



# The Epidemiological Assessment of Lifestyle Impact on Childhood and Adolescence Psychiatric Disorders in Kohgiluyeh and Boyer-Ahmad Province, Iran

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## Abstract

**Background:** Children and adolescents are potentially at risk of different psychiatric disorders, and it is important to consider their health, especially their mental health.

**Objectives:** We aimed to design a cross-sectional study to investigate the association between lifestyle-related components with the psychiatric disorders in children and adolescents in Kohgiluyeh and Boyer-Ahmad province (Iran) and to determine its association with different lifestyle-related variables.

**Methods:** In this study, about 1000 children and adolescents aged 6 to 18 years in Kohgiluyeh and Boyer-Ahmad province were selected using stratified cluster random sampling. The reliable Persian version of Kiddie-Sads-Present and Lifetime Version (K-SADS-PL) and the Life Style Questionnaire (LSQ) were instructed using interviewing with participants by our clinical psychologists or, if they were under 14 years, with their parents. Besides, demographic data (i.e., gender, age, location, race, nation, and religion) of participants were also collected.

**Results:** The results showed that, except for the physical activity and well-being, other remaining factors have a significant correlation with psychiatric disorders ( $P < 0.05$ ). The exact p-value for each factor was as follow: physical health ( $P = 0.007$ ), sports and well-being ( $P = 0.057$ ), weight control and nutrition ( $P = 0.001$ ), prevention of diseases ( $P = 0.04$ ), mental health-cognitive ( $P = 0.05$ ), spiritual health ( $P = 0.008$ ), social health ( $P = 0.05$ ), drug avoidance ( $P = 0.001$ ), accident prevention ( $P = 0.02$ ), and environmental health ( $P = 0.001$ ). Also, we found that the overall effect of lifestyle was significantly associated with children and adolescent mental disorders ( $P < 0.05$ ).

**Conclusions:** Our findings show a significant role for lifestyle in the children and adolescents psychiatric disorders. So it should be considered in more detail in future studies.

**Keywords:** Adolescents, Children, Psychiatric Disorders, Lifestyle

## 1. Background

First epidemiological studies on psychiatry problems in children and adolescents were performed in the mid-60s in England (1). Since then, most advanced countries have conducted similar studies to find out the prevalence and risk factors for psychiatric disorders in children and adolescents (2-4). There are many factors such as the social, cultural, political, and economic status of the family, genetics, lifestyle, etc. which may affect the physical and mental health of children and adolescents (5). A recent review of the degree of behavioral, mental, or emotional dis-

orders among children in developing countries reported that the prevalence of psychiatric disorders in children and adolescents living in large cities in these countries is 10% - 20%, equal to or somewhat higher than the rates of developed countries (6). Other studies conducted in India, Colombia, Philippines, and Sudan surveyed the population attending in primary health service centers and reported a prevalence of 12% - 29% for childhood psychiatric disorders (5), and prevalence of 3% - 11% for psychiatric disorders in children and adolescents in Ethiopia (7), Sudan (8) and India (9), Beijing, (10) and Hong Kong (11). These studies also considered various emotional and behavioral dis-

orders, developmental delay, psychosis, epilepsy, or behavioral disorders, and mental retardation. Also, some studies reported prevalence as high as 70% for these disorders (12).

Kohgiluyeh and Boyer-Ahmad province is located in the southwest of Iran, with a population of about 700000, and it is estimated that children and adolescents compose at least 10% - 15% of its population (13). Many of these children and adolescents may suffer from behavioral and emotional disorders and may require more health care services and facilities. Unfortunately, there is no accurate statistic on the prevalence of childhood and adolescent psychiatric disorders in the subjected province, and the available information are limited to regional studies (13-18). Also, as mentioned above, one of the important factors which may affect children's and adolescents' mental health is the lifestyle and many studies that highlighted its influential effect in this kind of disorder (19-22). So, a lot of studies are needed to address this issue, to examine different aspects of lifestyle, and to investigate their impacts on psychiatric disorders of children and adolescents in this area.

