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Obsessions and suicidality in youth suffering from bipolar I disorder

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Abstract

Background Obsessive compulsive disorder (OCD) is a common comorbidity with bipolar disorder, a comorbidity that is known to increase suicide risk. This study aimed to assess the presence of OCD in youth diagnosed with bipolar I disorder and to evaluate the association between OCD and suicide in the same cohort.

Eighty subjects diagnosed with bipolar I disorder were enrolled in this study; subjects were divided according to the presence or absence of OCD to group A: bipolar disorder patients with OCD ($n=26$) and group B: bipolar disorder patients without OCD ($n=54$).

The following scales were applied: Dimensional Yale-Brown Obsessive-Compulsive Scale (DYBOCS)–Beck Scale for Suicidal Ideations (BSSI)–Hamilton Depression Rating Scale (HDRS), and Young Mania Rating Scale (YMRS).

Results DYBOCS score of group A was 30.23 ± 0.43, and that of group, B was 18.50 ± 1.88 with a significant difference ($p<0.01$). There was a significant positive correlation between BSSI and age, age of onset and YMRS in group A ($p<0.01$).

Conclusions The study demonstrated that OCD is a common comorbidity in youth with bipolar I disorder and may be associated with a greater risk of suicide than in youth with bipolar I disorder without comorbid OCD. Furthermore, comorbidity of OCD with bipolar I disorder in youth may be associated with younger age of onset and more severe symptoms profile.

Keywords Bipolar disorder, Suicide, Youth, BSSI, DYBOCS

Background

Bipolar disorder is a persistent, incapacitating mental disorder that can have a significant negative influence on a patient's life. Whether it is bipolar II disorder (BD), which is distinguished by the existence of a hypomanic phase and a severe depressive episode, or bipolar I disorder (BD), which is characterized by the presence of a manic episode. The signs of a manic episode include irritability, a diminished need for sleep, grandiosity, and an exceedingly elevated mood [1]. Up to 75% of manic episodes can also involve psychotic symptoms including delusions, pertaining to varying degrees of poor psychosocial functioning [2].

Obsessive compulsive disorder (OCD) has a lifetime prevalence of 2–3% and a first-degree relative prevalence of up to 11% [3]. OCD is the core component in a set of conditions known as obsessive compulsive and related disorders in DSM-5 (OCRD).

The presence of obsessions and compulsions is what defines it. Obsessions are ego- dystonic, persistent, and repeatedly occurring ideas or images that are typically accompanied by extremely high levels of anxiety. Compulsions are compulsive rituals that a patient feels forced

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to engage in to get rid of the associated distress and anxiety [4, 5].

Given its important nosological and therapeutic consequences, the re-occurring link between OCD and BD has been receiving more attention for several decades.

Patients presenting with OCD and BD show an atypical clinical course, characterized by a higher number of associated depressive episodes, a more episodic course and higher treatment resistance [6–8]. OCD has been debated as a separate disorder comorbidity with bipolar disorder or a manifestation of bipolar disorder sharing the same psycho-pathology [9, 10].

According to Zutshi et al. around 80% of BD with OCD patients only had OCD during depressive episodes or reported worsening OCD symptoms while depressed.

Up to two-thirds of patients had an improvement in their OCD during manic or hypomanic episodes [11], and some studies found no incidences of OCD occurring during mania [12].

Perugi et al. found that half of their sample had a main diagnosis of OCD and continued to have obsessive-compulsive symptoms throughout hypomanic episodes. The greater part of patients in the BD I and OCD group, however, exhibited OCD symptoms during the manic phase or when in remission, while a minority had OCD symptoms throughout the depressed phase [13], according to Ul ain Khan et al.

OCD has been considered to be linked to comparatively low suicide risk [14]. Most recent investigations, on the opposite, demonstrated a substantial relationship between OCD and suicidal behavior [15]. Nevertheless, a vast variation in prevalence rates occurs [16].

Nevertheless, most studies discovered that OCD raised the risk of suicide in BD patients [17].

