Prevalence of Psychiatric Disorders among Children and Adolescents: A Study from Khuzestan

How to Cite This Article: Riahi F, Mohammadi, Izadi Mazidi MD, Khaleghi A, Hooshyari Z, Prevalence of Psychiatric Disorders among Children and Adolescents: A Study from Khuzestan. Iran J Child Neurol. summer 2022; 16(3): 95-107

Frough RIAHI MD1,
Mohammad Reza MOHAMMADI MD2,
Maryam IZADI MAZIDI PhD3
Ali KHALEGHI PhD2,
Zahra HOOSHYARI PhD4

1. Department of Psychiatry, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Psychiatry and Psychology Research Center, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Clinical Psychology, Shahed University, Tehran, Iran.
4. Virual School of Medical Education and Management, Shahid Behashti University of Medical Sciences, Tehran, Iran.

Corresponding Author
Izadi Mazidi M. MD
Department of Clinical Psychology, Shahed University, Tehran, Iran
Email: maryam.izadi.psy@gmail.com

Abstract

Objective
This cross-sectional study aimed to study the prevalence rate of psychiatric disorders in children and adolescents in Khuzestan province.

Materials & Methods
A community sample consisting of 1028 (51.6% female) children and adolescents aged 6-18 years was selected using a multistage cluster sampling method. Data were gathered using the Kiddie-SADS-Present and Lifetime Version (K-SADS-PL) and a demographic questionnaire (i.e., gender, age, level of education, place of residence, parent’s education, and parent’s Job).

Results
Nearly 22.6% (22.3% of boys and 23% of girls) of all participants suffered from at least one psychiatric disorder. There was no significant difference in the prevalence of psychiatric disorders based on gender, age, father’s education, mother’s education, mother’s job, and father’s job (all p>0.05). Psychiatric disorders were significantly more prevalent among children and adolescents in urban areas compared to rural places (2.9% vs. 8.1; p<0.001). The most prevalent category was anxiety disorders (15%). Also, the most common disorders were specific phobia (7%), separation anxiety disorder (6.3%), and enuresis (5.2%). The most common comorbid disorders were mood disorders and anxiety disorders (56.3%), followed by anxiety disorders and elimination disorders (32.1%).
Conclusion
Psychiatric conditions are prevalent in children and adolescents living in Khuzestanian. The study’s findings have important implications for providing effective psychiatric services.

