





Prevalence of Psychiatric Disorders Among Children and Adolescents in the East Azerbaijan Province, Tabriz, Iran in 2017

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Abstract

Background: This study was conducted to estimate the prevalence of mental disorders in children and adolescents in east Azerbaijan, Tabriz, Iran.

Methods: A total of 1036 children and adolescents between the ages of 6 - 18 were selected with cluster sampling in Tabriz city. Measurements of mental disorders were done according to the semi-structured K-SADS scale. Data were gathered by trained clinical psychologists and were analyzed by SPSS V. 16. The prevalence of mental disorders was presented with percent (95% CI) and the significance level was considered as 0.05.

Results: The prevalence of any mental disorder in children and adolescents were 24.9%. The measure in boys and girls were 25.4 and 24.9, respectively. A total of 27.4% of 6 - 9 years old, 23.9% of 10 - 14 year olds, and 23.5% of 15 - 18 year olds had suffered from at least one mental disorder. The most common disorders, respectively, were enuresis, ADHD, specific phobia, separation anxiety disorder. Panic disorder, social phobia, specific phobia, and agoraphobia occurred more in girls more than boys, while conduct disorder occurred more in boys.

Conclusions: The results of this study showed that one in four children and adolescents had at least one mental disorder. Thus, considering the fact that the beginning of most mental disorders were not until adolescence years and continuation to adulthood, it is necessary that appropriate interventions were designed and executed. We must define cost effective services for early case findings and treatment of mental disorders in the regional health system.

Keywords: Mental Disorder, Prevalence, Epidemiology, Children, Adolescents, Tabriz

1. Background

Childhood psychiatric disorders will have a significant effect on mental health in the upcoming life of individuals. The World Health Organization has identified effective interventions in this age group for the onset of most psychiatric diseases in this period, and in the absence of treatment until adulthood. The existence of effective therapies is essential.

Prevalence of disorders: In the Schmidt study, which was done on children and young adolescents aged 4 -

18, the prevalence of psychiatric disorders was 59.9 using CBCL/YSR checklist and based on the ICD-10 criterion (1). A systematic review of meta-analysis from 10 Sub-Saharan Africa surveys showed that the prevalence of psychiatric disorders is 14.3%. The diagnosis of the prevalence of disorders was 9.5%, based on clinical interviews and 19.8% based on the questionnaire; there was no difference between girls and guys in the prevalence of disorders (2). In a meta-analysis study in India it was shown that the prevalence of psychiatric disorders in children and young adolescents in

the community was 6.46% and 20.33% among students (3). In another report, the prevalence of psychiatric disorders, based on DSM-IV criteria and clinical interviews in children and young adolescents aged 6 - 17 in northeast China, was 9.49%. A total of 15.2% of children and young adolescents had two or more than two psychiatric disorders (4). A systematic review of Zarafshan et al., in Iran, showed that in children and young adolescents, the prevalence of anxiety disorders varied between 6.8% in Saravan to and 85% in Bandar Abbas (5).

The Bronsard meta-analysis of eight studies showed that the prevalence of current psychiatric disorders was 49% among children and young adolescents (6). A systematic review of the prevalence of psychiatric disorders among children and young adolescents aged 5 - 17 showed that the prevalence of total disorder was 6.7. The prevalence of autism spectrum was 16.1%, depression was 6.2%, ADHD 5.5%, behavioral disorder 5%, eating disorder 4.4%, and anxiety 3.2% (7). A review of previous studies suggests that the prevalence of psychiatric disorders is significantly affected by the geographical location and differences in the statistical society as well as the method of measuring psychiatric disorder. Awareness of the prevalence of psychiatric disorders is essential in planning for mental health promotion.

2. Objectives

Considering the different outcomes of the prevalence of psychiatric disorders in children and young adolescents, this study was designed and implemented using an appropriate instrument for measuring mental disorders.

