



Research Paper: Suicidal Ideations in Patients With Obsessive-Compulsive Disorder



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Running Title Suicidal Ideation in OCD

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ABSTRACT

Background: There are many controversies about the frequency and burden of suicidality in patients with Obsessive-Compulsive Disorder (OCD).

Objectives: This study was done to determine the prevalence and risk factors of current suicidal ideations in patients with OCD.

Materials & Methods: In this cross-sectional study, 258 outpatients with OCD (Yale-Brown Obsessive Compulsive Scale, Y-BOCS ≥ 16) referring to two psychiatry clinics in Guilan, Iran, from March 2018 to September 2019 were evaluated. Suicidality score of the Brief Psychiatric Rating Scale (BPRS) ≥ 4 was considered for current suicidal ideation at the first visit. Beck Scale for Suicidal Ideation (BSSI) was used to evaluate the intensity of suicidal ideations a week before evaluation. Simple linear and binary logistic regression analyses were used to analyze data by SPSS v. 20.

Results: Current suicidal ideation was found in 22.1% of patients. The previous history of suicide attempt (BPRS, $P < 0.0001$ and BSSI, $P < 0.0001$), a history of OCD in first-degree relatives (BPRS: $P = 0.004$ and BSSI: $P = 0.010$), a history of suicide attempts in first-degree relatives (BPRS: $P = 0.013$ and BSSI: $P < 0.0001$), comorbid diagnosis of depressive or body dysmorphic disorder (BPRS, $P < 0.0001$ and BSSI, $P < 0.0001$), and higher Y-BOCS score (BPRS: $P = 0.043$ and BSSI: $P < 0.0001$) were associated with a higher risk of having suicidal ideation.

Conclusion: Suicidal thoughts are high in Iranian patients with OCD at their first visit to psychiatry clinics. The previous suicide history, positive history of OCD and suicide attempts in their first-degree relatives, the severity of OCD, and some comorbid psychological disorders are associated with a higher risk of suicidal ideation among OCD patients.

Keywords: Obsessive-Compulsive Disorder, Suicidal Ideation, Suicide, Risk factors

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Highlights

- About one-fourth of patients with OCD had suicidal ideation at the first visit.
- Nearly 20% of individuals with OCD had a history of suicide attempts.
- Depression and body dysmorphic disorder comorbidity increase the risk of having suicidal ideation.
- Positive history of OCD and suicide attempts in their first-degree relatives and the severity of OCD are the main risk factor for having suicidal thoughts.
- Clinicians should address specific factors for risk modification.

Introduction

Obsessive-Compulsive Disorder (OCD) is a syndrome characterized by obsessions and compulsions [1] with a lifetime prevalence estimated at 2.5% [2]. Obsessions are intrusive repetitive thoughts, urges, images, or impulses that trigger anxiety, which the individual is not able to suppress. Compulsions are repetitive behaviors or mental acts occurring in response to an obsession to reduce the distress caused by obsessions [2]. It is often associated with primary psychiatric disorders [3], and can seriously interfere with the patient's quality of life [1, 4].

OCD is ranked among the 10 most disabling medical conditions [5] and suicide is among the leading causes of death worldwide [6]. OCD has been considered an important determinant of suicide. In patients with OCD, suicidal ideation rates ranged from 10 to 53% and suicide attempts from one to 46% [7]. Angelakis et al. in their meta-analysis article [8] found a significant association between OCD and suicidal behaviors but with a great substantial heterogeneity across studies. Previous studies have reported that patients with OCD had the risk of attempting suicide and the risk of dying from suicide 3-5 times and 3-10 times more than healthy objects [9]. Although these studies have examined the frequency of suicidal ideation and attempts in patients with OCD, there are many controversies about the frequency and burden of suicidality in these patients.

A few Iranian studies have focused on suicide risks and their related factors in patients with OCD. In an epidemiological study, major depressive disorders and OCD were the most predictive of suicidal ideation in both sexes in Iran [10]. In another comparative study, religious-sexual and aggressive thoughts and all other ob-

sessive-compulsive dimensions explained lifetime suicide attempts. Religious-sexual and aggressive thoughts and depression significantly predicted suicidal ideation. Interestingly, 51.7% of patients with OCD had lifetime suicide attempts and 75% had suicidal ideation, which was higher than all reported clinical studies [11].

