








# The Prevalence of Psychiatric Disorders Among Children and Adolescents in Southern Khorasan Province, Iran

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## Abstract

**Background:** Children and adolescents are the potential capitals of communities. Therefore, their physical, mental, social, and spiritual health is of great importance.

**Objectives:** This study aimed to evaluate the prevalence of psychiatric disorders among children and adolescents in Southern Khorasan province, Iran.

**Methods:** This cross-sectional descriptive-correlational study was conducted in 2017. Study population consisted of children and adolescents aged 6–18 who lived in Southern Khorasan province, Iran. A sample of 1029 children and adolescents was selected through multistage cluster sampling. Data were collected using the Kiddie Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL) and analyzed using the SPSS software (v. 19.0) and by conducting the Fisher's exact test.

**Results:** The overall prevalence of psychiatric disorders among children and adolescents in Southern Khorasan province, Iran, was 15.2%. The prevalence of these disorders among male and female participants was 15.5% and 14.8%, respectively. Moreover, the prevalence was 13.1% in the 6–9 age group, 15.5% in the 10–14 age group, and 17% in the 15–18 age group. In addition, the prevalence of psychiatric disorders among participants who lived in urban and rural areas was 18.9% and 6.3%, respectively. The most prevalent psychiatric disorders were respectively separation anxiety (5.2%), obsessive-compulsive disorder (3.5%), generalized anxiety disorder (3%), enuresis (2.9%), oppositional defiant disorder (2.4%), depression, special phobias, attention deficit-hyperactivity disorder (1.6%), agoraphobia (1%), and social phobia (0.8%).

**Conclusions:** Need-based age-appropriate mental health services are needed to promote mental health among children and adolescents.

**Keywords:** Children, Adolescents, Psychiatric Disorders, K-SADS-PL

## 1. Background

Children and adolescents account for about one-quarter of the world's population, 85% of whom live in low-income countries (1). They are potential capitals for every community and their health is very important in physical, psychological, social, and spiritual dimensions. In the last century, significant changes have been made in the health and disease patterns of children and adolescents, and one of the major issues in this regard is the increase in mental health problems. For example, the World Health Organization's estimation suggests early onset (even before 7–11 years of age) and the increasing trend in the incidence of behavioral and mental problems among children and adolescents (2–4). Recent global epidemiological data indicate that more than 20% of children and adolescents suf-

fer from behavioral or psychological problems, and 50% of all adults with mental health have experienced it in adolescence (3, 5). Studies have provided a variety of reports on the prevalence of psychiatric disorders in children and adolescents in different parts of the world, with a prevalence of 10% in Denmark, 7% in Brazil and Norway rural areas, 15% in Russia, 9.17% in children aged 6–11 in Tehran, Iran, 17.7% among Ethiopia children and adolescents, 15% in Bangladesh, 12.7% in Brazilian urban areas, 29.4% in India, 9.49% in China, 35% in Iraq, 36.3% in Saudi Arabia, and 26.6% in Lebanon (3, 6–10). The American Academy of Pediatrics (AAP) has reported that more than 14 million children and adolescents (one out of every five children) have somehow faced mental health problems that make difficulties in their daily functions. The AAP has reported anxiety, depression, hyperactivity, and autism, in sequence, as

the most important childhood and adolescent disorders (4).

Based on a study, the most common disorders among children and adolescents were hyperactivity, anxiety, depression, and behavioral disorders (11). However, in spite of the importance of examining mental health problems and their impact on individuals and society, it has often been neglected (4). This neglect is more common in studies of children and adolescents so that compared to the general population, the prevalence of psychiatric disorders in children and adolescents has been less studied (12, 13). This is while childhood and adolescence are important, vital stages that form the basis of personality in adulthood. Most disorders and behavioral problems originate from the neglect of this critical period and lack of attention and guidance in growth and development (14). Ignoring this important issue will have a significant impact on the health of the community from the psychological, social, and economic points of view. Therefore, it is crucial to examine the prevalence of mental disorders in childhood and adolescence. However, no coherence study has been conducted with a large sample size in South Khorasan province and there is no significant scientific finding in this regard, as well.