3. Methods

3.1. Sample Selection

The present study is based on a cross-sectional study as part of the national project that was implemented in all provinces of the country (8). This study examined the prevalence of psychiatric disorders in children and young adolescents aged 6 to 18 using a semi-structured interview with K-SADS. Assuming the prevalence of psychiatric disorders equal 0.3, the type one error equal 0.05, and accepted error equal 0.05, the obtained sample size was 825. Assuming the cluster sample effect equal 1.2, the final sample size reached 990. In this study, multistage cluster sampling was used. The clusters were selected randomly and according to zip code. In the rural and urban population of Tabriz, 167 clusters were selected (six sample in each cluster). In

each cluster, samples were selected based on the gender and age group (6 - 9, 10 - 14, 15 - 18). The interviewers went to the houses of the selected households and interviewed them. Data collection for each person took 30 - 40 minutes. Data were collected based on the questionnaire and by trained clinical psychologists. In addition to the main questionnaire, demographic information was recorded by a checklist.

3.2. Entry and Exit Criteria

The inclusion criteria included at least one year of residence of the child and young adolescent in the East Azerbaijan province and aged 6 - 18, while individuals with severe physical illness were excluded from the study.

3.3. K-SADS-PL Questionnaire

The K-SADS-PL questionnaire is a semi-structured interview designed to evaluate the current episodes of children and young adolescents psychiatric disorders based on DSM-III-R and DMS-IV. It should be noted that the DSM-V form has not yet been produced. There are subjective and objective criteria for evaluating each mark. This questionnaire will be completed in accordance to an interview with parents and children, thus, having information gathered from all available sources. In the case of the adolescents, the interview should be started with them. If there is a contradiction in the information obtained from different sources, the examiner should use his clinical judgment. In the contradiction of obtained information from children and young adolescents, the greatest controversy is about individual phenomena, (such as guilty feeling, disappointment, sleep disorders, illusion, and thoughts of suicide) that parents are not aware of them (9).

If there is disagreement in observable behaviors (such as a bonfire, school escape, or predestinarian behavior), the examiner must face the children and parents. If the disagreement was not solved, the parent and child can meet at the same time and discuss the cause of the disagreement. Completing the K-SAD-PL questionnaire requires filling the following sections: (1) a non-structured interview, (2) a diagnostic screening interview, (3) supplementary checklist, (4) diagnostic attachments, (5) diagnostic checklist of the lifetime, and (6) overall assessment of the child (C-GAS). Initially, K-SADS is completed by each informed individual and then, after summarizing the information and removing inconsistencies in a checklist of the summary of the life cycle diagnosis, overall assessment score of the child is completed. If there is no evidence of current or previous psychiatric disorders, there is no need to assess more than what has been done in the screening interview. Polanczyk

et al., stated that kappa's coefficient for emotional disturbance equal to 0.93 and 0.94 for attention deficit disorder (10). Ghanizadeh, reported that the reliability of this tool in the Persian language equal to 0.81 and in the test-retest 0.69. The sensitivity and features of the Persian version have been reported above (11).

3.4. Ethics Principles

Individual consent form for individuals under 15 was completed by parents, and the participants' aged 15 to 18 years completed their own. All data are confidential and only used for research purposes. In addition, children or adolescents who have been diagnosed with a mental disorder in this study were treated and managed free of charge by the child psychiatrist who participated in the project.

This study was approved by the National Institute for Medical Research Development (NIMAD), Code of Ethics: IR NIMAD REC 1395.001, grant no. 940906.

3.5. Data Analysis

Data were entered into the SPSS software version 16. In order to evaluate the prevalence of disorders, descriptive indices were used and confidence interval was selected 95%.

In comparison of variables in groups, (a) considered equal to 0.05 ($\alpha = 0.05$). For the comparison of gender, age group, and parents' education, ANOVA and *t*-test were used.

4. Results

A total number of 1036 individuals participated in this study. The mean age of children and young adolescents was 11.97 ± 11.11 . The frequency and percentage of children are presented in Table 1, according to age, gender, location, and age group. As shown, the majority of resources were obtained by parents.

The results of the studies showed that the prevalence of any psychiatric disorders (except drug and alcohol use disorders) was 24.9%. The prevalence was 24.5% in girls and 25.4% in boys. The prevalence of major depression was 2.4%, 0.2% psychosis, 0.7% panic, 4.7% separation anxiety, 3.4% social anxiety, 5.1% phobia, 2.7% agoraphobia, 2.9% generalized anxiety disorder, 2.1% obsessive compulsive disorder, 1% posttraumatic stress disorder, 2.8% epilepsy, 0.3% autism, 2.8% mental retardation, 7% attention deficit disorder and hyperactivity disorder, 2.9% oppositional defiant disorder, 1.5% conduct disorder, 1.9% tobacco consumption, 0.2% alcohol consumption, 9.1% enuresis, and 1.4% tic (Table 2).