There are inconsistent findings regarding the associations between various clinical features and sociodemographic variables of OCD, like the gender of patients [5], age of onset [11], OCD symptoms dimensions, OCD severity, history of suicide attempts, and presence of other psychiatric comorbidities with suicidal behavior. Several studies have reported that sexual-religious [12, 13] and aggressive obsessions were associated with suicidality in patients with OCD.

Ego-dystonic suicidal thoughts are defined as common aggressive obsessive thoughts and should be distinguished from real suicidal ideation [14]. Some other studies have reported that washing-contamination [5], and symmetry-ordering [12] were associated with suicidal ideations. OCD severity significantly predicted suicidal ideation [8, 11, 12, 15-17]. Major depressive disorder [5, 16, 17] and anxiety disorders [11, 12, 18] were reported to be associated with current suicidal ideations.

Different sample sizes, instruments, definitions of suicidal thoughts, designs (cohort or cross-sectional), and inconsistent adjustment of confounders of prior studies may account for the inconsistency of these findings. Different ways of defining and measuring suicidal ideations markedly influence the assessment and results of these studies [5].

The current cross-sectional study was done to determine the prevalence and risk factors of current suicidal ideations (having suicidal ideation in a week before an

evaluation) in patients with OCD in their first visit to outpatient psychiatry clinics. We tried to reduce some limitations of previous studies by increasing sample size, controlling possible confounders, and using accurate definitions of suicidal thoughts.

Materials and Methods

Participants

Participants were 258 outpatients (Mean±SD age: 39.1±12.93). They were recruited via convenience sampling from two outpatient psychiatry clinics in Guilan (one in Shafa psychiatry hospital affiliated with the Guilan University of Medical Science (GUMS) and the other psychiatry clinic of Dr. Khalkhali and colleagues) from March 2018 to September 2019. Inclusion criteria were a current diagnosis of OCD based on DSM-5 [19] criteria, age ≥18 years old, moderate or higher severity of OCD (a score of 16 or higher on the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS)) [20], and at least one-year follow-up in the mentioned clinics. A board-certified psychiatrist did all assessments, including diagnosis of OCD, taking history, and rating Y-BOCS. All the first assessments were done over 1-2 sessions, not separated by more than 72 hours. In the presence of comorbid disorders, OCD was the main diagnosis. The only exclusion criterion was evidence of an organic mental disorder or other conditions that could prevent participants from giving history and providing informed consent. Patients with psychotic and mood disorders in the acute phase were not included in the study.

Measures

I. The Yale-Brown Obsessive Compulsive Scale (Y-BOCS): Y-BOCS is a reliable instrument for measuring the severity of illness in patients with OCD with a range of severity and types of obsessive-compulsive symptoms [20, 21]. The total score is from zero to 40 (0-7 indicating subclinical symptoms, 8-15 mild symptoms, 16-23 moderate symptoms, 24-31 severe symptoms, and 32-40 extreme symptoms). Y-BOCS has subtotal severity scores for obsessions and compulsions. All the patients were assessed on Y-BOCS for severity and symptom checklist for current and lifetime OCD symptoms. OCD symptoms were classified into subtypes of aggressive, contamination/cleaning, ordering/symmetry, sexual/religious (taboo), hoarding, and residual type. In Iran, the internal consistency scores for the symptom checklist and severity scale were 0.97 and 0.95, respectively, and the test-retest reliability was 0.99 [21].

II. Brief Psychiatric Rating Scale (BPRS- Expanded version 4): The clinical interview is a gold standard for evaluating suicide risk [9]. BPRS was administered at the first visit to assess suicidality and rate its severity [22]. This form consists of 24 symptom constructs, each to be rated on a 7-point scale of severity ranging from 'not present' to 'extremely severe'. BPRS, suicidality subscale (scale number four in the checklist), and score equal or greater than four (moderate and above severity) at the first face-to-face interview were considered suicidal thoughts. The patients were asked to answer these questions based on their experiences last week: Have you felt that life wasn't worth living? Have you thought about harming or killing yourself? Have you felt tired of living or as though you would be better off dead? Have you ever felt like ending it all? Suicidal ideation is defined as the presence of passive thoughts about wanting to be dead or having active thoughts about killing oneself, not accompanied by preparatory behavior [23]. Suicide attempts are recognized as nonfatal self-directed potentially injurious behaviors with any intent to die because of the behavior [24]. BPRS translation into Persian indicated satisfactory content validity and internal consistency with Cronbach's alpha of 0.72 [25].