## 2. Objectives

The current study aimed to epidemiologically assess the effects of lifestyle on psychiatric disorders among children and adolescents living in Kohgiluyeh and Boyer-Ahmad, considering different lifestyle variables. The results of such a study can provide useful and valuable information to the mental health authorities and decision-makers to provide proper planning and appropriate distribution of facilities, to take the basic steps to prevent and treat these disorders in the country.

## 3. Methods

### 3.1. Study Design and Sampling

The current research is an example of a well-designed provincial study in Iran. Since few studies have assessed the impact of lifestyle-related factors on childhood and adolescent psychiatric disorders, this cross-sectional study was conducted between 2016 - 2017 in Kohgiluyeh and Boyer-Ahmad Province (Iran) to fill the gap. Participants were randomly selected using the multi-stage stratified cluster random sampling method among the 6-18-year-old population living in urban and rural areas of the province. 170 clusters of houses were randomly selected based on postal codes in both rural and urban areas, and in each cluster, 6 children and adolescents were randomly selected within equal blocks of gender and age groups (6-9 years, 10-14 years, and 15-18 years). Then, about 1000 children and adolescents were selected. The research team tried to

address the potential sources of bias in the design of the study, from the very beginning to the end. At the design stage, it was tried to decrease the selection bias by using multistage cluster sampling and stratified random sampling methods. Also, it was tried to distribute the main confounders, such as age and gender, evenly in each cluster. Individuals who decided to not participate in the study, and questionnaires that contained confused answers were excluded. The demographic data such as age, gender, location, race, and religion of all participants are presented in

**Table 1.** Demographic Information of the Participants in This Study

Variables an classifications	Total	
	Frequency	Percent
<b>Gender</b>		
Boy (male)	496	49.6
Girl (Female)	505	50.5
Unknown	-	-
<b>Age group</b>		
6-9	321	32.1
10-14	386	38.6
15-18	294	29.4
No response	-	-
<b>Location</b>		
City	520	52.0
Village	481	48.1
No response	-	-
<b>Race or nation</b>		
Fars	7	0.7
Turk	8	0.8
Kurd	1	0.1
Lor	975	97.5
Others	4	0.4
No response	6	0.6
<b>Religion</b>		
Shia	993	99.8
Sunnis	2	0.2
Other religions	-	-
No response	6	0.6
<b>Whole sample</b>	<b>1001</b>	<b>100</b>

### 3.2. Kiddie-Sads-Present and Lifetime Questionnaire

A complete, reliable Persian version of Kiddie-Sads-Present and Lifetime (K-SADS-PL) was instructed and adopted of its original one by participating clinical

psychologists (23). The K-SADS-PL questionnaire is a semi-structured interview designed to evaluate the current episodes of mental illness in children and adolescents (aged 6 - 18) based on DSM (Diagnostic and Statistical Manual of Mental Disorders)-III-R and DSM-IV. K-SADS-PL includes three main parts: introductory interview (demographic, health, and other background information), screen interview (82 symptoms related to 20 diagnostic areas), and five diagnostic supplements: (1) affective disorders (major depression, dysthymia, mania, hypomania); (2) psychotic disorders; (3) anxiety disorders (social phobia, agoraphobia, specific phobia, obsessive-compulsive disorder, separation anxiety disorder, generalized anxiety disorder, panic disorder, posttraumatic stress disorder); (4) disruptive behavioral disorders (attention deficit hyperactivity disorder/ADHD, conduct disorder, oppositional defiant disorder); and (5) substance abuse, tic disorders, eating disorders, and elimination disorders (enuresis, encopresis). (24). This semi-structured interview contains multiple questions with a space for accountability and has been developed to specify more signs. This diagnostic tool reveals information about the current diagnosis and signs of the past years. Also, this questionnaire was completed by parents following the interview with the children. It worth noting that the K-SADS-PL questionnaire requires filling in the following sections: (1) a prior non-structured interview; (2) a diagnostic screening interview; (3) a supplementary checklist; (4) a diagnostic attachment; (5) a checklist of diagnostic summaries throughout life; and (6) the overall assessment of the child (Children's Global Assessment Scale [C-GAS]).