As presented in Table 2, the prevalence of panic disorders, social anxiety, phobias, agoraphobia, and all anxiety disorders in girls were significantly higher than boys. The prevalence of conduct disorder was significantly higher in boys than girls. There were no significant difference between girls and boys in other disorders (Table 2).

The prevalence of psychotic disorders in children aged 6 - 9 was 27.4%, the age group of 10 - 14 was 23.9%, and the age group of 15 - 18 was 24.5%. The prevalence of psychiatric disorders, depression disorder, drinking alcohol, using tobacco and drugs, and mood disorder was significantly higher in the age group of 15 - 18 than in children aged 6 to 14. The prevalence of separation anxiety disorder, attention deficit disorder, and hyperactive and behavioral disorders in children aged 6 - 9 was significantly more than children aged 10 to 18. The prevalence of generalized anxiety disorder (GAD) in age group of 10 - 14 was significantly higher than children aged 6 - 10 and 15 - 18. There was no statistical difference in age group in other disorders (Table 3).

In Table 4, the prevalence of psychiatric disorders provided based on comorbidity. Approximately 46% (11 people) of individuals with psychiatric disorders has comorbidity with other disorders, which are 39% boys and 53% girls.

5. Discussion

The presented study showed that the prevalence of psychiatric disorders was 24.9%. The prevalence of psychiatric disorder in girls and boys did not show a significant difference (24.5% in girls and 25.4% in boys). Previous reports in children between the age of 6 - 12 showed that the prevalence of any psychiatric disorders was 5.9% (12). A study in one of the Northern cities of India, in a sample group of students aged 10 - 15, showed that based on the ICD-10 criteria, 20.2% of students had psychiatric disorders (13).

These reports suggest inconsistency between previous studies. However, a study, which is highly consistent with the present study in terms of statistical society, methodology, screening and other psychiatric measurement tools, has been carried out in several Iranian cities showing that the prevalence of psychiatric disorders was 10.55%. The prevalence was 9.76% in girls and 11.3% for boys (14). This study clearly indicates that the prevalence of psychiatric disorders in East Azerbaijan province is higher than other regions. Scrutinizing prevalence of disorders also indicated that there is a significant difference of prevalence of behavioral disorders and anxiety in the East Azerbaijan

Table 1. Prevalence of Psychiatric Disorders in Children and Young Adolescents (6 - 18), by Demographic Variables in Tabriz, Eastern Azerbaijan (Excluding Mental Retardation and Smoking).

Demographic Variables	Total Sample, Abundance (%)	Cases, Abundance (%)	Confidence Interval (95%)
Gender			
Boy	497 (48)	126 (25.4)	21.7 - 29.4
Girl	539 (52)	132 (24.5)	21.05 - 28.3
Age group			
6 - 9	347 (33.5)	95 (27.4)	23 - 32.3
10 - 14	348 (33.6)	83 (23.9)	19.7 - 28.6
15 - 18	341 (32.9)	80 (23.5)	19.3 - 28.2
Residence area			
Urban	964 (93.1)	243 (25.2)	22.6 - 28.1
Rural	72 (6.9)	15 (20.8)	13.1 - 31.6
Father's education			
Illiterate	33 (3.2)	9 (27.3)	15.1 - 44.2
Elementary school	225 (21.7)	59 (26.2)	20.9 - 32.3
Middle school	252 (24.3)	67 (26.6)	21.5 - 32.4
Diploma	249 (24)	59 (23.7)	18.8 - 29.4
Bachelor	181 (17.5)	40 (22.1)	16.7 - 28.7
Higher than bachelor's degree	82 (7.9)	17 (20.7)	13.4 - 30.7
Mother's education			
Illiterate	68 (6.6)	16 (23.5)	15 - 34.9
Elementary school	211 (20.4)	65 (30.8)	25 - 37.3
Middle school and high school	222 (21.4)	50 (22.5)	17.5 - 28.5
Diploma	344 (33.2)	91 (26.5)	22.1 - 31.3
Bachelor	159 (15.3)	33 (20.8)	15.2 - 27.7
Higher than bachelor's degree	26 (2.5)	2 (7.7)	2.1 - 24.1
Father's job			
Public sector	295 (28.5)	63 (21.4)	17.1 - 26.4
Private sector	709 (68.4)	181 (25.5)	22.5 - 28.9
Jobless	18 (1.7)	7 (38.9)	20.3 - 61.4
Mother's job			
Public sector	100 (9.7)	15 (15)	9.3 - 23.3
Private sector	33 (3.2)	11 (33.3)	19.7 - 50.4
Jobless (household)	899 (86.8)	231 (25.7)	22.9 - 28.7