Keywords: Prevalence; Psychiatric Disorders; Children; Adolescent

DOI: 10.22037/ijcn.v15i4.27319

Introduction
According to World Health Organization (WHO, 2017), psychiatric disorders are the main cause of disability in youth. These conditions affect children’s development as well as their academic performance and potential to live productively and fulfilling (1). Evidence suggests that childhood and adolescence mental disorders also predict the later psychiatric problems (2). Therefore, it is important to gain an understanding of the prevalence, risk factors, and progression of psychiatric disorders in youth in order to establish mental health policies. Epidemiological studies are one of the most powerful sources of information for change (1). A review of several studies (published from 2000 to 2007) in the US found that approximately one-third of children and adolescents experience a psychiatric disorder during their lifetimes, and about one-fourth across the last year (3). In a sample of individuals aged 14 to 24 years in Germany, substance disorders were the most prevalent (annual 11.4%; lifetime 17.7%), with abuse being dramatically more common than dependence. The prevalence of other disorders was as follows: depressive disorders (16.8%), anxiety disorders (14.4%), eating disorders (3.0%), and threshold somatoform disorders (1.2%) (4). Using a population-based sample, Kim et al. (2011) found that the prevalence of autism spectrum disorders was 2.64% in South Korean (5). In a study on 5 to 16 years old children and adolescents in Bangladesh, Jasmin et al. (2016) found that 18% of individuals had a psychiatric disorder, with prevalence rates of 15.0%, 9.0%, and 0.4% in behavioral disorders, emotional disorders, and developmental disorders, respectively (6). Some studies have also investigated this topic in Iran. For instance, according to Alavi et al. (2010), nearly 17.9% of children aged 6-11 years in Tehran were diagnosed as suffering from psychiatric disorders (7). Ahmadi et al. (2016) found that 10.55% of Iranian children and adolescents, from five provinces of Tehran, Shiraz, Isfahan, Tabriz, and Mashhad, were diagnosed with at least one psychiatric disorder. Oppositional defiant disorder (ODD) (4.45%) had the highest prevalence, while substance abuse and alcohol abuse (0%) had the lowest. Moreover, attention deficit hyperactivity disorder (ADHD) and ODD had the highest prevalence in boys and girls, respectively. Among the three age subgroups, 10 to 14 and 15 to 18 years old subjects had the highest prevalence of ODD, while ADAH had the highest prevalence among those aged 6-9 years old (8). In the study conducted by Moharrari et al. (2009) in Mashhad (Iran), the prevalence of psychiatric disorders was estimated to be 34%, based on the self-report measure, and 67.7%, according
to the parent report measure (9). Although some previous studies have addressed the need for patterns of service utilization, national data are still unavailable. The absence of data on the prevalence of mental disorders in a nationally representative sample of Khuzestan youth has impeded establishing mental health policy for this population. Therefore, this study aimed to investigate the prevalence of psychiatric disorders among children and adolescents in Khuzestan province.

**Materials & Methods**

The present study was conducted from September 22, 2016, to January 3, 2018. A total of 1028 children and adolescents (age range: 6-18 years; mean age: 11.96 ± 3.84) were recruited using the multistage cluster sampling method. For this purpose, 170 clusters of houses were randomly selected based on postal codes in both urban and rural areas of Khuzestan province; and in each cluster, 6 children and adolescents were randomly selected within equal blocks of age groups (6-9 years, 10-14 years, and 15-18 years) and gender. The Kiddie-Sads-Present and Lifetime Version (K-SADS-PL) measures were used to identify psychiatric disorders in the screening and diagnostic stage. Data were collected by 14 trained clinical psychologists. The inclusion criteria were defined as Iranian nationality, living in Khuzestan province for at least one year, and age range of 6 to 18 years. Suffering from severe physical illness was the exclusion criterion. The kids’ parents were also asked to complete a questionnaire to obtain demographic data, including gender, age, level of education, parent’s education, and economic situation.

**Ethical Considerations**

The study was approved by the ethical committee of the national institute for medical research development (code: IR.NIMAD.REC.1395.001). Signed informed consent forms were secured from the participants, and their records were kept confidential at all times. In addition, they were informed that they could withdraw from the study at any time.

**Measures**

**K-SADS-PL**

This semi-structured integrated parent-child interview method was developed by Chambers and colleagues (10). It intends to assess present and lifetime psychiatric history based on DSM-IV criteria and contains five diagnostic groups of: affective disorders; psychotic disorders; anxiety disorders; disruptive behavioral disorders; and substance abuse, tic disorders, eating disorders, and elimination disorders (enuresis/encopresis). Data from parents and children are recorded and synthesized to make a diagnosis. Most items were rated on a 0- to- 3 point scale and others on a 0- to- 2 point scale. K-SADS-PL provides rating individual symptoms as well as global and diagnostic specific impairment rating (11). In the study by Kaufman et al. (11), test-retest reliability coefficients were 0.77 to 1.00 (an excellent range) for present and/or lifetime diagnoses of oppositional defiant disorder (ODD), conduct, generalized anxiety, major depression, and any bipolar. Meanwhile, it was in the range of 0.63 to 0.67 for present diagnoses of posttraumatic stress disorder (PTSD) and ADHD. The concurrent validity of the interview also was well supported.
Analysis
Data were analyzed using descriptive analysis, $\chi^2$, Fisher exact tests, and binary logistic regression. The probability level of 0.05 was accepted as statistically significant. Statistical analyses were performed using SPSS version 16.

