

## False Positive Diagnosis of Mood Disorders in an Objective Structured Clinical Examination Setting

Amir Shabani, MD<sup>\*\*</sup>, Mehdi Hassanzadeh, MD<sup>\*\*</sup>, Badri Daneshamouz, MD<sup>\*\*</sup>  
Mehdi Akbari, MSc<sup>\*\*</sup>, Mojgan Taban, BSc<sup>\*\*\*</sup>

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**Objective:** Given that the topic of bipolar disorder overdiagnosis has been relatively neglected in the literature and considering its significance in psychiatric training. The present study was conducted through an Objective Structured Clinical Examination (OSCE) on psychiatric residents to assess the validity of their clinical diagnosis.

**Methods:** Twenty forth residents participated in the examination. The first station (the mood disorder station) was designed to explore clinical skill of psychiatric residents in diagnosing major depressive disorder through a clinical interview with a simulated patient. The rating checklist to evaluate the residents included 11 items. Each item was scored on a Likert scale. Two raters completed the checklists independently.

**Results:** Out of 24 residents, 15 individuals (62.5%) diagnosed major depressive disorder accurately and 9 individuals (37.5%) diagnosed bipolar disorder instead of major depressive disorder. The score of the last psychiatric written exam ( $p<0.05$ ), the mean score of OSCE on the mood disorder station ( $p<0.001$ ), and the total score of the OSCE (six stations) ( $p=0.09$ ) were significantly higher in the group who correctly diagnosed major depressive disorder than the group who did not.

**Conclusion:** Current study provides evidence for bipolar disorder overdiagnosis and opens up new scopes for improvement in psychiatric training.

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**Keywords:** Bipolar disorder • Bipolar Spectrum • Overdiagnosis • Psychiatric Residents • Psychiatric Education • Objective Structured Clinical Examination (OSCE)

### Introduction

In the past few years, there has been a trend in over-diagnosing bipolar disorders (BD) in University hospitals of Tehran. The ratio of diagnosing bipolar disorders over schizophrenia (BP/SZ ratio) in inpatients at Roozbeh psychiatric hospital in 1952 was 0.7 (1), but this increased to 1.7 in 2005 (2). The ratio was similar (1.6) for inpatients in another University hospital in Tehran (the Iran Psychiatric hospital) in the 2003-2005 (3). Also, a higher rate of diagnosis (BP/SZ=2.4) has been reported in a study on the Persian Composite International Diagnostic Interview

(CIDI) (4). This study was carried out in five psychiatric centers; including four University hospitals with a sample size of 307 patients (both inpatients and outpatients).

It has also been shown that diagnosing a patient's psychopathology with BD is happening more often than attributing it to a Major Depressive Disorder (MDD). In a recent study conducted at a University psychiatric clinic in Tehran to evaluate psychometric values of the Bipolar Spectrum Diagnostic Scale, the rate of diagnosing bipolar disorder type I (BD-I) was 2.7 times more than diagnosing MDD (5).

In a study in Netherland, individuals who had been interviewed through CIDI were re-interviewed by the Structured Clinical Interview for DSM-IV (SCID) as a diagnostic instrument, which is closer to the routine clinical practice (6). Only 40.5% of individuals with a diagnosis of BD on CIDI were diagnosed as BD according to the SCID. This figure was 22% for BD-I.

Given that the topic of over-diagnosis of BD

**Authors' affiliations :** \* Department of Psychiatry, School of Medicine, Iran University of Medical Sciences, Tehran, Iran \*\* Mental Health Research Centre, Tehran Psychiatric Institute, Iran University of Medical Sciences, Tehran, Iran \*\*\* Iran Hospital of Psychiatry, Iran University of Medical Sciences, Tehran, Iran

• **Corresponding author :** Tehran Psychiatric Institute, Niayesh St., Sattarkhan Ave., Tehran, Iran.  
Tel : +98 2166506899  
Fax : +98 2166506899  
E-mail: amirshabani@tehranpi.org

has been relatively neglected in the literature and considering the importance of this misdiagnosis in psychiatric training. The present study was conducted through an Objective Structured Clinical Examination (OSCE) on psychiatric residents to assess their clinical diagnostic skill.

## Materials and Methods

The study was conducted on the second and third-year psychiatric residents of Iran University of Medical Sciences and Health Services (IUMS) in Tehran in winter months of 2008. Twenty four residents participated in the examination which took place in one day.

The first station (the mood disorder station) was designed to explore clinical practice of psychiatric residents in diagnosing MDD. The first author designed the scenario of the station, the simulated patient's guidance and the checklist for rating the residents. Study was granted ethical approval by the Education Committee of the department of psychiatry of IUMS. The first and the second author were selected by the Education Committee of the department of psychiatry to be the examiners for the mood disorder station and scored the residents' performance by using the standard checklist. The simulated patient who was a nurse from Iran Hospital received two training sessions regarding the clinical scenario from the authors. Apart from this station, there were five other OSCE stations. Residents had 10 minutes to complete each station.

