

## Prevalence of adult attention deficit hyperactivity symptoms in Tabriz Islamic Azad university medical stager students in 2014

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**Abstract: Background and Objectives:** (ADHD) disorder in children has long been known and treated. However, in recent decades, the continuation (ADHD) in adults after childhood, considerable attention has defects. This study aimed to investigate the prevalence of hyperactivity and attention deficit in adults Medical training been done. **Methods:** This study (Cross-Sectional) by the Conner's Adult ADHD Persian questionnaire on 176 medical students of Islamic Azad University of Tabriz has been done and data using descriptive statistics and analyzed the latest version of SPSS Are. **Results:** The (59%) students were female, 36% were married, mean age  $33/1 \pm 68/25$  years, Connors questionnaire measuring self-concept index (43/4), impulsivity (86/4), neglect (90 / 4) and hyperactivity (95/5), respectively. In relation to the comparison of the mean scores of hyperactivity and failure by gender in any of the symptoms of hyperactivity and dysfunction among males and females was not significant (p-value > 0.05) and between the mean scores of hyperactivity and failure Regarding marital status, significant differences in self-concept was achieved after index (p-value = 0.01). Trainees will gradually increase with age and are clearly signs of hyperactivity and reduced medical training but problems remain focused. **Conclusion:** screening, diagnosis and treatment of attention deficit hyperactivity disorder and medical education can improve interpersonal and family relations and avoid future negative results in severe impairment in relation to the treatment of disease.

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### 1. Introduction

Current diagnostic criteria, as in the most recent edition of the Diagnostic Statistical Manual of Mental Disorders, DSM-V, by Psychiatric Association America, ADHD disorder has been mentioned among the disorders diagnosed for the first time in infancy, childhood or adolescence(1).

ADHD disorder is also classified under *attention deficit and disruptive behavior* sub-entry. There are nine symptoms for each of the two subsets of the disorder, that there must be at least six symptoms in a person for diagnosis of ADHD to be confirmed(1-2).

According to the diagnostic criteria, one must show attention deficit, hyperactivity – impulsivity, or both symptoms in a persistent, maladaptive and less age-appropriate way (for at least 6 months)(1-2).

Diagnostic and Statistical Manual of Mental Disorders (DSM-5) has also noted that adolescents and adults who already have symptoms not perfectly match with the diagnostic criteria and should be identified as partial temporary recovery. It is important to acknowledge that, specific diagnostic criteria have been determined to identify observable behaviors commonly shown by children with ADHD, however, it has been confirmed that in a maximum of 70% of children with ADHD, this disorder continues

into adulthood (3). The problem with diagnosis of this disorder in adults is that the symptoms of ADHD transforms over time, making it difficult to be evaluated and diagnosed, and as well, the symptoms of ADHD are mistaken with other psychopathologies in adulthood (1,4).

Up to now, among the studies about Adult ADHD, there is no study on the prevalence of the disorder among medical students; and given the prevalence of this condition in the general population, in the event of early diagnosis and appropriate intervention, this study seems necessary to be conducted.

The implementation of this research and applying its results in proper planning in screening the disorder and timely interventions will be beneficial in the field of counseling and therapy.

Following the medical students' need for attention and focus required studying the associated sciences for use in the health care system, and keeping an eye on the improvement and promotion of those students suffering Attention Deficit and Hyperactivity Disorders, it is necessary to provide increasing ethical and professional betterment for this wide range of students.

## 2. Material and Methods

In a cross-sectional descriptive-analytical study at the Department of Psychiatry of Tabriz on medical students of Islamic Azad University of Tabriz, the prevalence of adult attention deficit and hyperactivity was evaluated in medical students at Tabriz Azad University during the years 2014-15.

Data were collected using the Persian questionnaire of Conner's on Adult ADHD. Persian translation of CAARS questionnaire was used in this study.