Results
Among the participants, 111 boys (22.3%) and 122 girls (23%) diagnosed as suffering from psychiatric disorders. Distributions of psychiatric disorders according to socio-epidemiologic variables are listed in Table 1. There were no significant differences in prevalence of psychiatric disorders based on gender, age, father education, mother education, mother job, and father job (all $p > 0.05$). Psychiatric disorders were more prevalent in urban participants compared to those who lived in rural (Table 1, 2; $p = 0.001$).

Table 1. Frequency of Demographic Variables in Children and Adolescents (6-18) of Khuzestan province and Prevalence of Psychiatric Disorders in Terms of these Variables

|                | total N | with disorder | CI (95%) |
|----------------|---------|---------------|----------|
|                |         | n | p      |          |
| Sex            |         |   |        |          |
| Boy            | 498     | 111 | 22.3  | 18.9-26.1 |
| Girl           | 530     | 122 | 23    | 19.6-26.8 |
| Age            |         |   |        |          |
| 6-9            | 343     | 83  | 24.2  | 20-29    |
| 10-14          | 342     | 72  | 21.1  | 17.1-25.7 |
| 15-18          | 343     | 78  | 22.7  | 18.6-27.5 |
| place of residence |       |   |        |          |
| Urban          | 843     | 218 | 25.9  | 23-29    |
| Rural          | 185     | 15  | 8.1   | 5-13     |
| Father educations |       |   |        |          |
| Illiterate     | 66      | 15  | 22.7  | 14.3-34.2 |
| primary school | 199     | 33  | 16.6  | 12.1-22.4 |
| Guidance & high school | 227 | 55  | 24.2  | 19.1-30.2 |
| Diploma        | 275     | 70  | 25.5  | 20.7-30.9 |
| bachelor       | 191     | 43  | 22.5  | 17.2-29  |
| MSc or higher  | 50      | 11  | 22    | 12.8-35.2 |
| Missing        | 20      | -   | 6     |          |
| Mother educations |       |   |        |          |
| Illiterate     | 121     | 25  | 20.7  | 14.4-28.7 |
| primary school | 254     | 42  | 16.5  | 12.5-21.6 |
| Guidance & high school | 221 | 58  | 26.2  | 20.9-32.4 |
| Diploma        | 265     | 68  | 25.7  | 20.8-31.2 |
Prevalence of Psychiatric Disorders among Children and Adolescents: A Study from Khuzestan

| Mother educations | N   | P     | n   | p     | CI (95%) |
|-------------------|-----|-------|-----|-------|----------|
| bachelor          | 138 | 13.5  | 35  | 25.4  | 18.8-33.2|
| MSc or higher     | 21  | 2.1   | 4   | 19    | 7.7-40   |
| Missing           | 8   | -     | 1   |       |          |

| Father jobs       | N   | P     | n   | p     | CI (95%) |
|-------------------|-----|-------|-----|-------|----------|
| Public sector     | 433 | 42.8  | 103 | 23.8  | 20-28    |
| Private sector    | 526 | 52    | 112 | 21.3  | 18-25    |
| unemployed        | 52  | 5.1   | 12  | 23.1  | 13.7-36.1|
| Missing           | 17  | -     | 6   |       |          |

| Mother jobs       | N   | P     | n   | p     | CI (95%) |
|-------------------|-----|-------|-----|-------|----------|
| Public sector     | 87  | 8.5   | 19  | 21.8  | 14.5-31.6|
| Private sector    | 26  | 2.5   | 3   | 11.5  | 4-29     |
| unemployed (Housewife) | 908 | 88.9  | 210 | 23.1  | 21-26    |
| Missing           | 7   | -     | 8   |       |          |
| total             | 1028| 100   | 233 | 22.7  | 20-25    |