III. Beck Scale for Suicidal Ideation (BSSI): BSSI is a widely used instrument to assess suicidality. The Cronbach's alpha coefficients of the screening part and the whole scale were satisfactory (>0.8) [26]. This scale is a 19-item instrument that evaluates the presence and intensity of suicidal ideations a week before evaluation. Each item is scored based on an ordinal scale from zero to two and the total score is 0-38. BSSI was answered by the patients in their first visits to clinics.

Statistical analyses

Data were analyzed using SPSS® version 20.0 for Windows (IBM Corporation, Armonk, NY, USA). Descriptive analysis was carried out using mean± standard deviation and frequency (percentages). The results of the Shapiro-Wilks test revealed that the quantitative variables were normal. A logistic regression model was applied to identify the relations of variables with suicidal ideation (BPRS dummy variable). The simple linear regression model was used to assess the direction and strength of the relationship between variables and suicidal ideation according to BSSI. A P<0.05 was considered statistically significant and all tests were two-tailed.

Results

Of all evaluated patients, 22.1% (17.0%, 27.2%) had current suicidal ideation according to BPRS. BSSI ranged from zero to 30 with a Mean±SD score of 8.78±7.05. Fifty-one patients (19.8%) with OCD had lifetime suicide attempts.

Associations between demographic characteristics and suicidal thoughts are shown in Table 1. There was no significant relation between suicidal thought and gender, marital status, age, and years of education.

Table 2 shows the association between clinical characteristics and suicidal ideation. The previous history of suicide attempts (BPRS: OR=24.71, P<0.0001; BSSI: β =11.15, P<0.0001), a history of OCD in first-degree relatives (BPRS: OR=3.27, P=0.004; BSSI: β =2.46, P=0.010), a history of suicide attempts in first-degree relatives (BPRS: OR=6.35, P=0.013; BSSI: β =8.74, P<0.0001) were associated with higher odds of having suicidal thoughts on admission. OCD symptoms were not associated with suicidal ideation (Table 2).

Comorbid diagnosis of unipolar depressive disorder (BPRS: OR=5.64, P<0.0001; BSSI: β =7.02, P<0.0001) and body dysmorphic disorder (BPRS: OR=6.35, P=0.013; BSSI: β =9.13, P<0.0001), the total (BPRS: OR=1.09, P=0.03; BSSI: β =0.37, P<0.0001), obsessive (BPRS: OR=1.14, P=0.017; BSSI: β =0.47, P=0.018) and compulsive (BPRS: OR=1.6, P=0.043; BSSI: β =0.71, P<0.0001) subscales of the Y-BOCS were risk factors for suicidal ideation on admission (Table 2).

Discussion

In the present study, the prevalence of current suicidal ideation was 22.1%. The reported rates vary widely from country to country. The prevalence of 46% and 10% were reported in Brazil [16, 27], 33% in Australia [28], 20% in India [17], and 21% in Egypt [29]. The rates for Japan and Italy were reported to be less than 10% [28].

In a previous study in Iran, the rate of current suicidal ideations was the highest reported rate in a clinical sample of patients with OCD [13]. This seems to be related to the type of definition of suicide and the lower intensity of suicidal ideation in the study. The cumulative suicidal ideation in a sample of 3711 patients with OCD was 6.4% [28], which is lower than the reported prevalence in this study. The pooled prevalence rate of current suicidal ideation was 0.27 in Pellegrini et al. meta-analysis in patients with OCD [30].

Consistent with the findings of other studies, current suicidal ideations and previous suicide attempts were also relatively frequent [8, 12, 13, 15, 27, 31]. Although patients with OCD are well aware of warding off their aggressive impulses and avoiding real harm [15], the results of this study, congruent with the results of previous studies, indicated high rates of suicidal ideations and attempts in these patients. It can be concluded that suicidal behaviors are prevalent in patients with OCD and emphasize the need to assess for suicidality and to monitor its risk in patients with OCD.

The majority of patients with OCD did not have suicidal ideation nor did they attempt suicide in their lifetime. Therefore, differentiating the risk among patients

Table 1. Association between demographic characteristics and suicidal ideation (BPRS and BSSI)

Variables	Suicidal Ideation		BPRS	P	BSSI	P	
	No (N=201)	Yes (N=57)					
	No.(%)/Mean±SD		OR (95% CI) ^a	β (95% CI) ^b			
Gender	Male	142(70.6)	40(70.2)	0.94(0.49-1.80)	0.860	-0.44(-1.45-2.34)	0.647
	Female	59(29.4)	17(29.8)	-			
Marital status	Married	79(39.3)	22(38.6)	0.99(0.55-1.80)	0.99	-0.28(-1.46-2.03)	0.750
	Single	122(60.7)	35(61.4)	-			
	Age (year)	39.79±13.13	36.65±12.03	0.98(0.96-1.00)			
Education (year)	11.01±4.46	11.46±4.27	1.02(0.96-1.10)	0.500	0.07(-0.13-0.27)	0.504	

BPRS: Brief Psychiatric Rating Scale; BSSI: Beck Scale for Suicidal Ideation; OR: Odds Ratio.

