

# Prevalence, Gender Distribution and Presence of Attention Deficit Hyperactivity Disorder by Certain Sociodemographic Characteristics Among University Students

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## ABSTRACT

**Introduction:** Attention deficit hyperactivity disorder (ADHD) is a neurobehavioral developmental disorder usually diagnosed in children, with appearance of the first symptoms before the age of seven years. The disorder is characterized by inattention and/or impulsivity and hyperactivity that can seriously affect many aspects of behavior and performance at school. Specific sociodemographic characteristics seem to contribute to the appearance of ADHD. **Material and methods:** The study was done on a sample of 500 university students. For the measurement of ADHD symptoms, the ADHD Adult Self-report Scale was used and a specifically designed questionnaire for collecting sociodemographic data. **Results:** The results of this screening study showed that in 184 (48.7%) respondents the symptoms of the disorder in the activity and attention were registered. ADHD is highly significant associated with gender ( $p = 0.0004$ ). Men more often than women have this kind of disorder. Our results also showed that living and material conditions were not associated with a higher prevalence of ADHD.

**Key words:** attention deficit hyperactivity disorder, ADHD, sociodemographic characteristics, gender, prevalence, university students.

## 1. INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is neurobehavioral developmental disorder (1,2) mostly diagnosed in children, with appearance of the first symptoms before the age of seven years (3, 4). It is diagnosed twice more often in boys than in girls (5). The most common symptoms of ADHD are impulsivity (6), hyperactivity (6) and inattention (7). ADHD can seriously affect many aspects of behavior in school and at home. The prevalence of ADHD was until recently 3-5%, and over the past few years it has reached 8-12% worldwide, depending on the geographic and local factors. The varying prevalence rates also result from different definitions of the condition, questionnaires (parent or teacher as informant, or both) and interview techniques applied, and age and size of study sample. Using only the parent's rating scales and assessments, the prevalence is 4-9% (8-19). ADHD may significantly affect an individual through childhood as well as in adulthood, especially if it is not optimally managed. ADHD has been associated with lower professional status, crime, and substance abuse (20). Both parents of a child with ADHD and community suffer the conse-

quences of problems associated with ADHD (21,22). A number of people have symptoms of ADHD to an extent that it does not significantly affect their academic, professional and social performance. ADHD can be associated with comorbidities, such as oppositional defiant disorder, conduct disorder, anxiety or depression (23).

A recent large study of ADHD in a national sample of US children showed that the white non-Hispanic American population satisfied the criteria for ADHD more frequently than the Mexican-American population and other races and ethnicities. The authors could not explain why the prevalence of ADHD was lower in Mexican-American children, but it was proposed that it could be associated with genetic factors. About 38.8% of the children with ADHD had been taking medication for ADHD in the previous year, and 32.0% for a longer period. In addition, children with poorer living conditions were diagnosed with ADHD more frequently than children with better living conditions. The authors speculated that poorer children did not have the same access to treatment as wealthy children and therefore used medication less frequently (24).

The risk factors for ADHD also include premature birth and prenatal and childhood exposure to toxic substances.

The aim of our research was to determine the prevalence and gender distribution of ADHD in relation to selected sociodemographic characteristics such as ethnicity, living conditions, and material conditions.

## 2. MATERIAL AND METHODS

The study design was cross sectional. There were 127 boys and 251 girls. The target group are university students from the Faculty of Medical Sciences in the town of Štip, in Macedonia. The number of participants in the survey is 500 respondents (in order to make better screening), from all years of study and from all four study programs (general medicine, dentistry, pharmacy and vocational studies). It represents 25% of the total number of students of medical sciences and research will be included every fourth student who attends the lectures.

Inclusion criteria: research concerns the students of the Faculty of Medical Sciences students who agree to participate in research.

Exclusion criteria: the research will not participate students who refuse to participate because of personal reasons.