Variables under study included age, gender, marital status, nativity, smoking and alcohol use, psychiatric history, and a history of chronic disease. The population was targeted at 200 people, 18 of which refused to complete the questionnaire and 6 were excluded due to incomplete and unrelated questionnaire. In total, the population included 176 medical students.

### Inclusion criteria:

Medical students studying at Islamic Azad University of Tabriz during the years 2014-15.

### Exclusion criteria:

1. Lack of consent to participate in the study.
2. Incomplete answers to the questionnaire.

Up to now, among the studies about Adult ADHD, there is no study on the prevalence of the disorder among medical students; and given the prevalence of this condition in the general population, in the event of early diagnosis and appropriate intervention, this study seems necessary to be conducted.

Conner's (CAARS-S:S) short diagnostic questionnaire of hyperactivity - adult attention deficit disorder is a questionnaire with appropriate reliability and validity, consisting of 26 zero-to-three-point items and the following five subscales were used to correct it:

- A- Attention / memory problems.
- B- Restlessness / hyperactivity.
- C- Emotional instability / status of momentum.
- D- Problems with an overall concept of self.
- E- Hyperactivity-attention deficit index.

## 3. Results

A total of 176 students participated in this study, that 72 people (41%) were male and 104 (59%) were female. The mean age of students was  $25.68 \pm 1.33$  years. 113 people (64%) were single and 63 (36%) were married. 2 cases (46.5%) were native. 19 people (10.7%) were smokers and only 2 people (0.01%) had a history of alcohol consumption. 10 people (5%) had a history of chronic disease and 25 (14%) had a history of psychiatric illness.

ADHD-symptoms mean scores questionnaire dimensions are shown in Table 1. The prevalence or dimensions disorder in ADHD symptoms among medical students is shown in Table 2.

Table 1: Mean of adult attention deficit hyperactivity in medical stager students

	Mean	Std. Deviation	Cronbach's Alpha
Neglect	4.90	2.91	0.71
Hyperactivity	5.95	4.08	0.58
Impulsivity	4.86	2.51	0.64
Self-concept Index	4.43	3.16	0.74

Comparison of ADHD-symptoms mean scores by gender is shown in Table 3. Comparison of the prevalence of ADHD symptoms by gender is shown in Table 4.

Table 2: Frequency of adult attention deficit hyperactivity in medical stager students

	Frequency	Percent
Neglect	14	8%
Hyperactivity	6	3.4%
Impulsivity	10	5.7%
Self-concept Index	15	8.5%

Comparison of ADHD-symptoms mean scores by age is shown in Table 5.

Table 3: Mean of adult attention deficit hyperactivity based on student's gender

	Neglect	Hyperactivity	Hyperactivity	Self-concept Index
Male	4.83	5.43	94.4	5.15
Female	4.96	6.31	4.8	5.62
P	0.77	0.13	0.71	0.34

Comparison of the prevalence of ADHD symptoms by age is shown in Table 6.

Table 4: Frequency of adult attention deficit hyperactivity based on student's gender

	Male	Female	P
Neglect	4	10	0.32
Hyperactivity	2	4	0.70
Impulsivity	4	6	0.95
Self-concept Index	4	11	0.24

Comparison of ADHD-symptoms mean scores by marital status is shown in Table 7. Comparison of the prevalence of ADHD symptoms by marital status is shown in Table 8.

Table 5: Mean of adult attention deficit hyperactivity based on student's age

	Neglect	Hyperactivity	Hyperactivity	Self-concept Index
23-25 year	4.04	5.67	4.35	5.26
25-27 year	5.63	6.18	5.26	5.58
>27 year	6	6.42	5.85	5.5
P	0.001	0.68	0.03	0.81

#### 4. Discussions

In cross – sectional descriptive study during April 2014 to March 2015 as a census among medical students studying in educational-medical institutions associated with Islamic Azad University of Tabriz, the

relevant information on 176 people, including their demographic specs (age, gender, nativity, marital status, smoking, alcohol consumption, drug abuse, history of mental illness) and Conner's Questionnaire for adults was collected.