### 3.3. Lifestyle Questionnaire (LSQ)

The lifestyle questionnaire is used to measure physical health, exercise and fitness, control weight and nutrition, disease prevention, psychological health, spiritual well-being, social health, drug avoidance, prevention of accidents, and environmental health. We used a well-designed lifestyle questionnaire, which was developed by Lali and colleagues (25) with a reliability coefficient of 0.91 and a correlation coefficient of 0.58. Also, the Cronbach's alpha of the questionnaire was proven to be 0.087 for different scales. Based on the results obtained from the analysis of the factors using the principal components analysis method, 10 factors with a higher value than one were extracted, which all altogether were determining 22.46% of the total variance of the whole lifestyle. These results confirmed the validity of the lifestyle questionnaire as a multidimensional tool for assessing and measuring lifestyle.

### 3.4. Ethics

All participants were contributed voluntarily. Written informed consent was taken from each participant or parent of adolescents less than 16 years. The Ministerial Committee for Medical and Health Research Ethics approved the protocol of the present study (ethics code: IR.NIMAD.REC.1395.001).

### 3.5. Analysis

Fisher and Chi-square tests were used to statistically analyze the data. Analyses were performed using SPSS version 16.0, and a P values < 0.05 was assumed as statistically significant.

## 4. Results

### 4.1. The Association Between Lifestyle and Psychiatric Disorders in Children and Adolescents

According to the results, it is obvious that the variables related to lifestyle could significantly affect the children and adolescent psychiatric disorders. The statistical analysis showed no significant correlation between sport activities and well-being with psychiatric disorders in the subjected group ( $P = 0.057$ ). Also, 9 (out of 10) variables related to the lifestyle were significantly correlated with the prevalence and incidence of psychiatric disorders of children and adolescents. The exact P values for each factors were (physical health,  $P = 0.007$ ), (sport activities and well-being,  $P = 0.057$ ), (weight control and nutrition,  $P = 0.001$ ), (prevention of diseases,  $P = 0.04$ ), (mental health-cognitive,  $P = 0.05$ ), (spiritual health,  $P = 0.008$ ), (social health,  $P = 0.05$ ), (drug avoidance,  $P = 0.001$ ), (accident prevention,  $P = 0.02$ ), and (environmental health,  $P = 0.001$ ). Detailed data are presented in Table 2. Ultimately, by putting all results together, it became obvious that lifestyle has a significant role in children and adolescent disorders. Also, it has to be mentioned that the most populated subgroups in our classification were 'normal lifestyle' and 'below normal lifestyle' groups (Table 2 and Figure 1). The cut points to diagnose the disorder were performed according to the KSADS instruction for a lifetime and current diagnoses, which were the cutting points of the criteria mentioned in DSM by APA.

### 4.2. Descriptive Information of the Variable Related to Lifestyle and Their Association with Mental Disorders in Children and Adolescents

According to Table 3 and Figure 2, it is clear that all investigated variables may individually or partially be associated with psychiatric disorders. However, it may be concluded that, if a number of these variables come together

**Table 2.** Relationship Between Family Lifestyle and Psychiatric Disorder in Children and Adolescents Using Chi-Square and Fisher Tests

