






Epidemiology of Psychiatric Disorders among Children and Adolescents in Kohgiluyeh and Boyer- Ahmad Province, Iran

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Article Info

 [10.30699/jambs.30.141.365](https://doi.org/10.30699/jambs.30.141.365)

Received: 2020/11/17;
Accepted: 2021/04/25;
Published Online: 30 Jun 2022;

Use your device to scan and read the article online



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ABSTRACT

Background & Objective: Given the growing rate of psychiatric disorders, especially in young populations, detailed data on frequency of these disorders for further national public health strategies is of great importance. We aimed to survey the frequency of different psychiatric disorders among children and adolescents in Kohgiluyeh and Boyer-Ahmad province.

Materials & Methods: 20.5% (205 out of 1001) of studied cases showed at least one psychiatric disorder and 79.5 % showed no sign of any disorders. Anxiety disorders were the most frequent disorders (15.5%) followed by the behavioral disorders (7%), smoking and drug abuse (6%), behavioral disorders (2.4%) and neurodevelopmental disorders (2%), but no case was observed with psychosis.

Results: Our study indicated that pretreatment of rats with KET, HAL and YOH abolished MPH induced - mood and motor activity disturbances.

Conclusion: in comparison with other studies from Iran or other countries the prevalence of psychiatric disorders in Kohgiluyeh and Boyer-Ahmad is relatively high and special policies and efforts are suggested for enhancement of mental health values in this region.

Keywords: Mental disorder, Child, Adolescent, Iran



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Introduction

According to World Health Organization (WHO) reports, the rate of mental and psychiatric disorders is growing worldwide (1). Children and adolescents are the two subpopulations who are at high risk of psychiatric disorders. In addition to morbidity and several disabilities in patients suffering from these disorders, the necessity of social, psychological and medical supports imposes extra costs to families and societies (2). Social, economic and cultural crises may be accounted as the main reasons of mental disorders increase as it has been shown that psychiatric disorders are more frequent in developing countries than developed countries. One of the possible efforts to decrease the effects of these problems on individuals and societies is to arrange appropriate strategies and policies. This may include providing real estimates of psychiatric disorders prevalence and

epidemiological studies (3). In the past, the epidemiological data would be provided using available information of patients who had been diagnosed with mental and psychiatric disorders, but currently screening tools seem to be successful means to provide more realistic estimates of psychiatric disorders frequency (4). Moreover, children and adolescents psychology has been introduced as a new field of psychology to provide more detailed and specific data on this subpopulation (5).

Various studies across the world (Colombia, India, Sudan, the Philippines, Ethiopia) suggest the prevalence of psychiatric disorders is between 3 to 29 % in children and adolescent subpopulations. Even some studies reported 70% of prevalence (6-10). Few studies have been carried out in Iran in this regard, and the prevalence of

psychiatric disorders has been reported 10 percent in those studies. In general population this was reported about 11% (11, 12). Also, there are some studies which have surveyed psychiatric disorders in general population of certain cities in Iran and the prevalence of these disorders were reported 12% to 24% (13, 14).

Materials and Methods

Because of lack of enough data on the prevalence of mental and psychiatric disorders in Kohgiluyeh and Boyer-Ahmad province, and since the results of other studies are not applicable to this region due to heterogeneity of estimations, we launched an interview-based epidemiological study to survey the frequency of different psychiatric disorders among children and adolescents in Kohgiluyeh and Boyer-Ahmad province.

The national institute for medical research development (NIMAD) supported and ethically approved this study (the ethics code of IR.NIMAD.REC.1395.001). This study was part of a large national survey that was implemented in Kohgiluyeh and Boyer-Ahmad province from 2016 to 2017. The study protocol has been reported previously in details by Dr. Mohammadi *et. al.* (15).

Samples

Cluster random sampling method was utilized as the appropriate sampling. A total number of 1001 individuals were selected to participate in this study. According to our sampling method both urban and rural populations were randomly included in the study. All selected cases were 6 to 18 years old. Detailed demographic information including sex, ethnicity, age and religion is provided in [table 1](#).