Table 6: Frequency of adult attention deficit hyperactivity based on student's age

	23-25 year	25-27 year	>27 year	P
Neglect	0	14	0	0.001
Hyperactivity	2	4	0	0.70
Impulsivity	0	8	2	0.001
Self-concept Index	7	8	0	0.71

As expected, the gender distribution of the participants in this study was 59% for females and 41% for males, that similar to the study by Mosalanejad et al. (5) on the prevalence Adults ADHD on students of Medical Sciences in Zahedan, females had the gender majority (64.5%), however, the gender distribution in the study by Lidija Soshoska et al. (3) in the Republic of Macedonia showed the dominance of males (61.4%) compared to females (42.2%). Also in a national study on 9282 English speakers by the Social Research Institute, Faculty of Medicine, University of Michigan, USA, by Ronald C. Kessler et al. (5), the gender distribution was reported with a majority of the male gender by 61.6%.

In a study by Knouse (6) on student in dormitories of the University of Medical Sciences, Ardebil, 65.3 percent were male and 34.7% were female. Diagnosis of the disorder in childhood is higher in boys than girls, however, the diagnosis in adulthood is equal between men and women (7), and no evidence of a higher incidence of this disorder has been found in men than in women. Also in this study, in line with the study by Simon et al. (7), even though gender distribution shows the majority of the females, according to the results obtained, no significant difference in the prevalence of symptoms of ADHD and Attention Deficit is observed between the two genders in medical students.

Table 7: Mean of adult attention deficit hyperactivity based on marital status

	Neglect	Hyperactivity	Hyperactivity	Self-concept Index
Single	4.81	6.19	4.84	5.05
Married	5.07	5.52	4.88	6.15
P	0.56	0.22	0.92	0.01

Table 8: Frequency of adult attention deficit hyperactivity based on marital status

	Single	Married	P
Neglect	11	3	0.24
Hyperactivity	6	0	0.06
Impulsivity	8	2	0.28
Self-concept Index	10	5	0.83

The mean age of medical students in this study was 25.68±1.33 year, with the lowest frequency at the age of 27 years and older with 7 people and the highest frequency at the age of 25-27 years with 87 people. In the study by Mosalanejad et al. (5) on the prevalence of Adults ADHD, the mean age of students

of Medical Sciences was 21.7±3.2 years; and the high mean age of medical students in the study was due to the longer duration of study in this major in comparison to other academic majors.

Assessing the prevalence of smoking and alcohol use among participants, this amount is very low in this population, i.e. 10.7% were smokers and 0.01% had alcohol consumption, and in the study of chronic disease and psychiatric history, 5% of the students had chronic diseases and 14% had a history of psychiatric disorders. Compared to the study by Turner et al. (1) in South Korea, based on data from national reports of psychiatric disorders, these variables had not significant relationship and association with

symptoms of hyperactivity in students of medical education. This inconsistency was also there in the study by Knouse et al. (6) on the prevalence of ADHD on 409 university students living in Fatemeh Zahra girls' dormitory, Martyr Beheshti University of Medical Sciences in 2004.

In this study, according to the standard instruction, the dimensions of Questionnaire of ADHD Symptoms included attention deficit, impulsivity, hyperactivity, self-concept problem, which after calculating the scores, the results achieved included self-concept index (4.43), impulsiveness (4.86), attention deficit (4.90) and hyperactivity (5.95) respectively, where in the meantime, hyperactivity had the highest mean score among the students, so that Cronbach's alpha values (0.58) indicates a good confidence interval in this questionnaire. In other words, hyperactivity - attention deficit subscale in medical students were more frequent than impulsivity - self-concept subscale.