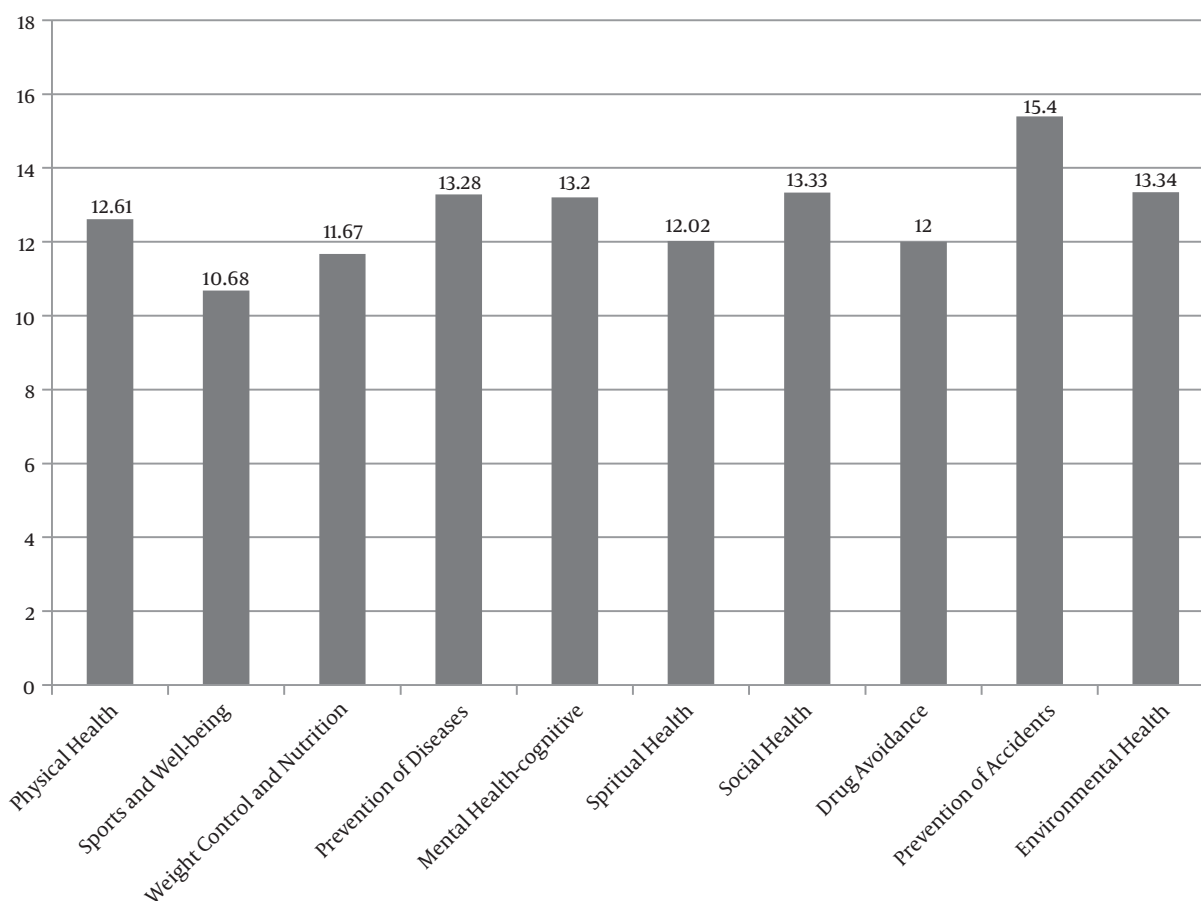
Disorders	Lifestyle								P Value
	Bad		Below the Standard Limit		Normal		Good		
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	
<b>Physical health</b>									0.007
No psychiatric disorder	37	3.7	402	40.2	325	32.5	32	3.2	
With psychiatric disorders	2	0.2	93	9.3	93	9.3	16	1.6	
<b>Sports and well-being</b>									0.057
No psychiatric disorder	6	0.6	437	43.7	323	32.3	30	3	
With psychiatric disorders	2	0.2	91	9.1	99	9.9	12	1.2	
<b>Weight control and nutrition</b>									0.001
No psychiatric disorder	43	4.3	202	20.2	502	50.2	49	4.9	
With psychiatric disorders	6	0.6	80	8	99	9.9	19	1.9	
<b>Prevention of diseases</b>									0.04
No psychiatric disorder	-	-	201	20.1	487	48.7	108	10.8	
With psychiatric disorders	-	-	49	4.9	113	11.3	42	4.2	
<b>Mental health-cognitive</b>									0.05
No psychiatric disorder	0	0	223	22.3	445	44.5	128	12.8	
With psychiatric disorders	1	0.1	54	5.4	104	10.4	45	4.5	
<b>Spiritual health</b>									0.008
No psychiatric disorder	1	0.1	235	23.5	351	35.1	209	20.9	
With psychiatric disorders	0	0	56	5.6	71	7.1	77	7.7	
<b>Social health</b>									0.005
No psychiatric disorder	-	-	227	22.7	416	41.6	153	15.3	
With psychiatric disorders	-	-	55	5.5	89	8.9	60	6	
<b>Drug avoidance</b>									0.001
No psychiatric disorder	8	0.8	233	23.3	334	33.4	221	22.1	
With psychiatric disorders	7	0.7	54	5.4	57	5.7	86	8.6	
<b>Accident prevention</b>									0.02
No psychiatric disorder	1	0.1	262	26.2	365	36.5	168	16.8	
With psychiatric disorders	0	0	61	6.1	80	8	63	6.3	
<b>Environmental health</b>									0.001
No psychiatric disorder	1	0.1	244	24.4	433	43.3	118	11.8	
With psychiatric disorders	0	0	54	5.4	87	8.7	63	6.3	
<b>The whole lifestyle</b>									0.005
No psychiatric disorder	-	-	228	22.8	532	53.3	35	3.5	
With psychiatric disorders	-	-	55	5.5	128	12.8	21	2.1	