^aLogistic regression model; ^bLinear regression model.

Table 2. Association between clinical characteristics and suicidal ideation (BPRS and BSSI)

Variables	Suicidal Ideation		BPRS	P	BSSI	P	
	No (N=201)	Yes (N=57)					
	No. (%) / Mean±SD		OR (95%CI) ^a	β (95%CI) ^b			
Age at onset (year)	19.91±8.05	18.28±6.63	0.97(0.93-1.01)	0.166	-0.08(-0.19-0.03)	0.154	
Suicide attempt	14(7.0)	37(64.9)	24.71(11.46-53.30)	<0.0001	11.15(9.47-12.84)	<0.0001	
Family history of	OCD	131(65.2)	49(86.0)	3.27(1.47-7.30)	0.004	2.46(0.60-4.32)	0.010
	Suicide attempt	3(1.5)	5(8.8)	6.35(1.47-27.42)	0.013	8.74(3.86-13.62)	<0.0001
OCD groups	Contamination/Cleaning	156(77.6)	42(73.7)	0.81(0.41-1.59)	0.536	-1.26(-3.31-0.78)	0.224
	Symmetry/Ordering	66(32.8)	21(36.8)	1.19(0.65-2.20)	0.573	0.72(-1.12-2.54)	0.442
	Hoarding	7(3.5)	3(5.3)	1.54(0.39-6.16)	0.542	0.85(-3.63-5.34)	0.708
	Sexual/Religious	27(13.4)	12(2.1)	1.72(0.81-3.66)	0.160	0.65(-1.76-3.07)	0.595
	Aggressive	36(17.9)	16(28.1)	1.79(0.91-3.53)	0.094	0.64(-1.52-2.80)	0.561
	Residual	43(21.4)	15(26.3)	1.31(0.67-2.59)	0.433	1.02(-1.05-3.09)	0.333
Comorbidity	Major Depressive Disorder	10(5.0)	13(22.8)	5.64(2.32-13.70)	<0.0001	7.02(4.11-9.93)	<0.0001
	Generalized Anxiety Disorder	55(27.4)	13(22.8)	0.78(0.39-1.57)	0.491	-1.06(-3.02-0.90)	0.289
	Body Dysmorphic Disorder	3(1.5)	5(8.8)	6.35(1.47-27.42)	0.013	9.13(4.29-13.99)	<0.0001
	Bipolar Disorder	27(13.4)	9(15.8)	1.21-0.53-2.74)	0.651	2.19(-0.29-4.68)	0.083
	Phobia	16(18.0)	3(5.3)	0.64(0.18-2.29)	0.495	-2.26(-5.57-1.04)	0.179
	Tic Disorder	5(2.5)	3(5.3)	2.18(0.50-9.40)	0.297	0.87(-4.12-5.87)	0.713
YBOCS	Panic Disorder	8(4.0)	1(1.8)	0.43(0.05-3.52)	0.432	-2.07(-6.79-2.64)	0.387
	Intermittent Explosive Disorder	13(6.5)	1(1.8)	0.57(0.12-2.64)	0.474	1.29(-2.53-5.11)	0.506
	Hair Pulling Disorder	7(3.5)	3(5.3)	1.54(0.39-6.16)	0.542	2.10(-2.38-6.58)	0.356
	Total	27.01±4.51	28.44±3.72	1.09(1.01-1.17)	0.030	0.37(0.18-0.57)	<0.0001
YBOCS	Obsession	14.14±2.28	14.60±1.936	1.14(0.96-1.25)	0.017	0.47(0.08-0.86)	0.018
	Compulsion	13.39±2.19	14.05±2.07	1.16(1.00-1.33)	0.043	0.71(0.32-1.10)	<0.0001

BPRS: Brief Psychiatric Rating Scale; BSSI: Beck Scale for Suicidal Ideation; OR: Odds Ratio; ^aLogistic regression; ^bLinear regression.



by identifying predictors of suicidality could result in improving our ability to screen subjects at greater risk. Being male, having a low educational level, being older, and having a low social economic status be significant risk factors for current suicidal ideation in some previous studies [32]. Although most of the previous studies do not differ significantly on most of the socio-demographic variables [12, 16, 17], we did not find any associations between demographic variables and suicidal ideation and

it seems to be in line with the results of Balci et al. [15] who found no correlation. The majority of our sample was married women. We found no difference between married and unmarried patients with OCD. According to previous studies, family plays an important supportive role in OCD: tackling suicide-related sentiments when they emerge, urging patients to talk with their families, and seeking professional help [32].