## 2. Objectives

Based on the importance of the research topic and the existing gap, the present study aimed to answer the following question: How much are psychiatric disorders prevalent among children and adolescents in South Khorasan province?

## 3. Methods

The current survey is a descriptive-analytical study and it was part of the National Epidemiologic Survey on Psychiatric Disorders in 31 provinces of Iran with the aim of evaluating the prevalence of psychiatric disorders in children and adolescents aged 6 to 18 years, which has been previously addressed by researchers in the literature (6). The research population included children and adolescents aged 6 to 18 years old in South Khorasan province during 2017-2018. Assuming the prevalence of psychiatric disorders of 0.3, the type I error of 0.05, and the effect of cluster sampling of 1.2, the sample size was calculated to be 1029.

This study utilized a multistage cluster sampling method to randomly select the sample from the city of Birjand, the capital of South Khorasan province, and its rural areas. In the next step, Birjand and its surrounding villages were divided into 170 clusters based on postal codes. Then, after the clusters were divided into six blocks, one girl and one boy were selected from each age group of 6 to 9, 10

to 14, and 15 to 18 years old from each block. The research team included eight members trained at the MSc level of Clinical Psychology along with the Project Principal and the Chief Executive. After assuring anonymity and keeping data untouched, the questionnaires were completed by the research team. To do this, the questionnaires were tabulated and the interviewers interviewed the children and their parents online. The information was sent to a central server in Tehran and then returned to the province after a preliminary review. The location of the interviewers and their placement in the determined clusters were daily checked by the observers through GPS. The K-SADS-PL questionnaire (Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Lifetime version) was used to collect data. It is a semi-structured diagnostic interview designed to review the disease in children and adolescents aged 6 to 18, based on the revised third edition and the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (15). It addresses almost all the common psychiatric disorders in children and adolescents, including mood disorders (major depression and mania), anxiety disorders, separation anxiety disorder, panic disorder, agoraphobia, social anxiety, simple phobia, generalized anxiety disorder, post-traumatic stress disorder, obsessive-compulsive disorder, eating disorders, attention deficit hyperactivity disorder (ADHD), behavioral disturbance and oppositional defiant disorder, bedwetting and fecal incontinence, Tic disorder, and psychotic disorders (16). Mohammadi et al. standardized the questionnaire in Iran and reported its diagnostic validity as good to excellent. The validity and reliability of the questionnaire were investigated and confirmed using the test-retest (15). The questionnaire consists of three parts. The first part includes demographic information, the second part includes screening questions and determines the criteria of psychiatric disorders, and the third part includes a general assessment of performance level of children and adolescents (17). Moreover, the majority of the items are scored from 0 to 3. Score "0" indicates that the information is not enough; score "1" indicates that there are no symptoms; score "2" indicates the sub-threshold levels of the symptoms, and score "3" represents the threshold levels. Some items were scored from 0 to 2, with "0" indicating the lack of information, "1" indicating no symptoms, and "2" indicating the presence of symptoms. In this study, descriptive statistics and Fisher's exact test were used at the alpha level of 0.05 with SPSS V. 19 software.

## 4. Results

In total, 1029 children and adolescents were evaluated. The age of the participants ranged from 6 to 18 years, with a mean of  $11.93 \pm 3.76$  years. Most of the participants were

female (50.5%), aged 6 to 9 years old (33.4%), and urban residents (70.3%) (Table 1).

**Table 1.** Demographic Information of the Participants

Variable	No. (%)
<b>Gender</b>	
Male	509 (49.5)
Female	519 (50.5)
<b>Age</b>	
6 - 9	344 (33.4)
10 - 14	341 (33.1)
15 - 18	341 (33.1)
No answer	3 (0.4)
<b>Place of residence</b>	
City	723 (70.3)
Village	303 (29.4)

The results showed that 95.4% of children and adolescents, 94.1% of mothers, and 95.4% of fathers did not have a history of physical diseases. Moreover, 100% of children and adolescents, 99.5% of mothers, and 99.8% of fathers lacked a history of psychiatric disorder. The overall prevalence of psychiatric disorders was 15.2% among children and adolescents, ranging from 14.8% in girls to 15.5% in boys. The prevalence rates were 13.1%, 15.5%, and 17% in the age groups of 6 to 9 years, 10 to 14 years, and 15 to 18 years, respectively. Moreover, 18.9% of urban children and adolescents and 6.3% of rural children had psychiatric disorders.