When Di Salvo et al. looked into how OCD comorbidity affected suicidality in BD, they found a strong link between the two. Despite to some extent higher rates in BD and comorbid OCD patients, Di Salvo et al. observed no appreciable differences in lifetime suicidal attempts between individuals with and without comorbidity of OCD [18].

In this work, we hypothesized that youth with bipolar disorder type I comorbid with OCD are at a greater risk of suicide than youth with bipolar I disorder without comorbid OCD.

Methods

This was a cross-sectional observational study where 80 subjects with bipolar I disorder were enrolled consecutively (convenient sample) from the Psychiatry Hospital, Cairo University. "The 80 subjects were divided into two groups according to the presence or absence of obsessions. Sample size calculation was achieved using PS: Power and Sample Size Calculation software Version 3.1.2 (Vanderbilt University, Nashville, TN, USA)".

Both sexes were included, and the age of patients ranged between 15 and 24 years. All of the individuals met the DSM-5 bipolar I disorder diagnostic criteria (in partial remission). Thus neither admission nor medication adjustment were necessary at the time of administration. They could successfully complete the self-rated psychometric exams since they were cooperative, had clinically average IQ, and could read and write.

Urine drug screening tests for recent substance use and comorbid neurological or severe medical illnesses were used as exclusion criteria.

Patients were then separated into 2 groups using DSM-5 criteria: group A, which comprised subjects with obsessive-compulsive disorder ($n = 26$), and group B, which included subjects without OCD ($n = 54$).

> *We asked the participants about DSM-5 criteria to diagnose OCD. The diagnosis was then verified by two senior consultant psychiatrists.*

The following scales were used once the diagnoses were established: Hamilton depression rating scale (HDRS), Beck Scale for Suicidal Ideations (BSSI), Young Mania Rating Scale (YMRS), and Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS). Thorough medical and neurological testing was performed.

- Dimensional Yale-Brown Obsessive-Compulsive Scale [19]

  The Arabic version of the scale was used [20]; dimensions of OCD symptoms were rated according to their severity. The scale assesses the prevalence of obsessive-compulsive symptoms across five categories that group obsessions and compulsions according to a common theme.
- Beck Scale for suicidal ideation BSSI [21]. The Arabic version was used [22] was created to assess the seriousness, prevalence, and features of suicidal ideation in adult individuals. It evaluated the possibility of subsequent suicide attempts in those who had suicidal thoughts, or plans.
- Hamilton Depression Rating Scale [23].The Arabic version was used [24] to detect depression.
  It assesses mood, guilt sentiments, suicidal thoughts, insomnia, agitation or retardation, etc. to determine the severity of the depression.
- The 11-item Young Mania Rating Scale [25] is a diagnostic multiple- choice test designed to assess the presence and severity of mania and related symptoms.

We used IBM Corp.'s (Armonk, NY, USA) SPSS version 28 statistical program for the social sciences. Mean and standard deviation plus SD were used for quantitative variables, whereas frequencies and percentages were utilized for categorical variables. For quantitative variables with regularly distributed distributions, unpaired *t* tests were used to compare groups, whereas Mann-Whitney tests were used for those with non-normally distributed distributions. The chi-square (c2) test was performed to compare categorical data. The Spearman correlation coefficient was employed to determine correlations between quantitative variables. Statistics defined significance as *P* values 0.05. Epi info (Epi info statistical package: CDC.GA 30329-4027, USA) was used to calculate the sample size under the assumptions that = 0.1, power = 0.8, precision = 5, and effect size = 1 [26].

Results

The demographic information for the two study groups is shown in Table 1.

Data comparison revealed no apparent disparities in gender, socioeconomic status, educational attainment, or occupation between groups A and B.

