

## Determining the Prevalence of Attention Deficit Hyperactivity Disorder in Patients with Bipolar Disorder Type I within Their Remission Phase

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### Abstract

**Background:** There have been several studies conducted on the relationship between bipolar mood disorder and attention deficit hyperactivity disorder (ADHD) during the recent years, and in most of them the rate of this association had been estimated as 22-90% and had been reported as noticeable. The goal of this study is to determine the prevalence of ADHD in patients with Bipolar mood disorder type I (BID). **Materials and Methods:** In this Cross-sectional study, 152 patients with BID that were referred to psychiatric clinic of Tehran psychiatric Institute for a better observation and treatment were included. Two questionnaires, Wender's for childhood ADHD and Conner's for adulthood ADHD were filled by the patients. **Results:** 102 patients (67%) were males and 50 were females. The average age of patients at the time of our study (with the minimum of 17 and maximum of 76) was  $33.5 \pm 10.9$ . The prevalence of ADHD in our patients was 11.8%. 46 people (30.9%) had a history of childhood ADHD. 21 persons had adult ADHD from whom only 3 ones mentioned a history of childhood ADHD (which means 18 people of our adulthood ADHD had no history of childhood ADHD). **Conclusion:** Since some treatments lead to improvement of ADHD and worsening of BID, investigations on their correlations and their alternative treatments seemed to be necessary. This study showed a significant correlation between ADHD and BID, which was similar to the results of other studies in this field. [GMJ.2013;2(4):174-8]

**Keywords:** Attention Deficit Hyperactivity Disorder (ADHD); Comorbidity; Bipolar mood disorder; Childhood; Adulthood

### Introduction

Attention deficit hyperactivity disorder (ADHD) is the most common psychiatric disorder among children that was reported to have a prevalence of 3-5% among them [1]. This frequency is even greater among boys, in comparison with girls [2]. This problem is characterized by pervasive states, like either

significant difficulties of inattention, or hyperactivity and impulsiveness, or a combination of these two. In comparison to children of their own age, school dropout, anti-social behaviors during school years, and public excommunication even after school are more common [1]. Among all mood disorders, bipolar mood disorder type I (BID) is said to be the most severe one, which seems to have

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equal prevalence in the two genders. The disorder affects 1% of the society and it is an important and considerable disorder due to its recurrence and uncontrollable patients' manners during the episodes [3,4].

There have been plenty of studies done on the relationship between ADHD and BID, regarding their results this comorbidity has been reported in a range of 22 to 90 percent [4,5]. In a recent study in America, 57 to 100% of children with BID suffered from ADHD as well [3]. In a study on children and teenagers in 2006 in the University of Cincinnati in USA, the prevalence of ADHD in BID children was about 85% and reversely, the prevalence of BID in children with ADHD was reported to be 22% [4]. Henin et al showed similar pathophysiology of both initiation and progression of these two diseases, as well as their familial and phenomenological resemblance [5]. This study has also estimated the prevalence of ADHD in family members of BID patients to be 88% [6]. Due to drug interferences, by which ADHD improves and BID worsens, studies on the rate of their comorbidity and their therapeutic treatment alternatives seems to be absolutely necessary. In addition, because of the resemblance of the diagnostic criteria for these two disorders and the possibility for misdiagnosis, a revisal on these criteria should be considered as a research priority. Finally under the circumstance of deteriorating ADHD symptoms in presence of BID and its growing disabling side effects for patients, diagnosing the concurrence of both disorders can have an essential effect on both prognosis and management of these patients. So, due to lack of precise information on this comorbidity in Iranian population, this study was conducted to determine the prevalence of ADHD in a group of BID patients in Tehran, capital of Iran.

### Materials and Methods

This is a cross-sectional study conducted on all BID patients who had been referred to the psychiatric clinic of Iran mental hospital, Tehran, Iran, during their remission phase for a better management.

The original sample included 152 patients

with BID who had been referred to psychiatric clinic of Iran mental hospital during their remission phase, from March 2009 to February 2010.