Table 2. Odds Ratios (95% CI) for total psychiatric disorder in term of demographic variables

| Variables and their categories | OR (crude) | CI (95%) | P-value | OR (adjusted) | CI (95%) | P-value |
|--------------------------------|------------|----------|---------|---------------|----------|---------|
| Sex                            | male       | 1.00 Baseline | 0.78-1.39 | 0.78           | 1.10     | 0.81-1.49 | 0.53 |
|                                | female     | 1.043     |         |               |          |         |      |
| Age group                      | 6-9        | 1.00 Baseline | 0.58-1.19 | 0.33           | 0.79     | 0.55-1.15 | 0.23 |
|                                | 10-14      | 0.84      |         | 0.33           | 0.79     | 0.55-1.15 | 0.23 |
|                                | 15-18      | 0.92      |         | 0.66           | 0.86     | 0.59-1.25 | 0.43 |
| Locus of life                  | Urban      | 1.00 Baseline | 0.15-0.44 | 0.001          | 0.22     | 0.12-0.42 | 0.001|
|                                | Rural      | 0.25      |         | 0.001          | 0.22     | 0.12-0.42 | 0.001|
| Father education               | Illiterate | 1.00 Baseline |       |               |          |         |      |
|                                | primary school | .676   | .340-1.343 | .263          | 0.64     | 0.31-1.32 | 0.23 |
|                                | High school | 1.087    | .567-2.084 | .801          | 0.73     | 0.35-1.51 | 0.39 |
|                                | Diploma    | 1.161    | .614-2.194 | .646          | 0.67     | 0.31-1.45 | 0.31 |
|                                | bachelor   | .988     | .506-1.927 | .971          | 0.56     | 0.24-1.31 | 0.18 |
|                                | MSc or higher | .959   | .397-2.318 | .926          | 0.57     | 0.19-1.67 | 0.31 |
The most common categories were Anxiety Disorders (15%), Neurodevelopmental disorders (5.7%), and Behavioral Disorders (5.3%), and the least prevalent categories were Eating Disorders (0.3%) and Substance abuse disorders (0.8%). Specific Phobia (7%), Separation Anxiety Disorder (6.3%), and Enuresis (5.2%) were the most prevalent disorders, Alcohol abuse (0.1%), Anorexia Nervosa (0.1%), and Encopresis (0.1%). Prevalence of all disorders is shown in Table 4 and Figure 1, 2.

**Table 3.** Prevalence of Psychiatric Disorders in the Khuzestan province children and adolescents (6-18)

| Psychiatric Disorders          | Number | Percent | CI (95%) |
|-------------------------------|--------|---------|----------|
| Mood disorders                |        |         |          |
| Depressive Disorders          | 16     | 1.6     | 1.2-2.5  |
| Total mood disorder           | 16     | 1.6     | 1.2-2.5  |
| Psychotic disorder            | 6      | 0.6     | 0.3-1.3  |
### Prevalence of Psychiatric Disorders among Children and Adolescents: A Study from Khuzestan