Instruments

The reported data of the current study was collected using a Persian version of interview-based and semi-structured questionnaire entitled “Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime Version” (K-SADS-PL). Trained psychologists collaborated for interviewing and collecting data. To validate the content of the Persian version of K-SADS-PL, it was studied and approved by a number of psychiatric experts. This questionnaire was first introduced by Silverman and Albano and then was revised by them (16). The validity of the questionnaire was reported 0.93 and also the stability of the questionnaire was reported appropriate elsewhere (17). The K-SADS-PL questionnaire can be used for individuals aged 6 to 18 years. Also for participants under 11 years of age cases parents’ were asked to answer the questions and individuals over 11 years of age were interviewed

directly. The diagnostic criteria of psychiatric disorders in the questionnaire were designed according to DSM-IV and DSM-III-R. The initial disorders which were diagnosed using K-SADS-PL, were rechecked by psychiatric experts before any further analysis.

Statistical analysis

In order to investigate the statistical differences of psychiatric disorders among the cases regarding demographic factors, student T test and Chi square test were used appropriately. The statistical tests were carried out using SPSS-Win 16.0. and p-values less than 0.05 were assumed as significant.

Results

In the current study, according to resultant data from K-SADS-PL questionnaire, 20.5% (205 out of 1001) of studied cases showed at least one psychiatric disorder and 79.5 % showed no sign of any disorders ([table 1](#)). Among all investigated disorders, anxiety disorders were the most frequent disorders (15.5%) followed by behavioral disorders (7%), smoking and drug abuse (6%), mood disorders (2.4%), and neurodevelopmental disorders (2%), but no case was observed with psychosis. Among anxiety disorders, social phobia (5.9%) and separation anxiety (5.9) had the highest prevalence in both male and female cases. Less frequent diagnosed disorders were neurodevelopmental disorders (1.9%) and no case was detected with psychosis, autism, scoracrata, anorexia nervosa, bulimia nervosa, tick (simple transient) or tourette syndrome. All detailed data about the frequency of each psychiatric disorder are presented in [table 2](#) and [table 3](#). Furthermore, chi-square and fisher’s exact tests were performed to find out any association between investigated disorders and gender. In terms of gender, only conduct disorder was significantly different among male (0.9%) and female (0.1%) ($p=0.01$) and no other disorders had significant differences between girls and boys. Additionally, attention deficit hyperactivity disorder was more frequent in boys (2.3%) than girls (1.6%) and statistically tended toward significance ($p=0.09$). Posttraumatic stress was only detected in girls (0.4%). As mentioned above, the social phobia and separation anxiety were the most frequent disorders among boys and girls, but it is worthy of attention that both male and female cases had a high frequency of smoking experience (3.2% and 2.6%). Disorders including psychosis, autism, scoracrata, anorexia nervosa, bulimia nervosa, tick (simple transient) and tourette were not detected either in boys or girls. Other gender-based comparative analyses are summarized in [table 3](#).

Table1. Demographic information of the cases

Variables	Frequency	Percentage
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gender	male	496	49.6
	female	505	50.4
Age	6-9	321	32.1
	10-14	386	38.6
	15-18	294	29.4
Resistance	Urban	520	51.9
	Rural	481	48.1
Ethnicity	Persian	7	0.7
	Turkish	8	0.8
	Kurdish	1	0.1
	Lor	975	97.4
	other	4	0.4
Religion	Shia	993	99.2
	Sunni	2	0.2
	other	-	-
All cases		1001	100

Table 2. General prevalence of psychiatric disorders in the cases

	Frequency	Percentage
Without psychiatric disorders	796	79.5
With psychiatric disorders	205	20.5
All cases	1001	100