How these patients use coping strategies and adapt themselves to difficult situations should be investigated in further studies on Iranian families affected by OCD? This study was a cross-sectional study performed on adult patients with OCD seeking treatment. They may come to clinics years after the disorder develops or leave treatment if they found it ineffective. Unfortunately, we had not an active follow-up system. These may affect the age range in our study sample and can be used as an explanation for some different demographic results.

Contrary to the results of our study, some studies have reported a relationship between sexual/religious [33], aggression [13, 15], symptoms of symmetry/ordering [12, 34], hoarding [35], and suicidal ideation. It was believed that sexual/religious and aggressive symptoms are more distressing than other symptoms due to a common sense of guilt feeling, which may increase the risk of suicide [12]. Whatever the symptoms, patients will report their emotional and disturbing effects on the severity of the symptoms. These studies did not analyze the impact of the severity of these OCD symptoms on suicidal ideations and attempts.

Balci et al. assessed a Muslim sample and found that although patients with current suicidal thoughts tended to have more religious obsessions than patients without suicidal thoughts, this difference failed to reach significance [15]. Aggressive obsessions predicted suicidal thoughts in their study. Patients with aggressive obsessions often feel guilty for having unacceptable thoughts of giving harm to self or others, which may lead them to suicidal ideations. Taboo obsessions in an Iranian study [13] and only the severity of sexual/religious symptoms in another Brazilian study [12] predicted suicidal ideations. Aggressive, sexual, and religious obsessions (the so-called “taboo thoughts” dimension) were associated with lower suicidal ideation rates (possible protective factors) in a meta-analysis study by Pellegrini et al. [29].

Aggressive obsessive thoughts in questionnaires may be confused with suicidal ideation. Not necessarily, these symptoms are associated with a more severe disorder. Further controlled studies are needed to investigate these controversial findings.

Suicidal behaviors have been divided into suicidal ideation and suicide attempts by most authors [16, 17, 34]. The results of our study, consistent with many other studies, demonstrated a very strong association between current suicidal ideations and a history of suicide attempts [9, 11, 16, 32]. In addition, Brown et al. [9] reported that OCD symptom severity predicted next year's suicidal

ideation. It means that suicide risk increases when the patients with OCD wish to be dead in the past or present.

Our sample size allowed us to investigate more clinical disorders comorbid with OCD. Consistent with other studies [5, 28], generalized anxiety disorder (GAD) was the most prevalent comorbid psychiatry disorder. Suicide risk is increased in patients with anxiety disorders [36, 37]. In a community survey, the likelihood of the past 12-month suicide ideation was significantly higher in patients with GAD than in those without GAD [38]. This risk is higher in the presence of other comorbidities [7, 15, 39].

Contrary to the results of some previous studies [5, 12], the results of logistic regression revealed that OCD-GAD comorbidity did not increase the odds of having suicidal ideations in patients with OCD. The lifetime presence of comorbid anxiety disorder was a possible protective factor in Pellegrini et al. study [30]. Other factors appear to be involved in suicidal behaviors of patients with OCD-GAD comorbidity that needs further investigation. Unipolar depression was ranked third in our sample. The odds of having suicidal ideations were about 6 times higher in people with comorbid depression. Our finding is consistent with previous studies revealing that suicidal ideas in patients with OCD are associated with depression [13, 15, 17, 40, 41].

OCD associated with depression is difficult to treat, which increases frustration and hopelessness [42]. Higher levels of hopelessness were associated with suicidal thoughts [17, 27] in patients with OCD. We found no relationship between Bipolar Disorder (BD), OCD comorbidity, and current suicidal ideation. It was not in line with the results of some previous studies [39]. It may also be related to our cross-sectional design of the study.