Table 1 Comparison of socio-demographic data of group A and group B

	Group A: bipolar disorder patients with OCD		*Group B: bipolar disorder patients without OCD*		*P*
	Count	**Percentage**	**Count**	**Percentage**	
Gender					
Male	**12**	**46.2%**	**32**	**59.3%**	**0.270**
Female	**14**	**53.8%**	**22**	**40.7%**	
Social status					
Single	**26**	**100%**	**30**	**55.5%**	**0.16**
Married	**0**	**0%**	**24**	**44.5%**	
Educational level					
Primary	**6**	**23%**	**15**	**27.7%**	**0.143**
Preparatory	**7**	**26.9%**	**9**	**16.6%**	
Secondary	**4**	**15.3%**	**15**	**27.7%**	
Diploma	**6**	**23%**	**8**	**14.8%**	
Higher education	**3**	**11.5%**	**7**	**12.9%**	
Occupation					
Not working	**11**	**41.2%**	**21**	**38.8%**	**0.21**
Unskilled	**7**	**26.9%**	**11**	**20.3%**	
Skilled	**6**	**23%**	**13**	**24%**	
Student	**2**	**7.6%**	**9**	**16.6%**	
Age	**Mean**	**SD**	**Mean**	**SD**	**< 0.001**
	19.92	**1.85**	**22.02**	**1.11**	

$\rho < 0.05$ is significant; *Group A* bipolar disorder patients with OCD, *Group B* bipolar disorder patients without OCD

On the other hand, group As mean age is considerably lower than group Bs and p value < 0.001.

The results of Table 2's comparison of the two groups' scores on various psychometric tests regarding the age of onset of illness and scores of different psychometric tools such as DY-BOCS, HDRS, YMRS, and BSSI; results showed that patients of group A had a statistically significant younger age of onset of illness, statistically significant higher scores of DY-BOCS, HDRS, YMRS, BSSI as p value < 0.001

In Table 3, the correlations between the mean age of onset with the mean scores of DYBOCS (r = 0.157), HDRS (r = 0.052), YMRS (r = 0.486), and BSSI (r = 1) were all positive which reflects a direct relationship between variables.

There was a statistically significant positive correlation (r = 1) between the mean age of onset with the mean scores of BSSI (p < 0.001), i.e., the older the age of onset, the higher the suicidality in bipolar disorder patients with OCD.

In Table 4, the correlations between the mean score of BSSI with the mean scores of the age of onset (r = 1), DYBOCS (r = 0.157), HDRS (r = 0.052), and YMRS (r = 0.486) were all positive which reflects a direct relationship between variables.

Discussion

The current study sought to examine the prevalence of obsessive-compulsive disorder among young people with bipolar I disorder as well as the relationship between the disorder and suicide in this cohort.

The age of the sample chosen was between 15 and 24 years. The mean age of group A was 19.92 ± 1.8, and group B was 22.02 ± .1.1with a statistically significant

Table 2 Comparison between groups A and group B regarding the age of onset of illness, & scores of different psychometric tools

	Group A: Bipolar Disorder Patients with OCD		*Group B: Bipolar Disorder Patients without OCD*		*P* value
	Mean	**SD**	**Mean**	**SD**	
Age of onset	18.85	0.88	20.91	1.34	< 0.001
DY-BOCS total score	30.23	0.43	18.50	1.88	< 0.001
HDRS score	9.19	2.56	5.50	2.51	< 0.001
YMRS	5.08	0.74	1.59	0.77	< 0.001
BSSI score	10.85	0.88	4.56	0.50	< 0.001

BSSI Beck Scale for Suicidal Ideation, *YMRS* Young Mania Rating Scale, *HDRS* Hamilton Depression Rating Scale, *DY-BOCS* Dimensional Yale-Brown Obsessive-Compulsive Scale, *Group A* bipolar disorder patients with OCD, *Group B* bipolar disorder patients without OCD. $\rho < 0.05$ is considered significant

Table 3 Correlations between the mean score of the age of onset with DYBOCS, HDRS, YMRS, and BSSI in group A

	Age of onset
DY-BOCS	
R	0.157
P	0.443
N	26
HDRS	
R	0.052
P	0.799
N	26
YMRS	
R	0.486
P	0.001
N	26
BSSI	
R	1.000
P	< 0.001
N	26

BSSI Beck Scale for Suicidal Ideation, *YMRS* Young Mania Rating Scale, *HDRS* Hamilton Depression Rating Scale, *DY-BOCS* Dimensional Yale-Brown Obsessive-Compulsive Scale, *Group A* bipolar disorder patients with OCD, $\rho < 0.05$ is significant