province. As reported by Mohammadi et al. (14), the prevalence of depression was 1.42% and 1.66% for generalized anxiety disorder.

In the previous study in Tabriz and Tehran, the prevalence of ADHD in boys was more than girls (15). However, in the present study, the prevalence of panic, social anxiety, phobias, agoraphobia, and all anxiety disorders in girls were higher than boys. The prevalence of conduct disorder

in boys was more than girls. Perhaps the difference between the previous study in Tabriz and the results of this study was due to their statistical population.

The findings of the research showed that the prevalence of psychiatric disorders in children aged 6 - 9 was 27.4%, age group of 10 - 14 was 9.23%, and the age group of 15 - 18 was 23.5%. However, in Mohammadi et al.'s study, the prevalence of the total disorder in individuals aged 6 - 9

Table 2. 12 - Month Prevalence of Psychiatric Disorder in Gender

Psychological Disorder	Non-Afflicted, No.	Afflicted, No. (%)	Boy, No. (%)	Girl, No. (%)	P Value
Major depression	910	22 (2.4)	13 (2.9)	9 (1.9)	NS
Mood disorders	910	22 (2.4)	13 (2.9)	9 (1.9)	NS
Psychosis disorder	1014	2 (0.2)	0	2 (0.4)	NS
Panic	1014	7 (0.7)	0	7 (1.3)	0.01
Separation anxiety disorder	963	48 (4.7)	20 (4.1)	28 (5.3)	NS
Social anxiety	980	34 (3.4)	7 (1.4)	27 (5.1)	0.001
Phobia	962	52 (5.1)	7 (1.4)	45 (8.5)	0.001
agoraphobia	987	27 (2.7)	5 (1)	22 (4.2)	0.002
Generalized anxiety disorder	982	29 (2.9)	14 (2.9)	15 (2.8)	NS
Obsessive compulsive disorder	993	24 (2.1)	6 (1.2)	15 (2.8)	NS
Posttraumatic stress disorder	973	10 (1)	6 (1.3)	4 (0.8)	NS
All anxiety disorders	826	134 (14)	43 (9.4)	91 (18.1)	0.001
Epilepsy	1007	29 (2.8)	17 (3.4)	22 (2.2)	NS
Autism	1006	3 (0.3)	1 (0.2)	2 (0.4)	NS
Mental retardation	1007	17 (2.8)	10 (2)	7 (1.3)	NS
All neurodevelopmental disorders	973	38 (3.8)	23 (4.7)	15 (2.9)	NS
Attention deficit disorder and all and hyperactive	944	71 (7)	41 (8.5)	30 (5.7)	NS
Oppositional defiant disorder	984	29 (2.9)	19 (3.9)	10 (1.9)	0.06
Conduct disorder	992	15 (1.5)	12 (2.5)	3 (0.6)	0.01
All behavioral disorder	909	90 (9)	51 (10.7)	39 (7.5)	0.07
Tobacco use	996	20 (1.9)	8 (1.6)	12 (2.2)	NS
Alcohol abuse	1015	1 (0.2)	1 (0.2)	0	NS
All drug using disorders	995	21 (2)	9 (1.8)	12 (2.2)	NS
Enuresis	921	92 (9.1)	49 (10.1)	43 (8.1)	NS
Encopresis	1007	9 (0.9)	6 (1.2)	3 (0.6)	NS
Nervous anorexia	989	1 (0.1)	0	1 (0.2)	NS
Tic	1000	14 (1.4)	10 (2.1)	4 (0.8)	NS
Prevalence of other disorders	870	108 (11)	61 (13)	47 (9.2)	0.06
Prevalence of any mental disorders	758	278 (26.8)	137 (27.6)	141 (26.2)	NS

was 12.08%, age 10 - 14 was 10.49%, and age 15 - 18 was 44%. Bansal reported that 28.6% of students aged 13 - 14, 23.6% of students aged 14 - 15, and 22.1% of students age 12 - 13 had psychiatric disorders (13).