The simulated patient played the role of a 30 years old, single, and male with all symptoms criteria for a MDD according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, Text Revision (DSM-IV-TR) (7). He reported that he had been more talkative than usual, but was not talkative during the interview. He had a history of two similar episodes that responded well to Sertraline with no significant side effects. Non-pathological overspending was a continuous trait for him (it was not just related to this or other previous episodes and was never a cause for financial trouble).

The residents were expected to diagnose the type of the mood disorder and select their drug of choice to start the treatment.

The rating checklist included 11 items on rapport, eliciting the duration and nature of the symptoms to differentiate between a depressive and manic episode, awareness of dysthymic disorder, medical history, history of substance use, history of response to an antidepressant, side effects of antidepressant used, and explaining to patient that MDD was the working diagnosis and recommending a suitable antidepressant to initiate the treatment. Each item was scored on a Likert scale. The total score was ranged from 0 to 37. Two raters completed the checklists independently.

The score of the final written examination (which was done less than one month before the OSCE), the score on the mood disorder station (the mean score of the two raters), and the total score in all six stations together were compared to assess candidates' theoretical knowledge and their practical skill. The scores on the written examination for entering the residency training scheme, the order of preference for psychiatry among the list of other specialties and the time interval between the end of medical school, and starting the psychiatric training were also documented for each resident. Data were analyzed by SPSS soft ware (version 14) using Pearson correlation and Chi-square tests.

## Results

Out of 24 residents 15 individuals (62.5%) diagnosed MDD accurately and 9 individuals (37.5%) detected BD instead of MDD. The correlation coefficient between two raters in two groups of residents who diagnosed MDD and BD were  $r=0.80$  ( $p<0.001$ ) and  $r=0.78$  ( $p<0.001$ ) respectively.

The sample of residents consisted of 55.6% males in the MDD group and 60% males in the BD group. The relationship between the gender of resident and the diagnosis was not statistically significant ( $\chi^2=1.14$ ,  $df=1$ ,  $p=0.26$ ).

We assessed the relationship between the ability of residents in diagnosing MDD and the following variables: "The psychiatric written examination score", "The score of the mood disorder station (the mean score of the two raters)", "The total OSCE (six stations) score", "The score on the written examination for

entering the residency training scheme”, “The rank of psychiatry as the preferred specialty among other fields of medicine”, “The time elapsed between ending the medical school and starting the psychiatric training”, and “The overall duration they were in training” (two or three years).

The mean psychiatric written examination score in residency period was significantly higher in MDD group ( $65.33 \pm 8.38$ ) than BD group ( $55.22 \pm 5.16$ ) ( $t=3.25$ ,  $p<0.05$ ). The mean score on the mood disorder station was also significantly higher in MDD group ( $25.93 \pm 4.21$ ) than BD group ( $16.33 \pm 4.47$ ) ( $t=5.28$ ,  $p<0.001$ ).

However, there were no significant differences between the two groups as regards the total OSCE (six stations) scores ( $t=1.73$ ,  $p=0.09$ ) or the number of training years the residents had ( $\chi^2=3.23$ ,  $df=1$ ,  $p=0.08$ ).

## Discussion

This study evaluated the rate of BD over-diagnosis made by psychiatric residents. There was a significant association between over-diagnosing BD and a deficit in resident's theoretical knowledge as well as their clinical skills shown by lower written examination and OSCE scores in the group who made an incorrect diagnosis of BD in comparison to the other groups.

In recent years, the focus of the research has been on the high rate of BD under-diagnosis (8-14) and the fact that clinicians are not good in detecting bipolar disorders (8), but treating bipolar depression as uni-polar depression results in poor outcome (15).

Concerns about BD under-diagnosis might lead to identifying patients with probable BD and those who would be prone to the detrimental effects of antidepressant monotherapy, such as switching to hypomania (16,17), increasing suicidality (18) and cyclicity (19), but disagreements about this issue (20-23) have been expressed.

The present study confirmed the substantial rate of false positive in diagnosing BD that is in line with Stewart and El-Mallakh's findings on a sample of patients with a co-morbidity of BD and substance use disorder (23). The findings are also similar to what have been reported in other studies in Netherlands (6) and USA (24).

Over-diagnosing BD has been reported in psychiatric University centers in Tehran. The reasons could be a better recognition of the condition, antidepressant induced mania and maintaining a low diagnostic threshold in identifying BD (3). Our study does not explore the reasons behind such an over-diagnosis, but the effect of different styles of psychiatric training, spectrum nature of BD and the personal characteristics of clinicians on their clinical skill might provide some explanation for the findings.

## Conclusion

We think current psychiatric training curriculum in Iran put much more emphasis on over-diagnosing BD in the expense of under-diagnosing uni-polar depression. This is mainly to avoid the risks in not diagnosing BD (e.g. to avoid antidepressant induced manic/hypo-manic episode). Therefore, the result of our study has important implication for the future improvement of psychiatric training in Iran.

In limitations, our study cannot be generalized to the real life settings as it was conducted on a simulated patient in a standardized examination environment. The sample size was small and therefore the power of the study was not enough. One can also argue that 10 minutes interview could not have possibly offered the candidates enough time to differentiate between BD and MDD, however, the situation was the same for everyone. In addition, none of the participants complained of shortage of time and as a matter of fact all managed to finish the interview on time.

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