Table 4 Correlations between BSSI with age, age of onset, HDRS, YMRS, and DY-BOCS in group A

Age	
R	1.000
P	< 0.001
N	26
Age of onset	
R	1.000
P	< 0.001
N	26
DY-BOCS	
r	0.157
P	0.443
N	26
HDRS	
r	0.052
P	0.799
N	26
YMRS	
r	0.486
P	0.001
N	26

$\rho < 0.05$ is considered significant

BSSI Beck Scale for Suicidal Ideation, *YMRS* Young Mania Rating Scale, *HDRS* Hamilton Depression Rating Scale, *DY-BOCS* Dimensional Yale-Brown Obsessive-Compulsive Scale, *Group A* bipolar disorder patients with OCD

difference ($p < 0.001$). Masi et al. identified a mean age of 14 years, which is younger than the mean age in our research [26].

While our research categorized youth as being between the ages of 15 and 24, the study included patients between the ages of 7 and 18 years old, which may account for the discrepancy.

Masi et al. showed that the difference in mean age between the bipolar disorder-obsessive compulsive disorder group and the bipolar-only group was statistically significant in the same study [26], which is consistent with our findings.

In group A, there were roughly 46% males and 54% females, but in group B, there were roughly 60% males and 40% females. Among both groups studied, there was no significant gender mismatch ($p = 0.07$).

Our results go in line with other studies that clarified no significant gender differences between both groups [7, 14, 27].

Contrary to our findings, Di Salvo et al. discovered that men were likelier to have OCD comorbidity [18]. There was no statistically significant difference between the two groups when it comes to education ($p = 0.143$), which is consistent with other research [7, 14, 18].

Regarding employment, there was also no statistical difference between groups studied ($p = 0.21$), which is consistent with Ul ain Khan et al. [14].

According to the study, 32.5% of patients with bipolar I disorder also have comorbid OCD.

A thorough examination of 64 papers that included data from three studies performed in Italy and the US revealed that lifetime prevalence rates of comorbid OCD in BD subjects ranged between 10 and 20% [28–30].

Another study carried out at various hospitals found that the lifetime prevalence of comorbid OCD in subjects with BD was about 2% up to 35% [31, 32]. Pre-occupational and/or compulsive symptoms were reportedly present in 22% of BD subjects.

Comorbidity prevalence rates (OCD-BD patients) were 35% when patients who had remitted from their condition were included. OCD and BD co-occur more frequently than previously believed, according to these data [11].

One study, which contradicted these conclusions, claimed that BD-I patients during their first episode did not have higher rates of OCD than the general population and that OCD was a low comorbidity among them. These findings are probably a result of the small sample size and inclusion of individuals with only BD I [33].

Age of onset differed significantly between groups B and A, with group B's difference being statistically significant (p 0.001). Jeon et al. and Di Salvo et al research discovered a similar statistically significant correlation

with a notable variation in the age of onset between both groups studied [7, 18].

Bipolar disorder patients in group A who also had obsessive-compulsive disorder had a mean YMRS score that was higher (5.08 ± 0.74) than the mean age in group B (1.59 ± 0.77). The difference was significant between both groups ($p < 0.001$).

The mean HDRS score in group A was higher (9.19 ± 2.56) than the mean age in group B (5.50 ± 2.51). The difference was statistically significant between the two groups ($p < 0.001$).

According to Zutshi et al., the majority of BD with OCD patients (78%) either had OCD that was only present during depressive episodes or claimed that their OCD got worse while they were depressed [11].

Up to two-thirds of patients had an improvement in their OCD during manic or hypomanic episodes, and other studies found no incidences of OCD during manic episodes [12].

In the study by Perugi et al., it was found that during hypomanic episodes, around 50% of the sample with an OCD main diagnosis continued to exhibit OCD symptoms [13]. Specifically among patients with mixed moods, Keck et al. found concurrent OCD in inpatient manic bipolar patients [34].

Ul ain Khan et al. [14] found that the greater part of patients in the BD I with OCD had OCD symptoms during mania or in remission and a minority had OC symptoms during the depressive episode, which is contrary to what is commonly claimed in the literature, such as in Magalhes et al.'s study.