In this study, among anxiety disorders, the most prevalent disorders were phobias 5.1, separation anxiety 4.7%, and social anxiety 3.4%. In previous studies, these disorders were in the order of separation anxiety, social anxiety, and phobias (16). Based on the findings, the prevalence of major depression, smoking, mood disorders, and abusing drugs, alcohol, and cigarettes in groups aged 15 - 18 were significantly higher than the other age group. This is due to the fact that with increasing age, the probability of their familiarity with these drugs increase and the possibility of connecting with the risky age group is also possible. The prevalence of separation anxiety disorders, ADHD, and be-

havioral disorders in children aged 6 - 9 was significantly higher than other age groups. It seems that by entering school and increasing social interactions, the symptoms of these disorders may be better apparent. In the presented study, the prevalence of attention deficit disorder and hyperactivity was 7%; Polanczyk et al., in their study, reported 5.3% for the prevalence of that (17). In a study done in Iran, the prevalence in preschool was 12.3% (18). In a study in China, the prevalence was reported as 6.26% (19).

5.1. Conclusions

The results of this study indicate that about a quarter of children and adolescents suffer from psychiatric disorders. Considering the onset of most psychiatric disorders in adolescents and its continuance until adulthood, it is necessary to take appropriate strategies for preventing

Table 3. Prevalence of Psychiatric Disorders Based on Age Group

Psychological Disorders Age Group	Number of All Samples	Number of Afflicted	Afflicted Percentage	P Value
Depression				0.006
9 - 6	310	1	0.3	
14 - 10	302	8	2.6	
18 - 15	298	13	4.2	
Separation anxiety				0.02
9 - 6	314	24	7.1	
14 - 10	327	15	4.4	
18 - 15	322	9	2.7	
Generalized anxiety disorder				0.005
9 - 6	336	2	0.2	
14 - 10	324	16	4.7	
18 - 15	322	11	3.3	
Attention deficit and hyper activity				0.001
9 - 6	298	40	11.8	
14 - 10	319	23	6.7	
18 - 15	327	8	2.4	
Tobacco				0.01
9 - 6	345	2	0.6	
14 - 10	342	6	1.7	
18 - 15	329	12	3.5	
Enuresis				< 0.05
9 - 6	307	31	9.2	
14 - 10	306	35	10.3	
18 - 15	308	26	7.8	
TIC				< 0.05
9 - 6	332	6	1.8	
14 - 10	337	4	1.2	
18 - 15	331	4	1.2	
Total anxiety disorders				< 0.05
9 - 6	279	42	13.1	
14 - 10	279	45	13.9	
18 - 15	268	47	14.9	

Table 4. The Relative Frequency of Children and Young Adolescents with More Than One Psychiatric Disorder in Terms of Demographic Factors

Variable Group	Without Disorder	One Disorder	Two Disorders	Three or More Than Three Disorders
Gender				
Boy	74.6	15.5	5.2	4.6
Girl	75.5	11.5	6.9	6.1
Age group				
9 - 6	72.6	15.3	6.6	5.5
14 - 10	76.1	12.9	5.5	5.5
18 - 15	76.5	12	6.2	5.3
Residence area				
Urban	74.8	13.5	6.2	5.5
Rural	79.2	12.5	4.2	4.2

these diseases. Appropriate interventions for timely diagnosis and appropriate treatment should be designed and implemented in the health system of the region.

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Footnotes

Authors' Contribution: Shahrokh Amiri, Mohammad Reza Mohammadi, Nastaran Ahmadi, and Ali Khaleghi collected the data and supervised the manuscript. Vahab Asl Rahimi and Azam Hemmati; designed the study participated as manager. Samad Moharrami, Masoud Karimy, Maryam Mabasazamani, Nasim Samadzade, Siamak Fathollahi, Tahere Imani, Sarvin Ansar, Sina Ahmadian Fard, Mohammad Tahmasebpur, Zeynab Poorabasi, and Nader Ebadi gathered the data. Mostafa Farahbakhsh analyzed the data. Salman Abdi wrote the manuscript. Sanaz Nourouzi was the instructor of the questionnaire.

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