Two questionnaires, Wender's for childhood ADHD and Conner's for adulthood ADHD were filled by 152 patients. The accuracy and validity of these two questionnaires are internationally recognized. Wender's questionnaire contains 5 options and it is scored from one to five. Conner's questionnaire contains 4 options and is scored from zero to three. The total score should be more than a certain number to confirm the ADHD diagnosis. Patients' demographic information was also questioned.

Our inclusion and exclusion criteria included:

1. The patient should at least have the experience of one period of mania (According to DSM-IV Criteria) registered in his/her medical files, so the diagnosis of BID could be confirmed.
2. Within the last two months, the patient should not have any sign of active BID. In other words, the patient should have passed the last two months in complete remission.
3. The patient should have no history of epilepsy, mental retardation, or any special neurologic disorders.
4. The patient should have no history of any recent drug abuse or alcoholism within the last one month.
5. The patient should have no chronic medical problem that could possibly explain his/her manic symptoms.
6. The patient should be informed, convinced, and satisfied to participate in our study.
7. Some patients who were not eligible for the study were excluded.

An informed consent was filled by each patient after being informed about the study. All participants had the right to leave the study at any point. The methods of the study were in accordance with the guidelines of the medical ethics committee of Rafsanjan University of medical sciences.

Our data was analyzed by SPSS analytic software (Ver. 14). We used mean and standard

deviation (SD) and range as our statistical indicators for our quantitative data and incidence and prevalence for our qualitative data. Inferential statistics that was conducted in the data analysis was chi-square Analysis and T-test. P-value < 0.05 is considered as significant.

## Results

In this study, 152 BID patients who were referred to psychiatry clinics were closely observed. 102 were men (67%) and 50 were women (33%). Their age average was  $33.5 \pm 10.9$ , with the maximum of 76 and minimum of 17. There were 11 people in the range of 17 to 20 (7.2%), 60 between 20 and 30 (39.5%) and 31 aged more than 30 (53.3%). Other demographic information is mentioned in Table-1. The average age of BID initiation in all our patients was  $25.21 \pm 6.64$ . This data in the group with presence of ADHD was  $25.42 \pm 6.33$ . In this study 93 people (61.2%) had no history of any childhood or adulthood ADHD, 46 (30.9%) only with childhood ADHD, and 21 (13.8%) with adulthood ADHD, only 3 of these 21 with no history of childhood ADHD (which means 18 people had both childhood and adulthood ADHD). The history of child-

hood ADHD presence according to sex was 29 in men (76.3%) and 9 in women (23.7%). The history of adulthood ADHD according to sex was 7 in men (58.3%) and 5 in women (41.7%). So, both childhood and adulthood ADHD was insignificantly more prevalent in men. The history of childhood ADHD according to marital status was 15.8% in singles and 15.1% in married individuals. The history of adulthood ADHD according to marital status was 19 patients (50%) in singles and 19 (50%) in married patients. So, regarding the marital status, no significant difference was seen in the two groups of participants. The history of childhood ADHD according to occupational status was 26 patients (68.4%) in the unemployed and 12 (31.6%) in the employed group. The history of adulthood ADHD according to occupational status was 8 patients (66.7%) in the unemployed and 4 patients (33.3%) in the group of employed patients. So, there were no significant differences according to patients' employment status (Table-2). The prevalence of other mood disorders like attention-memory problems, hyper activity and restlessness, impulsiveness, emotional liability, and self-concept problems in our sample study were 10.5%, 5.9%, 11.8% and 11.7%, respectively.

**Table 1.** Determining the Prevalence of Attention Deficit Hyperactivity Disorder (ADHD) in Patients with Bipolar Disorder Type I (BID) within Their Remission Phase; Patients' demographic information.