In contrast, Koyuncu et al. observed no significant difference between the two groups when comparing the severity of manic episodes [31].

In the OCD subgroup, the researchers Tonna et al. and Amerio et al. discovered more severe depression and manic symptoms [10, 28].

Obsessive-compulsive symptoms only manifested during depressive episodes in 50–75% of patients with comorbid OCD and BD, according to Amerio et al.'s review article [28]. Amerio et al. hypothesized that, in light of these findings, "the course of illness is a crucial diagnostic validator of OCD in BD patients" [35].

Yet, most OCD with BD individuals in a prior study of BD-I by Shashidhara et al. indicated that their OCD got worse during manic phases [36]. It is advised that more research be done to interpret this discrepancy in relation to problems in various clinical circumstances.

In group A, the mean BSSI score was higher (10.85 ± 0.88)) than the mean score in group B (4.56 ± 0.50). The difference was statistically significant between the two groups ($p < 0.001$).

Despite the rates being somewhat higher in BD with OCD patients; Di Salvo et al. did not observe a significant difference in lifetime suicide attempts between patients with and without comorbidity of OCD [18].

However, Chen and Dilsaver discovered that bipolar patients with OCD comorbidity had significantly more lifetime suicidal thoughts and attempts than those without [37].

In group A there was a statistically positive association between the mean age of onset and the mean scores of the BSSI, i.e., the higher the suicidality, the older the age of onset.

Our findings disagree with those of prior research projects that found that suicidality rises with earlier onset age [38].

One of the problems that can account for the inconsistency is the diversity of onset definitions. In earlier research, the age of the patient's first hospitalization or initial course of treatment was a popular criterion of age at onset [39]. However, this was not consistently applied in our study, making it challenging to compare the various results as we defined the age of onset as the age at which the first symptom or indication manifested itself. This study, according to the researchers, is the first to examine the link between OCD and suicidality in young Egyptians.

Nevertheless, our findings have several drawbacks. The study did not evaluate all components of suicidality; nevertheless, looking into non-suicidal self-injury in the same patient population will provide more data that will aid in future management strategies and a relatively small sample size.

Conclusions

This study concludes that obsessive-compulsive disorder is found to be common in youth with bipolar disorder and may be associated with a greater risk for suicide than bipolar I without obsessive-compulsive disorder.

Furthermore, comorbidity of obsessive-compulsive disorder with bipolar I in youth was associated with a younger age at onset and a more severe symptom profile. In contrast, suicidality in youth with bipolar I disorder and comorbid obsessive- compulsive disorder was associated with older age and onset.

This research highlights the clinical importance of clinical assessment of OCD and suicidality in youth with bipolar I disorder, which are often neglected in the presence of other mood symptoms that take the upper hand in management and care.

It also emphasizes how crucial it is to test adolescents and young adults with bipolar I disorder for OCD since it affects the treatment strategy, including the choice of medication.

Abbreviations

DYBOCS	Dimensional Yale-Brown Obsessive Compulsive Scale
BSSI	Beck Scale For Suicidal Ideations
HDRS	Hamilton Depression Rating Scale
YMRS	Young Mania Rating Scale

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Authors' contributions
MY, MK, DA, and ME created the study's concept, and DA, MK, and DY authored both the first and final drafts. The study's theoretical framework was developed by MY, DA, and DY who also conducted a literature review. MK, DA, and ME supplied clinical insights that helped conceptualize the study. The results and discussion were aided in their interpretation by MA, DY, and MK. Before submitting the final manuscript, all authors read it and gave their approval.

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Availability of data and materials
Materials are available upon justifiable request.

Declarations

Ethics approval and consent to participate
The plan was approved in June 2021 by the Scientific Committee of Kasr Al-Ainy's Department of Psychiatry. Then, in January 2022 (Registration number: MS-545-2021) the Ethical Committee of Cairo University accepted this research. The participants received a clear explanation of the study.

Consent for publication
Consent from the research participants was obtained for publication.

Competing interests
The authors declare that they have no conflict of interest.

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