Raw scores of each subscale were converted to T-scores (with mean=50 and SD=10) using an appropriate normative table. Scores higher than 65 were considered as having ADHD and Attention Deficit. In this study, it was concluded that a small number of the population have ADHD and Attention deficit disorder, where the self-concept index subscale (15 persons) had the highest and the hyperactivity subscale (6 persons) had the lowest disorder. It can be said most medical students are healthy and without symptoms of hyperactivity and attention deficit disorder, while the prevalence of ADHD among the students of Medical Sciences of Zahedan in the study by Mosallanejad et al. (5) has been reported high.

In this study, comparing the mean scores of ADHD symptoms by gender, no significant difference was observed in any dimension of ADHD symptoms between males and females ( $p>0.05$ ). Comparing the mean scores of ADHD symptoms by age (three age groups: 23 to 25 years, 25 to 27 years and 27 years and above), there is a statistically significant difference in the dimensions of attention deficit and impulsivity. So that with the age increasing, medical interns had higher mean scores on attention deficit and impulsivity ( $p = 0.001$ ). The highest prevalence of hyperactivity and attention deficit is in the age group 25 to 27 years. This is consistent with the findings of studies on development of hyperactivity and attention and concentration disorders, so that by the age increasing, hyperactivity and impulsivity symptoms improved gradually and clearly, however, attention and concentration problems remain (7-11).

Comparing the mean symptom scores of ADHD and Attention Deficit by marital status, a significant difference was observed in terms of self-concept index ( $p=0.01$ ). so that married people had higher self-

concept index. Comparing the prevalence of the ADHD symptoms by marital status, no significant difference was observed in any of dimensions of attention deficit, hyperactivity, impulsivity, self-concept index ( $p>0.05$ ). As in the study by Knouse et al. (10), there was a significant difference between married and single people in prevalence of ADHD, in the way that this disorder was higher in singles. High self-concept (problems with the concept of self) in married people can affect relationships within the family and cause marital conflicts, and ultimately elevate the possibility of divorce in this population, since a significant portion (36%) of the population under study are married. Although the people with ADHD in this study are few, but it must not be ignored, because students with attention deficit / hyperactivity disorder, can be considered as a particular concern for the health system, since negative results following severe disorders arise in relation to the patients' treatment.

#### **Research proposal:**

Due to the limited number of population in this study, using non-random samples, restrictions and problems during the study, such as the lack of counseling before and after completing the questionnaires, lack of the possibility to follow up the students involved with ADHD due to the lack of information in the questionnaire and confidentiality, the results cannot be generalized to adults and students of other disciplines, therefore, further studies is recommended with a larger and more diverse target groups, such as cross-check the disorder in different educational groups and longitudinally with the other education fields in various grades. Epidemiological researches are recommended to be conducted in the field of adult ADHD in a variety of professions, and also prospective studies in the process of hyperactive children.

#### **Practical suggestions:**

Given the use of Conner's adults questionnaire in this study to examine the symptoms of hyperactivity in students, in order to increase the knowledge of the students as team members in the health squad of future generations, it is recommended for professors and all those involved in higher education to hold courses and educational workshops and professional counseling meetings, and screening for the presence of ADHD symptoms.

#### **The proposal for the relevant organizations:**

1. Providing training to more awareness to students through the books, brochures, videos, forums and etc. in relation to ADHD and informing students about appropriate and effective therapeutic response in the event of early diagnosis.

2. Psychological assessment of students during the initial registration.

3. Informing expert advisors and providing the necessary advice.
4. Timely reference of the people to psychiatrist.

**Study Limitations:**

- This study was conducted on a sample of 176 people and other medical students in universities of Tabriz are not included, hence, the lack of all census sampling has made this study subject to restrictions. However, this study is an example indicating the prevalence of the disorder among medical students studying in the province of East Azerbaijan.

- Lack of full cooperation of students in filling the questionnaires and incorrect response or lack of response to some of the questions are other limitations of this study.

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