### Instruments

To measure the ADHD symptoms, there are many scales that are used in the world (ex.TOVA, Conors, Brown, Copeland, SNAP-IV, VANDERBILT). In our country, there is still no standardized scale, and for determining the symptomatology of ADHD we decided to use the Adult Self-report Scale as a measuring instrument. It gives a solid display of symptoms associated with behavior and global impression.

Sociodemographic data was collected using a specially designed questionnaire. The latter included questions concerning nationality/ethnicity, material conditions (subjective assessment of own wealth/material conditions).

Statistical analysis was performed using chi-square test, Spearman's rank correlation and Kolmogorov-Smirnov two-sample test.

## 3. RESULTS AND DISCUSSION

From 500 university students which were tested, we received 378 filled questionnaires.

The results of this screening study showed that in 184 (48.7%) respondents the symptoms of the disorder in the activity and attention were registered. (Table 1)

The research results show that the ADHD is highly significant associated with gender ( $p = 0.0004$ ). Men more often than women have this kind of disorder. Gender distribution is shown in Table 1 and Figure 2 it notes that activity disorder and attention there in 61.4% of male respondents and 42.2% among female respondents. (Table 2 and Figure 1)

The financial (material) condition of the respondents does not significantly influence the frequency of occurrence of the disorder activity and attention ( $p = 0.2$ ).

This kind of disorder have 44.95% of the respondents with a good socioeconomic status, 51.55% of respondents with "medium" material condition, and the highest percentage, 63.2% respondents their financial situation have labeled as "bad". (Table 3)

In addition, worldwide findings that children from families with unsatisfactory living and material conditions more

ADHD	N	%
with	194	51.32
without	184	48.67
Total	378	100

Table 1. Prevalence of ADHD

gender	ADHD		Total
	without (N/%)	With (N/%)	
Men	49 (38.58%)	78 (61.42%)	127 (100%)
Female	145 (57.77%)	106 (42.23%)	251 (100%)
Total	194	184	378

Table 2. ADHD-gender distribution. Pearson Chi-square: 1,43,  $df=1$ ,  $p=0,0004^{**}$   $p<0,01$

Material condition	ADHD		Total
	without (N/%)	With (N/%)	
Good	109 (55.05%)	89 (44.95%)	198 (100%)
Medium	78 (48.45%)	83 (51.55%)	161 (100%)
Bad	7 (36.84%)	12 (63.16%)	19 (100%)
Total	194	184	378

Table 3. Presence of ADHD by material condition. Pearson Chi-square: 3,23,  $df=2$ ,  $p=0,199$   $p>0,05$

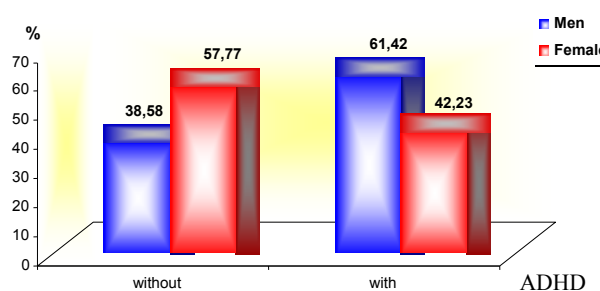


Figure 1. ADHD-gender distribution

frequently had ADHD symptoms may be explained by the parents not recognizing the condition, and confusing it with normal restlessness, which may also be due to their lower level of education.

The risk factors for ADHD include also premature birth or prenatal or childhood exposure to toxic substances.

Availability of ADHD medications has a significant role in the treatment and reducing symptoms of this condition. In Macedonia, no medications for ADHD have been registered yet and people with this condition have to buy them abroad.

Physicians, teachers, parents and other people working with children should be educated about the ADHD symptoms in order to recognize them early and enable appropriate and timely treatment.

## 4. CONCLUSION

Studies on the prevalence of ADHD in relation to sociodemographic characteristics are scarce, and these aspects should be researched more thoroughly.

CONFLICT OF INTEREST: NONE DECLARED.

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