The prevalence of current Body Dysmorphic Disorder (BDD) in our sample was 3.1%, which is higher than its 1.8% prevalence in community samples [43]. Suicidal ideation in patients with BDD is estimated between 55 and 68% [44]. In this study, the odds of having suicidal ideation were significantly increased in BDD-OCD comorbidity. Patients with BDD judge that their appearance or body is abnormal. They may feel that they are worthless and, thus, feel shame. People may respond to shame with intense distress and withdrawal, which increases the risk for depression and suicide [45].

Shame was significantly associated with suicide risk and functional impairment in patients with OCD and BDD [46]. It may be concluded that shame will be more

intense in OCD-BDD comorbidity. Psychoeducation about shame and exploring the patient's maladaptive responses to shame (e.g., by withdrawing, or becoming angry) may help the patient to recognize and adopt adaptive methods [45].

Similar to the results of the previous studies [27], current suicidal ideation was associated with a history of suicide attempts in first-degree relatives of patients with OCD. Unfortunately, we did not investigate what this person was suffering from. Having such a family history is a warning for increased risk of suicide and emphasizes the importance of examining suicidal ideation. It was not in line with the results of Lizardi et al. [47]. They reported that suicide attempt was associated with a positive family history of suicide attempts but current suicidal ideation was not. One explanation is that suicidal behavior, as an inappropriate coping mechanism or problem-solving skill, can be learned in the family. We can use a similar explanation for positive family history of OCD and its association with suicidal ideations.

Issues, such as child neglect and trauma [13, 48], violence, and aggressive behaviors [32] are common in families with OCD patients. Family responses to OCD may include interfering with the rituals or actively opposing them. Opposing with OCD symptoms is usually associated with greater distress and sometimes even with aggressive behaviors from the patients or the families [32, 49]. A stressful family environment may cause the patients to be unable to cope with difficult situations and adopt inappropriate methods like suicide [50].

Our findings are consistent with previous studies and showed that suicidal ideation in patients with OCD is strongly associated with the severity of OCD [5, 11, 15, 27, 32]. The results of logistic regression revealed that this relationship could be seen even after controlling for co-morbidities. The individuals with symptoms that severely influence a multitude of aspects of their day-to-day life are more likely to feel hopeless and may consider or act against their own self in an attempt to regain control of their life [32]. Brown et al. [51] observed a unidirectional relationship between OCD symptoms and suicidal ideations, with more severe OCD symptoms predicting more severe suicidal ideations in the following year. These patients are at a higher risk of suicide and should be monitored carefully.

In OCD, the age of onset is partly indicative of the chronicity of the disease. We could not find any association between the age of the onset of OCD and current suicidal thoughts. It may be concluded that the severity

of OCD is a more important risk factor than the chronicity of OCD in clinical evaluations.

This study had some strengths and limitations. One strength of this study was that all patients received the diagnosis of OCD and its associated clinical factors with clinician-administered diagnostic clinical interviews. The study had also some limitations. The first limitation was the cross-sectional design of the study. Future studies, using prospective longitudinal designs, are required to assess the presence of suicidal thoughts and their relationships with other variables among patients with OCD. Second, our aim was to investigate suicidal ideations and their associated factors in the first visit of a patient with OCD. We did not consider their previous treatments, life events, and social supports, which can influence suicidal thoughts. Therefore, the findings of the study may not be generalizable to all age groups and reflect the reality of OCD in the community.

Conclusion

Suicidal behavior is a complex process with several interactions between demographic and clinical variables. The current study demonstrated that suicidal thoughts are high in Iranian patients with OCD at their first admission time. Furthermore, the results strongly indicated that suicidal thoughts are associated with a previous history of suicide attempts, comorbid diagnosis of depression and BDD, the severity of OCD, positive history of OCD, and suicide attempts in their first-degree relatives. These findings warn of the importance of evaluating these variables and estimating the risk of committing suicidal acts at the first meeting of the patients with OCD. Whether and how these factors work together, and whether the specific factors act as moderators or mediators for suicide in patients with OCD remains to be investigated.

Ethical Considerations

Compliance with ethical guidelines

All study procedures were done in compliance with the ethical guidelines of the Declaration of Helsinki, 2013. The present study was approved by the Ethics Committee of Guilan University of Medical Sciences (Code: IR.GUMS.REC.1397.352).

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Authors' contributions

Conceptualization and supervision: Mohammadrasoul Khalkhali; Methodology: Mohammadrasoul Khalkhali, Roghaye Zare; Investigation, writing the original draft, writing, review & editing: All authors.

Conflict of interest

The authors declared no conflicts of interests.

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