Table 3. Frequency distribution of psychiatric disorders by gender in the cases

Disorders	Male		Female		All cases		p-value	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage		
Mood disorders	Depression	8	0.8	11	1.1	19	1.9	0.5
	Mania	2	0.2	1	0.1	3	0.3	0.6
	Hypomania	4	0.4	3	0.3	7	0.7	0.7
Psychosis			0	0	0	0	-	
Anxiety Disorders	Panic	1	0.1	0	0	1	0.1	0.4
	Separation anxiety	30	3	31	3.1	61	6.1	0.4
	Social phobia	29	2.9	30	3	59	5.9	0.9
	Special phobia	11	1.1	11	1.1	22	2.2	0.9
	Agoraphobia	10	1	8	0.8	18	1.8	0.6
	Inclusive anxiety	10	1	5	0.5	14	1.4	0.18

Disorders	Male		Female		All cases		p-value	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage		
Behavioral Disorders	Obsessive-Compulsive	9	0.9	9	0.9	18	1.8	0.9
	Posttraumatic stress	0	0	4	0.4	4	0.4	0.1
	All anxiety disorders							
	Attention deficit hyperactivity disorder	23	2.3	16	1.6	39	3.9	0.09
	Oppositional defiant	19	1.9	14	1.4	33	3.3	0.2
	Conduct Disorder	9	0.9	1	0.1	10	1	0.01
Substance abuse Disorders	Smoking	32	3.2	26	2.6	58	5.8	0.3
	Alcohol abuse	1	0.1	1	0.1	2	0.2	0.7
Neurodevelopmental Disorders	Autism	0	0	0	0	0	0	-
	Mental retardation (mild)	7	0.7	4	0.4	11	1.1	0.3
	Epilepsy	5	0.5	3	0.3	8	0.8	0.5
	Enuresis	6	0.6	2	0.2	8	0.8	0.2
Other Disorders	Scoracratia	0	0	0	0	0	0	-
	Anorexia nervosa	0	0	0	0	0	0	-
	Bulimia nervosa	0	0	0	0	0	0	-
	Tick (simple transient)	0	0	0	0	0	0	-
	Tourette	0	0	0	0	0	0	-

As it is shown in table 4, we divided the studied cases into three age groups (6-9, 10-14, 15-18) to investigate the role of age on the prevalence of disorders. Chi-square and fisher's exact tests were performed. According to our results, separation anxiety was significantly different among these age groups (2.6%, 2.3% and 1% respectively, $p=0.04$) which was less frequent in 15-18 year-old cases in comparison to other two groups. Also, attention deficit hyperactivity disorder prevalence showed significant differences

between these groups (1.8%, 0.8% and 1.3% respectively, $p=0.05$). Furthermore, mental retardation frequency was significantly different among age groups (0.1%, 0.3% and 0.7%, $p=0.05$). In frequency, most frequent disorders in age groups were separation anxiety (2.6%) in 6-9 year-old cases, smoking (2.9%) in 10-14 year-old cases and social phobia (2.1%) in 15-18 year-old cases. More detailed data is presented in [table 4](#).

Table 4. Prevalence distribution of psychiatric disorders by age groups in the cases

Disorders	6-9		10-14		15-18		p-value	
	Frequenc y	Percentag e	Frequenc y	Percentag e	Frequenc y	Percentag e		
Mood disorders	Depression	5	0.5	8	0.8	6	0.6	0.93
	Mania	0	0	1	0.1	2	0.2	0.13
	Hypomania	1	0.1	4	0.4	2	0.2	0.31
Psychosis	0	0	0	0	0	0	0	-
Anxiety Disorders	Panic	0	0	0	0	1	0.1	0.21
	Separation anxiety	26	2.6	23	2.3	10	1	0.04
	Social phobia	15	1.5	23	2.3	21	2.1	0.4
	Special phobia	6	0.6	7	0.7	9	0.9	0.4
	Agoraphobia	5	0.5	5	0.5	8	0.8	0.3
	Inclusive anxiety	5	0.5	6	0.6	3	0.3	0.9
	Obsessive-Compulsive	4	0.4	9	0.9	5	0.5	0.6
	Posttraumatic stress	0	0	4	0.4	0	0	0.1
Behavioral disorders	Attention deficit hyperactivity disorder	18	1.8	8	0.8	13	1.3	0.05
	Oppositional defiant	5	0.5	18	1.8	10	0.1	0.08
	Conduct Disorder	2	0.2	4	0.4	4	0.4	0.7
Substance abuse Disorders	Smoking	14	1.4	29	2.9	15	1.5	0.1
	Alcohol abuse	0	0	1	0.1	1	0.1	0.8
Neurodevelopmental Disorders	Autism	0	0	0	0	0	0	-
	Mental retardation (mild)	1	0.1	3	0.3	7	0.7	0.05
	Epilepsy	3	0.3	4	0.4	1	0.1	0.6
Other Disorders	Enuresis	5	0.5	3	0.3	0	0	0.1
	scoracratia	0	0	0	0	0	0	-
	Anorexia Nervous	0	0	0	0	0	0	-
	Bulimia nervosa	0	0	0	0	0	0	-
	Tick (simple transient)	0	0	0	0	0	0	-
	Tourette	0	0	0	0	0	0	-

