total problem scores higher than 20 in their SDQ (Table 1). As shown in Table 1, emotional problems and peer problems of SDQ significantly differed between boys and girls. However, in the other subscales the differences were not statistically significant. Among these adolescents, 443 had total or subscale scores higher than Goodman's cutoff points; among them 193 adolescents (43.6 percent) collaborated in the second phase of the study and could be interviewed by K-SADS-PL. Eighty adolescents with scores lower than Goodman's cutoff points were interviewed too.

The overall frequency of any psychiatric disorder in the studied adolescents was 14.2 percent (Table 2). Among the adolescents who were interviewed, the most prevalent diagnoses were attention-deficit/hyperactivity disorder (8.3 percent); oppositional defiant disorder (7.1 percent); depressive disorders (4.9 percent); separation anxiety disorder (4.8 percent); and generalized anxiety disorder (4.6 percent). The possible relationship between high SDQ scores and different disorders was evaluated and is shown in Table 3.

Only 43.6 percent of the adolescents with high problem scores in SDQ participated in the K-SADS-PL interview. These adolescents were compared with the non-respondent group regarding age, demographic features and any statistically significant differences that could be found between them. The total problem score scale and scores of different SDQ subscales between the responders and non-responders were compared , and no significant differences were found .

Table 1. Frequency of adolescents with scores higher than Goodman's cutoff points in different subscale of the Strength and Difficulties Questionnaire – self report form.

	Cut point	Total N (%)	Male N (%)	Female N (%)	Significance (between genders)
Emotional problem	7	79 (7.1)	30 (5.4)	49 (8.9)	0.027
Conduct problem	5	245 (22.2)	126 (22.7)	119 (21.6)	NS
Hyperactivity	7	167 (15.1)	93 (16.8)	74 (13.4)	NS
Peer problem	5	155 (14)	92 (16.6)	63 (11.4)	0.015
Total difficulty	20	151 (13.7)	68 (12.3)	83 (15)	NS
Prosocial behavior	4	53 (4.8)	29 (5.2)	24 (4.3)	NS

Table 2. Frequency of different disorders in the studied adolescents.

Disorder	Total N (%)	Boys N (%)	Girls N (%)	Significance (between sexes)
Depression	54 (4.9)	32 (5.8)	22 (4.0)	NS
Biplor Disorder	39 (3.5)	20 (3.6)	19 (3.4)	NS
Psychosis	9 (0.8)	7 (1.3)	2 (0.4)	NS
Panic Disorder	11 (1)	6 (1.1)	5 (0.9)	NS
Separation Anxiety Disorder	53 (4.8)	29 (5.2)	24 (4.3)	NS
Social phobia	35 (3.2)	18 (3.2)	17 (3.1)	NS
Phobias	28 (2.5)	12 (2.2)	16 (2.9)	NS
Generalized Anxiety Disorder	51 (4.6)	30 (5.4)	21 (3.8)	NS
Obsessive Compulsive Disorder	13 (1.2)	4 (0.7)	9 (1.6)	NS
Enuresis	24 (2.2)	16 (2.9)	8 (1.4)	NS
Encopresis	0 (0)	0 (0)	0 (0)	NS
Anorexia	20 (1.8)	8 (1.4)	12 (2.2)	NS
Bulimia	15 (1.4)	7 (1.3)	8 (1.4)	NS
Attention-Deficit/ Hyperactivity Disorder	92 (8.3)	57 (10.3)	35 (6.3)	0.021
Oppositional Defiant Disorder	79 (7.1)	48 (8.7)	31 (5.6)	NS
Conduct Disorder	39 (3.5)	26 (4.7)	13 (2.3)	NS
Tic Disorder	15 (1.4)	9 (1.6)	6 (1.1)	NS
Substance Related Disorders	8 (0.7)	5 (0.9)	3 (0.5)	NS
Post Traumatic Stress Disorder	15 (1.4)	8 (1.4)	7 (1.3)	NS

Table 3. The relationship between high scores in different SDQ subscales and different disorders.

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, Obssessive-compulsive disorder, Bulimia, Conduct disorder, Tic Disorder
Conduct problem	-
Hyperactivity	Generalized anxiety disorder, Attention- deficit/Hyperactivity disorder, Opposition-al defiant disorder
Peer problem	-
Prosocial Behavior	Depressive disorders, Separation anxiety disorder.

Discussion

In this study the prevalence of different psychiatric disorders in a community sample of adolescents in Tehran were evaluated. There were not any statistically significant differences regarding the age distribution of the studied adolescents in either sex. This makes the comparisons between sex groups possible.

The overall frequency of psychiatric disorders in the studied population was equal to other studies (16-22). 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 may be considered as factors causing problematic behaviors. Nevertheless, in some studies similar reports exist regarding the frequency of the above mentioned disorders (17).

In Nigeria the overall prevalence of psychiatric morbidity was found to be 15.0% (16). In our study, like the study by Abiodun in Nigeria (16), emotional and behavioral disorders constituted the majority of identified psychiatric cases.

In another study, approximately one in eight school children in the study area in the southeast of Brazil had psychiatric disorders involving a level of distress or social impairment likely to warrant treatment. (20).

In a study from Puerto Rico, although 19.8% of the sample met 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%; 18).

In Al-Ain, 23.9% of the studied children were reported to have mental health problems by either the parent or the school health physician(19) and this is higher than our report. It was reported that boys had problems more often compare to girls (1.8:1) , however, this finding is not in accordance with ours. They used the Rutter A2 scale for parents, and the prevalence estimate for behavioral disorders was 16.5%. The weighted prevalence 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 psychiatric disorders. They concluded that the prevalence rates of child psychiatric disorders and the symptomatology observed in this Middle Eastern community are similar to those reported in Western studies (19). 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 prevalence rate of child psychopathology was 11.8 %. ADHD was found to be the most common specific child psychiatric disorder. No difference was observed between the respondents and non-respondents regarding the prevalence rates. The estimated prevalence rates were broadly comparable to prevalence rates found in other epidemiological studies. The teacher-based interview proved to be a valid instrument for the assessment of non-respondents (21).

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 (22)

In another study by Costello et al., although the 3-month prevalence of any disorder averaged 13.3%, 36.7% of the participants (31% of girls and 42% of boys) had at least 1 psychiatric disorder during the study period. The prevalence of some disorders (social anxiety, panic, depression, and substance abuse) was increased with increasing age, whereas others including separation anxiety disorder and attention-deficit/hyperactivity disorder (ADHD) decreased (18). Our preliminary results of the larger study support this idea.

Limitations

Among the 443 adolescents with high SDQ scores, only 193 participated in the second phase of the study. This response rate is lower than the ideal and may cause the estimations of the frequency of psychiatric disorders to be somewhat lower than it could have really been. Most of the similar reports faced similar problems. The response rate increased by referring to adolescents' home but problems such as displacement, traveling or lack of cooperation remained.

Conclusion

The overall frequency of psychiatric disorders in the studied population of Tehran urban adolescents was comparable to other studies. However, higher frequency of ODD and CD among the studied youth warrants more specific evaluation for epidemiology and possible causes of these high frequency rates.

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