| Psychiatric Disorders               | Number | Percent | CI (95%)  |
|-------------------------------------|--------|---------|-----------|
| **Anxiety disorders**               |        |         |           |
| Separation Anxiety Disorder         | 65     | 6.3     | 5-8       |
| Social Phobia                       | 17     | 1.7     | 1-2.6     |
| Specific Phobias                    | 72     | 7       | 5.6-8.7   |
| Agoraphobia                         | 48     | 4.7     | 3.5-6.1   |
| Generalized Anxiety                 | 21     | 2       | 1.3-3.1   |
| Obsessive Compulsive Disorder       | 15     | 1.5     | 0.9-2.4   |
| Post-Traumatic Stress Disorder      | 3      | 0.3     | 0.1-0.8   |
| Total Anxiety Disorders             | 154    | 15      | 12.9-17.3 |
| **Behavioral Disorders**            |        |         |           |
| Attention Deficit Hyperactivity Disorder | 29    | 2.8     | 2-4       |
| Oppositional Defiant Disorder       | 22     | 2.1     | 1.4-3.2   |
| Conduct Disorder                    | 7      | 0.7     | 0.3-1.4   |
| Tic Disorder                        | 3      | 0.3     | 0.1-0.8   |
| Total Behavioral Disorders          | 54     | 5.3     | 4.0-6.8   |
| **Neurodevelopmental disorders**    |        |         |           |
| Mental retardation                  | 39     | 3.8     | 2.8-5.1   |
| Autism                              | 2      | 0.2     | 0.05-0.7  |
| Epilepsy                            | 25     | 2.4     | 1.6-3.6   |
| Total Neurodevelopmental disorders  | 59     | 5.7     | 4.5-7.3   |
| **Substance abuse disorders**       |        |         |           |
| Tobacco use                         | 7      | 0.7     | 0.3-1.4   |
| Alcohol abuse                       | 1      | 0.1     | 0.02-0.5  |
| Total Substance abuse disorders     | 8      | 0.8     | 0.4-1.5   |
| **Elimination Disorders**           |        |         |           |
| Enuresis                            | 53     | 5.2     | 4-6.7     |
| Encopresis                          | 1      | 0.1     | 0.02-0.5  |
| Total Elimination Disorders         | 53     | 5.2     | 4.6-7     |
| **Eating Disorders**                |        |         |           |
| Anorexia Nervosa                    | 1      | 0.1     | 0.02-0.5  |
| Bulimia Nervosa                     | 2      | 0.2     | 0.05-0.7  |
| Total Eating Disorders              | 3      | 0.3     | 0.1-0.8   |
| Total Psychiatric disorders         | 233    | 22.7    | 20-25     |
Prevalence of Psychiatric Disorders among Children and Adolescents: A Study from Khuzestan

Figure 1. Prevalence of psychiatric disorders in children and adolescents Khuzestan province

Figure 2. Prevalence of psychiatric disorders in children and adolescents Khuzestan province
The most common comorbid disorders were Mood Disorders and Anxiety Disorders (56.3%), followed by Anxiety Disorders and Elimination disorders (32.1%). The prevalence of all concurrent disorders is shown in Table 5.

Table 4. Comorbidity disorders according to the type of psychiatric disorder in the Khuzestan province

| Comorbid | Main Disorder         | F(P) | Psychotic Disorders F(P) | Anxiety Disorders F(P) | Behavioral Disorders F(P) | Neurodevelopmental Disorders F(P) | Substance abuse disorders F(P) | Elimination Disorders F(P) | Eating disorders |
|---------|-----------------------|------|--------------------------|------------------------|--------------------------|----------------------------------|--------------------------------|--------------------------|----------------|
| Mood Disorders | 2                   | 9(56.3) | 3(18.8) | 1 | 1 | 1 | 0 |
| Psychotic Disorders | 2               | 2 | 16(10.4) | 12(7.8) | 1(0.6) | 17(11) | 1(0.6) |
| Anxiety Disorders | 9(5.8)               | 2(1.3) | 16(29.6) | 10(18.5) | 3(5.6) | 11(20.4) | 0 |
| Behavioral Disorders | 3(5.6)            | 2(3.7) | 12(20.3) | 10(16.9) | 1(1.7) | 4(6.8) | 0 |
| Neurodevelopmental disorders | 1(1.7)         | 1(1.7) | 12(20.3) | 10(16.9) | 1(1.7) | 4(6.8) | 0 |
| Substance abuse disorders | 1                   | 0 | 1 | 3 | 1 | 0 | 0 |
| Elimination Disorders | 1(1.9)            | 0 | 17(32.1) | 11(20.8) | 4(7.5) | 0 | 0 |
| Eating disorders | 0                   | 0 | 1 | 0 | 0 | 0 | 0 |