According to the results, separation anxiety disorder had the highest (5.2%) and social phobia (0.8%) had the lowest frequencies (Table 2). Fisher's exact test showed that the relative frequency of bedwetting was significantly higher in boys than in girls ( $P < 0.05$ ). The frequency of generalized anxiety disorders, attention deficit hyperactivity disorder, oppositional defiant disorder, and bedwetting was significantly higher in urban residents than in rural areas ( $P < 0.05$ ). The frequency of oppositional defiant disorder increased significantly with age ( $P = 0.039$ ) but the frequency of other psychiatric disorders was not significantly different between gender, residence place, and age groups ( $P > 0.05$ ) (Table 2).

## 5. Discussion

The aim of the study was to investigate the prevalence of psychiatric disorders among children and adolescents aged 6 to 18 years in South Khorasan province in 2017. The results showed that the overall prevalence of psychiatric disorders was 15.2% in urban and rural populations of the province. In other words, about two of every 10 children and adolescents in the province suffered some kind of

mental health problem. The prevalence of psychiatric disorders in the province was higher than that in China (9.5%), Denmark (10%), Brazil and Norway (7%), Russia (more than 15%) and less than that in Ethiopia (17.7%), India (29.4%), Iraq (35%), Lebanon (26.6%), and Saudi Arabia (36.6%) (3, 6-10). This difference can be due to various reasons, including differences in the methodology, research instruments, socioeconomic status, climate and weather conditions, culture, and lifestyle of individuals. Haghbin et al. (18) reported the prevalence of these disorders as 16.3% in North Khorasan province. Thus, the prevalence of psychiatric disorders was approximately similar in North and South Khorasan provinces.

The results also showed that depression, separation anxiety, specific phobia, generalized anxiety, agoraphobia, and obsessive-compulsive disorders were more common in girls than in boys but the gender difference was not statistically significant in the prevalence of these disorders. Behavioral disorders, oppositional defiant disorder, and social phobia were the same in boys and girls, with no significant difference. ADHD and bedwetting were more prevalent in boys than in girls, and only was a significant difference observed between the gender groups in the frequency of bedwetting. Studies have shown that bedwetting in boys is mostly due to a history of bedwetting in the family, punishment, and deep sleep of the child (19).

The study showed the prevalence of generalized anxiety disorders and oppositional disorder was lower in rural areas than in urban areas, and this difference was significant. This result can be explained by the fact that rural parents may be less stressed because of their lifestyle and have more opportunities to be with their children. On the other hand, different parenting styles may play a key role in reducing the anxiety and disobedience of children. In the current study, ADHD was found as 1.6% in urban areas but it was absent in rural areas. This disorder has been reported as 0.84% in China (11), 9% in Dhaka, 8% in Western countries (8), 10.2% in Lebanon (10), and 7.4% among Australian children (20). This difference is probably due to the type of attitude, parents' expectations of the children, the level of tolerance of parents, specific social conditions, and the type of consumed food.

In this study, the prevalence of depression was 1.6% in children and adolescents aged 6 to 18 years old, which is consistent with Young study reporting the prevalence of depression as 1.32% (11). However, another study found that depression was more common in adolescents of the 12 - 18 age group (21). This greatly differs from the results of our study, which is probably due to the use of the semi-structured diagnostic questionnaire, K-SADS-PL. This questionnaire uses accurate questions from individuals or their parents and provides the therapist with a more accurate diagnosis. Therefore, using this instrument, rather than self-report questionnaires, reduces the probability of bias in re-

**Table 2.** Comparison of the Prevalence of Psychiatric Disorders in Children and Adolescents Based on Gender, Place of Residence, and Age Groups<sup>a</sup>