in a bad manner, they can synergistically affect children and adolescent mental health and cause mental disorders.

## 5. Discussion

Most mental health disorders emerge during adolescence, and it has been revealed that about 20% of the world's children and adolescents suffer from mental disorders or problems (26). Studies have reported various prevalence of psychiatric disorders in children and adolescents worldwide (15, 27). In Iran, few studies have reported a heterogeneous frequency of these psychiatric disorders, ranging from 10% to 30% in different areas (14, 15).

Many studies have reported that psychiatric disorders are associated with different factors such as the social, political, economic status of family, poor lifestyle, and adverse outcomes (5), but few studies have directly compared these characteristics in children and adolescent with psychiatric disorders to those in the general population. This cross-sectional study aimed to investigate the epidemiological associations of lifestyle variables of children and adolescent concerning psychiatric disorders and to assess physical health, physical activity and well-being, weight control and nutrition, prevention of diseases, mental health-cognitive, spiritual health, social health, drug avoidance, prevention of accidents and environmental health as important factors that affect the prevalence



**Figure 1.** Average score of lifestyle dimensions of families

of psychiatric disorders in Kohgiluyeh and Boyer-Ahmad province in Iran. Also, we assessed the frequency of these 10 lifestyle-related variables in children and adolescents with psychiatric disorders compared to those without psychiatric disorders. We assumed that these 10 lifestyle-related variables can both influence and be influenced by mental health problems. Besides, by gaining an in-depth knowledge of their association with mental disorders in children and adolescents, they can be early detected, modified, prevented, and (finally) better treated.

To investigate the association between lifestyle-related variables and psychiatric disorders among children and adolescents, we divided the participants into three groups based on age, gender, location, race, and nationality along with religion (Table 1). We assessed the coherence of 10 different lifestyle-related variables with children and adolescent psychiatric disorders (Table 2). Interestingly, the results showed that 9 (out of 10) lifestyle-related variables were significantly correlated

with psychiatric disorders in children and adolescents. However, the association of sports and well-being was not statistically significant with this kind of disorder, but the results showed that this factor was highly associated with psychiatric disorders in children and adolescents. It seems to be in line with the results of other studies that reported children or adolescents who suffer from mental disorders have less activity, which may exacerbate their problems (28). Few studies have shown that lifestyle significantly affects adolescents with obsessive-compulsive disorder (19, 29). Also, another study has shown that the association between lifestyle and children's obsessive-compulsive disorder is reciprocal (19). Based on the results, most of the participants were in the 'Normal Lifestyle group' (Figure 1), and we could conclude that in this group, lifestyle has more significant importance in the incidence of psychiatric disorders. Also, according to the findings, each of 10 studied variables had an individual and relative effect on children and adolescent psychiatric disorders