Discussion

The current study was an effort to identify the gaps in our knowledge of the state of mental health in children and adolescents in Khuzestan province. The findings revealed that 22.66% of children and adolescents suffer from psychiatric disorders. This result is comparable to the findings of the national survey of psychiatric disorders among children and adolescents in Iran, which reported a prevalence rate of 22.31% (12). Comparisons with other studies are complicated by differences in diagnostic categories, sampling, and case finding methods (4). Anxiety disorders, with a prevalence rate of 15%, were the most common mental disorder. It is cautiously consistent with the results of Zarafshan (13) that reported a prevalence of 14% for anxiety disorders among elementary school students. However, it is highly lower than values reported by studies intended to investigate anxiety disorders (among children, adolescents, or both) in Bandarabas, Zahedan, Shiraz, and Ardebil (85%, 55.97%, 54.5%, and 24.1%, respectively) and higher than the rate of anxiety disorders in Gorgan, Urmia, Tabriz, and Rafsanjan (10.8%, 6.8%, 6.9%, and 8.4%, respectively)(13). In this study, the most prevalent category was neurodevelopmental disorders, followed by behavioral disorders. We didn’t find significant differences in prevalence of psychiatric disorders among participants with different age subgroups, gender, level of parent’s
education, and parents’ job status. In contrast with our findings, low parental education (whether father or mother) has been reported to be one of the risk factors for psychiatric disorders in children and adolescents in some previous studies (12, 14). In terms of age subgroups and gender, also, some studies mentioned higher prevalence of a number of disorders in some age subgroups or genders (e.g., 8, 10, and 12 for different age subgroups; and 7, 8, and 12 based on the gender).

The observed difference in the results of various studies can be attributed to participants’ socioeconomic status, sample size, sampling method, data collection tools, and the location and time of the survey, among various factors. In line with some previous studies (12, 15, 16), mental disorders were significantly more prevalent among children and adolescents in urban areas compared to rural places. The higher prevalence of mental disorders in urban areas, compared to rural areas, can be attributed to higher levels of stress and challenges in cities. On the other hand, a wide spectrum of factors contribute to the mood of children living in urban areas, compared to rural areas, and due to the diversity of such events, individuals who live in urban settings more often experience failure than those who live in rural areas. Experienced failure not only affects the incidence of mental disorders but also can exacerbate their severity (12).

**Comorbidity**

In the present study, 38.2% of patients were diagnosed with more than one psychiatric disorder. This rate is lower than that of Noterdaeme et al. (16), which reported that more than 60% of patients suffered from more than one psychiatric disorder. Analyses of comorbidities indicated that anxiety disorders had the highest comorbidity with other disorders, excluding substance abuse disorders. Previous studies that assessed comorbidities in mood disorders, psychotic disorders, alcohol use, eating disorders, and anxiety disorders are in line with this finding(12, 17-24). The most common comorbid disorders were anxiety disorders and mood disorders. This finding is similar to previous studies that mentioned the simultaneous presence of these disorders (12, 17, and 25), although comorbidity prevalence varies widely. The high co-occurring of anxiety and depressive disorders in youth has developed transdiagnostic models of psychopathology that discuss shared cognitive, affective, and behavioral processes underlying multiple disorders (26-28). Children and adolescents with anxiety disorders were vulnerable to elimination disorders as the second common comorbidities. More details about the comorbidity of psychiatric disorders among children and adolescents have been inserted in Table 5.

**Limitations**

The current study was the first epidemiological survey of psychiatric disorders with a large sample of children and adolescents living in Khuzestan province. However, some limitations should be taken into account. First, the participants didn’t include the detained or homeless children and adolescents. Second, a self-report design was followed to collect data, which is prone to bias (e.g., not observing honesty in answering the items). Moreover, responses might have been affected by memory bias.