Disorders	Gender		P Value	Place of Residence		P Value	Age Group			P Value	Total Prevalence
	Male	Female		City	Village		4 - 9	10 - 14	15 - 18		
Depression	4 (0.8)	12 (2.5)	0.065	14 (2.1)	2 (0.7)	0.170	3 (0.9)	5 (1.5)	8 (2.5)	0.271	16 (1.6)
Separation anxiety	22 (4.4)	31 (6.1)	0.259	41 (5.7)	12 (4)	0.352	18 (5.3)	21 (6.2)	14 (4.2)	0.495	53 (5.2)
Social phobia	4 (0.8)	4 (0.8)	0.918	8 (1.1)	0 (0)	0.114	1 (0.3)	5 (1.5)	2 (0.6)	0.165	8 (0.8)
Special phobia	4 (0.8)	12 (2.3)	0.075	13 (1.8)	3 (1)	0.419	5 (1.5)	6 (1.8)	5 (1.5)	0.904	16 (1.6)
Agoraphobia	3 (0.6)	7 (1.4)	0.342	8 (1.1)	2 (0.7)	0.732	5 (1.5)	4 (1.2)	1 (0.3)	0.301	10 (1)
Generalized anxiety	12 (2.4)	18 (3.5)	0.355	27 (3.8)	3 (1)	0.014	6 (1.8)	12 (3.5)	12 (3.5)	0.282	30 (3)
Obsessive-compulsive	13 (2.6)	23 (4.5)	0.126	30 (4.2)	6 (2)	0.095	9 (2.7)	11 (3.3)	16 (4.8)	0.364	36 (3.5)
ADHD	11 (2.2)	5 (1)	0.136	16 (2.2)	0 (0)	0.005	6 (1.8)	5 (1.5)	5 (1.5)	0.905	16 (1.6)
Oppositional defiant	13 (2.6)	12 (2.3)	0.842	23 (3.2)	2 (0.7)	0.014	3 (0.9)	10 (3)	12 (3.6)	0.039	25 (2.4)
Bedwetting	21 (4.2)	9 (1.8)	0.026	28 (3.9)	2 (0.7)	0.004	14 (4.1)	11 (3.2)	5 (1.5)	0.105	30 (2.9)

<sup>a</sup>Values are expressed as No. (%).

sponding to questions by individuals or parents.

The prevalence of oppositional defiant disorder was 2.4% in the present study while its prevalence was 5% in the study by Jesmin et al. (22) and 4.7% in the study by Maalouf et al. (10). Other studies showed that the prevalence of oppositional defiant disorder was between 2.6% and 15.6% in children and adolescents (18), which is slightly different from the results of the present study. This lower prevalence can be due to the neglect of behavioral problems and the diagnosis of oppositional disorders by family members or perhaps due to the lack of proper reporting to the interviewer. According to the results of the present study, the frequency of oppositional disorder was significantly different between age groups, with a higher prevalence in the age group of 15 to 18, which could be due to the lack of elaborate emotional regulation, process of puberty, transition from childhood to adulthood, and independence in this age group.

Lopez et al. (23) showed that anxiety, oppositional defiant, and obsessive-compulsive disorders were more common in adolescence. Epidemiologic studies have shown that obsessive-compulsive disorder is prevalent in one to 4% of children and adolescents (24). According to our results, the overall prevalence of obsessive-compulsive disorder was 3.5%, with higher frequency in girls (4.5%), residents of cities (4.2%), and people in the age group of 15 - 18 years (4.8%). However, these differences were not significant between the gender, place of residence, and age groups; thus, it can be explained that the process of changes in puberty and adolescence due to its specific characteristics is such that it can cause certain problems like engagement and rumination.

### 5.1. Conclusions

According to the findings of the present study, psychiatric disorders are more common in adolescence. This may be due to that in this period, (1) the person is in transition from childhood to a new stage, (2) the person experiences the most significant physical, psychological, and social changes, and (3) the symptoms are often obscure and are not identified easily and quickly by educators and health care providers. The findings of this study emphasize timely diagnosis, prevention, and control of disorders in sub-populations that are most at risk.

### 5.2. Limitations

The study faced limitations including the resistance of some families and the lack of cooperation to complete the questionnaires, distrust towards the interviewers, and lengthy interviews and questioning process.

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### Footnotes

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