As it is illustrated in [table 5](#) in more details, overall frequency of studied disorders was higher in rural regions (18.2%) than urban regions (17%). The most frequent disorders in urban and rural region were smoking (3.5%) and separation anxiety (2.8%)

respectively. Statistically, social phobia ($p=0.002$), Posttraumatic stress ($p=0.009$), alcohol abuse ($p=0.05$) and epilepsy ($p=0.03$) were significantly different between the two groups. All mentioned disorders were more frequent in rural region.

Table 5. Prevalence distribution of psychiatric disorders by place of residency of the subjected cases

Disorders	Urban		Rural		All		p-value	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage		
Mood Disorders	Depression	6	0.6	13	1.3	19	1.9	0.19
	Mania	2	0.2	1	0.1	3	0.3	0.6
	Hypomania	3	0.3	4	0.4	7	0.7	0.4
Psychosis	0	0	0	0	0	0	0	
Anxiety Disorders	Panic with	0	0	1	0.1	1	0.1	0.4
	Separation anxiety	31	3.1	28	2.8	59	5.9	0.9
	Social phobia	19	1.9	40	4.0	59	5.9	0.02
	Special phobia	10	1	12	1.2	22	2.2	0.5
	Agoraphobia	8	0.8	10	1	18	1.8	0.5
	Inclusive anxiety	5	0.5	9	0.9	14	1.4	0.28
	Obsessive-Compulsive	10	1	8	0.8	18	1.8	0.72
	Posttraumatic stress	1	0.1	3	0.3	4	0.4	0.009
Behavioral Disorders	Attention deficit hyperactivity disorder	16	1.6	23	2.3	39	3.9	0.39
	Oppositional defiant	17	1.7	16	1.6	33	3.3	0.49
	Conduct Disorder	3	0.3	7	0.7	10	1	0.1
Substance abuse Disorders	Smoking	35	3.5	23	2.3	58	5.8	0.18
	Alcohol abuse	0	0	2	0.2	2	0.2	0.05
Neurodevelopmental Disorders	Autism	0	0	0	0	0	0	-
	Mental retardation (mild)	3	0.3	8	0.8	11	1.1	0.1
	Epilepsy	1	0.1	7	0.7	8	0.8	0.03
Other Disorders	Enuresis	2	0.2	6	0.6	8	0.8	0.09
	Scoracratia	0	0	0	0	0	0	-
	Anorexia nervus	0	0	0	0	0	0	-

Disorders	Urban		Rural		All		p-value
	Frequenc y	Percentag e	ferquenc y	percentag e	frequenc y	percentag e	
Bulimia nervosa	0	0	0	0	0	0	-
Tick (simple transient)	0	0	0	0	0	0	-
Tourette	0	0	0	0	0	0	-