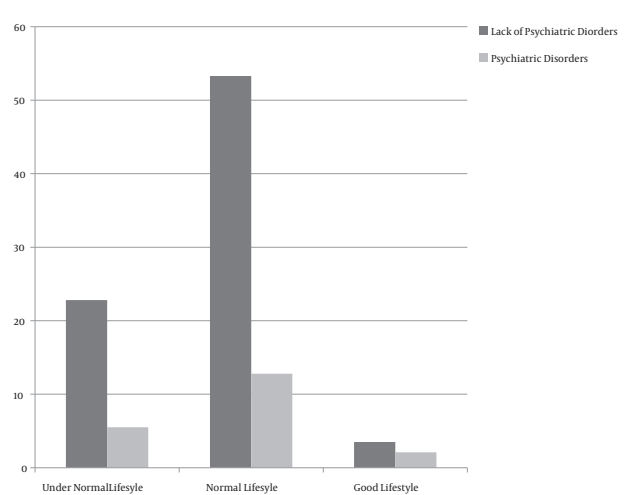
**Table 3.** Descriptive Information of the Components of the Lifestyle of Families in Terms of Disorder Status (Total Psychiatry) in Provincial Sample

Variable/Grouping	Mean	SD	P Value
<b>Physical health</b>			0.007
No disorder	12.41	3.83	
With disorder	13.39	4.10	
<b>Sports and well-being</b>			0.003
No disorder	10.53	3.48	
With disorder	11.26	3.71	
<b>Weight control and nutrition</b>			0.125
No disorder	11.70	3.86	
With disorder	11.53	4.07	
<b>Prevention of diseases</b>			0.006
No disorder	13.10	3.54	
With disorder	13.94	4.08	
<b>Mental health-cognitive</b>			0.115
No disorder	13.10	3.95	
With disorder	13.61	4.21	
<b>Spiritual health</b>			0.028
No disorder	11.88	3.64	
With disorder	12.57	3.85	
<b>Social health</b>			0.009
No disorder	13.13	3.91	
With disorder	14.09	4.43	
<b>Drug avoidance</b>			0.038
No disorder	11.91	3.56	
With disorder	12.34	4.20	
<b>Accident prevention</b>			0.005
No disorder	15.15	4.58	
With disorder	16.35	5.09	
<b>Environmental health</b>			0.001
No disorder	13.09	3.98	
With disorder	14.29	4.37	

(Figure 2), and probably when a bunch of these variables simultaneously come together in a bad manner, they may cause psychiatric disorder or even exacerbate the situation. We found that the 10 lifestyle-related variables are directly associate with the children and adolescent psychiatric disorders and should be considered in future studies.

### 5.1. Conclusion

According to the results, different lifestyle-related variables were significantly related to children's and adoles-

**Figure 2.** Comparative diagram of family lifestyle and lacking or disruptive psychiatric disorders in children and adolescents

cent's psychiatric disorders. However, this study has some limitations which should be considered in future studies to put a spotlight on other factors that may be associated with lifestyle and psychiatric disorders.

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### Footnotes

**Authors' Contribution:** RO and MRM designed the conception of the study; SAM focus of the statically analysis; PA and AK technical support and conceptual advice.

**Conflict of Interests:** The authors declare that they have no competing interests.

**Ethical Approval:** The Ministerial Committee for Medical and Health Research Ethics approved the protocol of the present study (The ethics code: IR.NIMAD.REC.1395.001).

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