**In Conclusion**

About one-fifth of children and adolescents in Khuzestan province suffer from psychiatric disorders, and anxiety disorders are the most common category. Living in an urban area was
associated with a higher rate of psychiatric disorders. In sum, the findings can be used by related authorities to provide effective psychiatric services and should be considered in future etiological and interventional works.

**Author’s Contribution**

M.M. and A.K. were the project leaders and were responsible for project design. M. I and F.R were responsible for sampling and preparation of the data. Z.H. performed the statistical analyses and interpreted the data. M. I drafted the manuscript; all authors read and approved the final manuscript.

**Acknowledgement**

This study was supported by the national institute for medical research development (NIMAD) (Grant number: 940906). The authors thank the cooperation of the families of the participants.

**Conflict of Interest**

The authors declare no conflict of interest.

**References**

1. World Health Organization. (2018). Mental health. Retrieved from https://www.who.int/mental_health/maternal-child/en/
2. Copeland WE, Shanahan L, Costello EJ, Angold A. Childhood and adolescent psychiatric disorders as predictors of young adult disorders. Archives of general psychiatry. 2009 Jul 1;66(7):764-72.
3. Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. Dialogues in clinical neuroscience. 2009 Mar;11(1):7.
4. Wittchen HU, Nelson CB, Lachner G. Prevalence of mental disorders and psychosocial impairments in adolescents and young adults. Psychol Med. 1998; 28:109-126.
5. Kim YS, Leventhal BL, Koh YJ, Fombonne E, Laska E, Lim EC, Cheon KA, Kim SJ, Kim YK, Lee H, Song DH. Prevalence of autism spectrum disorders in a total population sample. American Journal of Psychiatry. 2011 Sep;168(9):904-12.
6. Jesmin A, Mullick MS, Rahman KM, Muntasir MM. Psychiatric disorders in children and adolescents attending pediatric outpatient departments of tertiary hospitals. Oman medical journal. 2016 Jul;31(4):258.
7. Alavi A, Joshaghani N, Mahmoudi-Gharaei J. Frequency of Psychological Disorders amongst Children in Urban Areas of Tehran. Iran J Psychiatry 2010; 5: 55-59.
8. Ahmadi N, Salmanian M, Asadian-Koohestani F, Ghanizadeh A, Alavi A, Malek A, Dastgiri S, Moharreri F, Hebrani P, Arman S. Psychiatric disorders in Iranian children and adolescents. Iranian journal of psychiatry. 2016 Apr;11(2):87.
9. Moharreri F, Habrani P, Yazdi AH. Epidemiological Survey of Psychiatric Disorders in Children and Adolescents of Mashhad in 2009. Journal of Fundamentals of Mental Health 2015; 17.
10. Chambers WJ, Puig-Antich J, Hirsch M, Paez P, Ambrosini PJ, Tabrizi MA, Davies M. The assessment of affective disorders in children and adolescents by semistructured interview: test-retest reliability of the Schedule for Affective Disorders and Schizophrenia for School-Age Children, Present Episode Version. Archives of general psychiatry. 1985 Jul 1;42(7):696-702.
11. Kaufman J, Birmaher B, Brent D, Rao UM, Flynn C, Moreci P, Williamson D, Ryan N. Schedule for affective disorders and schizophrenia for school-age children-present and lifetime
version (K-SADS-PL): initial reliability and validity data. Journal of the American Academy of Child & Adolescent Psychiatry. 1997 Jul 1;36(7):980-8.
12. Ahmadi N, Khaleghi A, Mostafavi SA, Kamali K, Rahgozar M, Ahmadi Alavi SS, Molavi P, Sarraf N. Prevalence and correlates of psychiatric disorders in a national survey of Iranian children and adolescents. Iranian journal of psychiatry. 2019 Jan;14(1):1.