Discussion

Given the importance of detailed and precise data for further decision making on public health policies especially for mental health of children and adolescents, the current study aimed to provide epidemiological data on the prevalence of psychiatric disorders in Kohgiluyeh and Boyer-Ahmad province. Any efforts in this regard would help to have a more exact estimation of mental disorders and would help to find out which disorders among children and adolescent are more frequent than others in certain population. Such data could be considered in further social and school programs for management of mental disorders in children and adolescents. Our results indicated 20.5% of studied cases had at least one disorder. Other studies in Iran which used the same questionnaire suggested different results. For example, a nationwide study in five different provinces in Iran showed 10.55% prevalence of psychiatric disorders in children and adolescents (from 15.6% in Tabriz to 5.6% in Isfahan) (12). However another study in Isfahan suggested that 26% of 6-18 year- old individuals have psychiatric disorder (18). Also another study launched in western city of Iran (paveh) showed 24.4% prevalence (19). This kind of heterogeneity can also be detected worldwide. In Australia, 14 % of children and adolescents were shown to suffer from psychiatric disorders (20). Other studies estimated the frequency rates of psychiatric disorders in Finland and Nigeria 21.8% and 15.0% respectively (21, 22). In UAE, the prevalence of psychiatric problems in high school students was 23.9% (23). A study conducted in Russia following the Soviet Union collapse is worthy of note, in which the prevalence of psychiatric disorders in the studied children was 70% (10). These differences in estimated prevalence of psychiatric disorders nationwide or worldwide can be attributed to some reasons such as different methods and instruments of studies and also the fact that different developmental, economical, social and political conditions result in different frequency of psychiatric problems (24). There is a study which investigated the determinants of development in Kohgiluyeh and Boyer-Ahmad and showed that Yasuj city, capital of this province has lower values in developmental determinants in comparison to other investigated cities (25).

Beyond general prevalence, our data indicated that although the most prevalent disorders among both girls and boys were social phobia and separation anxiety

followed by smoking ,the frequency of conduct disorder was significantly higher in boys. Another study showed that the frequency of mental problems in boys is generally higher than girls (1.8:1) (23). In Iran one study showed that there are no differences in the prevalence of mental disorders between boys and girls except in attention-deficit/hyperactivity disorder (ADHD). The study also suggested ADHD as the most frequent disorder among children and adolescents in Tehran city (5). Nationwide data in Iran also show that among the five provinces, Mashhad and Tehran have the highest prevalence of Oppositional Defiant Disorder; Isfahan and Shiraz have the highest rates of ADHD; and social phobia is the most frequent disorder among children in Tabriz (6).

We also divided study cases in three different age groups and found out that separation anxiety, attention deficit hyperactivity disorder and mental retardation are significantly different among these groups. Other studies also have reported this kind of division but found other disorders to be significantly different among these subgroups (26).

Regarding rural or urban subpopulations we showed that the overall frequency rates of mental problems are higher in rural regions and social phobia, Posttraumatic stress, alcohol abuse and epilepsy were significantly more frequent in rural subpopulation .To our knowledge, this is the first study that has investigate the differences between rural and urban regions in Iran.

This study has its own limitations that could be considered as new approaches for further studies. Simultaneous analysis of different provinces with the same or different social and economical conditions would provide a better understanding of the effects of the mentioned factors. Also, other factors such as parental mental health, social and economic status of families are also important factors to be considered. Besides these factors, using two or more different methods to evaluate the mental problems would also help to provide more precise estimations.

Conclusion

the current study was the first study to investigate the prevalence of several psychiatric disorders among children and adolescents in kohkoyle Boir Ahmad.

compared to other data from Iran or other countries, the prevalence of psychiatric disorders in kohkoyle Boir Ahmad is relatively high and special policies and efforts are required for enhancement of mental health values in this region.

Acknowledgments

We would like to thank the cooperation of the National Institute for Medical Research Development (NIMAD) (Grant No. 940906) and the Psychiatry and Psychology Research Center, Tehran University of Medical Sciences for their financial and non-financial supports. Also, we thank all the participants and interviewers involved in the project.

Conflict of Interest

Authors declare no conflict of interest.

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How to Cite This Article:

Yadegari N, Jouybari L, Fathi M, Mohammadi M R, Mostafavi S, Khaleghi A, et al. Epidemiology of Psychiatric Disorders among Children and Adolescents in Kohgiluyeh and Boyer- Ahmad Province, Iran, *J Adv Med Biomed Res.* 2022; 30(141): 365-73.

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