Patients Demographic Information	Prevalence (%)
Marital status:	
Single	73(48%)
Married	79(52%)
Level of education:	
Elementary school	51(33.6%)
Diploma	82(53.9%)
Higher	19(12.5%)
Occupational status:	
Unemployed	101(66.4%)
Employed	51(33.6%)
First episode of BID:	
In Less than 18 years old	12(8%)
In More than 18 years old	140(92%)
Sex:	
Male	102(67%)
Female	50(33%)

## Discussion

In our study, 30.9% of ADHD cases were children and 13.8% were adults. 90% of patients with both adulthood ADHD and BID, had also a history of childhood ADHD; this data is reported as 46% in Wilens et al study [7]. In a study in by Scheffer et al this comorbidity was more prevalent in children than the general population and even the older ages [8]. Wilens et al in a study in USA on 75 BID patients reported a prevalence of 20% for ADHD. In this study people with any history of chronic medical diseases, any history of mental retardation, any organic brain problem or any history of alcoholism or drug abuse were excluded from the study [7,9]. Robertson et al reported that 68% of BID patients and 10% of unipolar patients were also known cases of ADHD. This study which was consisted of 44 BID patients in Canada, 30 Unipolar patients

**Table 2.** Prevalence of Childhood and Adulthood ADHD According to Patients' Demographic Information

	Childhood ADHD	Adulthood ADHD	Childhood and adulthood ADHD together
Male	29(76.3%)	7(58.3%)	8(88.9%)
Female	9(23.7%)	5(41.7%)	1(11.1%)
Elementary school	13(34.2%)	4(33.3%)	2(22.2%)
Diploma	20(52.6%)	7(58.3%)	5(55.6%)
Higher	5(13.2%)	1(8.3%)	2(22.2%)
Single	19(50%)	10(6.6%)	5(55.6%)
Married	19(50%)	11(7.2%)	4(44.4%)
Unemployed	26(68.4%)	8(66.7%)	5(55.6%)
Employed	12(31.6%)	4(33.3%)	4(44.4%)

and 45 normal people (as controls), showed a comorbidity of 68% between ADHD and BID and a comorbidity of 10% between ADHD and Unipolar disorder [10]. Nierenberg et al in 2003 in Pennsylvania, evaluating 1000 adult patients with BID, showed that the rate of ADHD was 9.5% in this group, 14.7% in bipolar men and 5.8% in bipolar women [3]. We found that most of the ADHD and BID comorbidities were detected in males which is in accordance with some of the previous investigations [9]. There are several hypotheses explaining the high comorbidity of BID and ADHD. One states that because ADHD symptoms show up earlier than BID, they can mimic symptoms of mania in puberty. Testing the validity of this statement by Sachs et al showed that the incidence of ADHD symptoms could be considered as early alarm signs for BID initiation [11]. In our study there was no significant association between ADHD and factors like marital status, sex, occupational status, and level of education neither in patients with history of childhood ADHD or in those with no history of childhood ADHD. We revealed that 61% of BID cases had no history of ADHD while Winokur et al showed that 21% of patients with BID also mentioned a history of childhood ADHD [12]; moreover, Nierenberg et al also proved this idea that comorbidity of BID and ADHD can be highly related to the age of BID incidence [3]. This outcome shows that presence of childhood

ADHD could be considered as an alarm sign for the incidence of adulthood BID. Although we did not find any significant relationship between BID incidence and a past history of ADHD in our patients, this comorbidity may be considered as an alarm sign for the incidence of adulthood BID due to previous surveys. Limitations of this study: past medical history of patients might not have been completely evaluated due to their oblivion, possibly.

### Conclusion

According to the present study, the prevalence of BID and ADHD comorbidities were high and almost similar to other studies. However, we suggest conduction of other multi-centered studies with larger sample sizes. Due to the overlap of diagnostic criteria as well as their treatment interference, cohort studies is needed to better explain and distinguish their symptoms, age of incidence, pathophysiology, risk factors and therapeutic alternatives of these two diseases.

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This study is academically registered with registration number of 11191 in Tehran University of medical science, as a professional thesis to accomplish a diploma in course of psychology.

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