13. Zarafshan H, Salmanian M. Prevalence of anxiety disorders among children and adolescents in Iran: a systematic review. Iranian journal of psychiatry. 2015;10(1):1.
14. Mansouri L. Prevalence of Depression among High School Girls in Kuhdasht, Iran. [dissertation]. Ahvaz: Joundishapour University of Medical Sciences; 2013; 16(4):434-441
15. Qin P, Agerbo E, Mortensen PB. Suicide risk in relation to socioeconomic, demographic, psychiatric, and familial factors: a national register–based study of all suicides in Denmark, 1981–1997. American Journal of Psychiatry. 2003 Apr 1; 160(4):765-72.
16. Vega WA, Kolody B, Aguilar-Gaxiola S, Alderete E, Catalano R, Caraveo-Anduaga J. Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. Arch Gen Psychiatry. 1998; 55(9):771-8.
17. Noterdaeme M, Schlamp D, Linder M, Kischel K-H. Analyse der komorbiden psychiatrischen Diagnosen anhand der Basisdokumentation der Kinder-und Jugendpsychiatrie. Psychiat Prax. 2004; 31:126-8.
18. Mohammadi Abdi S. Prevalence of comorbid psychiatric disorders in children and adolescents with attention deficit hyperactivity disorder. [dissertation]. Ahvaz: Joundishapour University of Medical Sciences; 2013.
19. Tonna M, Amerio A, Stubbs B, Odone A, Ghaemi SN. Comorbid bipolar disorder and obsessive-compulsive disorder: A child and adolescent perspective. Aust N Z J Psychiatry. 2015;49(11):1066-7.
20. Deepmala, Coffey B. Challenges in Psychopharmacological Management of a Young Child with Multiple Comorbid Disorders, History of Trauma, and Early-Onset Mood Disorder: The Role of Lithium. J Child Adolesc Psychopharmacol. 2014; 24(9):519-24.
21. Dilsaver SC, Akiskal HS, Akiskal KK, Benazzi F. Dose–response relationship between number of comorbid anxiety disorders in adolescent bipolar/unipolar disorders, and psychosis, suicidality, substance abuse and familiality. J Affect Disord. 2006; 96(3):249-58.
22. Moss HB, Lynch KG. Comorbid disruptive behavior disorder symptoms and their relationship to adolescent alcohol use disorders. Drug Alcohol Depend. 2001; 64(1):75-83.
23. Tuisku V, Pelkonen M, Kiviruusu O, Karlsson L, Marttunen M. Alcohol use and psychiatric comorbid disorders predict deliberate self-harm behavior and other suicidality among depressed adolescent outpatients in 1-year follow-up. Nord J Psychiatry. 2012; 66(4):268-75.
24. Moaddab M, Mangone E, Ray MH, McDannald MA. Adolescent alcohol drinking renders adult drinking BLA-dependent: BLA hyper-activity as contributor to comorbid alcohol use disorder and anxiety disorders. Brain sciences. 2017; 7(11):151.
25. Brand-Gothelf A, Leor S, Apter A, Fennig S. The impact of comorbid depressive and anxiety disorders on severity of anorexia nervosa
in adolescent girls. J Nerv Ment Dis. 2014; 202(10):759-62.
26. Ollendick TH, Jarrett MA, Grills-Taquechel AE, Hovey LD, Wolff JC. Comorbidity as a predictor and moderator of treatment outcome in youth with anxiety, affective, attention deficit/hyperactivity disorder, and oppositional/conduct disorders. Clinical Psychology Review. 2008 Dec 1; 28(8):1447-71.
27. Barlow DH, Allen LB, Choate ML. Toward a unified treatment for emotional disorders. Behavior therapy. 2004 Mar 1; 35(2):205-30.
28. Barlow, D. H., Sauer-Zavala, S., Carl, J. R., Bullis, J. R., & Ellard, K. K. (2014). The nature, diagnosis, and treatment of neuroticism: Back to the future. Clinical Psychological Science, 2, 344–365.