REVIEW ARTICLE

Psychiatric Comorbidities and the Risk of Suicide in Obsessive-Compulsive and Body Dysmorphic Disorder- a systemic review and meta-analysis

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ABSTRACT
Introduction: Obsessive-compulsive disorder (OCD) is a chronic mental disorder characterized by obsessions and compulsions. Concerns about one's appearance are recognized and accepted in most cultures as an aspect of normal human behavior. However, if these concerns are excessive and are either significantly distressing or having an impact on the individual's quality of life, the person may be suffering from Body Dysmorphic Disorder (BDD).BDD is an obsessive-compulsive related disorder.The present study was carried to evaluate psychiatric comorbidities and the risk of suicide in obsessive-compulsive and body dysmorphic disorder.**Materials and Methods:** The inclusion criteria were framed as per internationally standardized PICOS framework, as recommended by PRISMA guidelines. The study population included psychiatric patients who had psychiatric Comorbidities and the Risk of Suicide in Obsessive-Compulsive and Body Dysmorphic Disorder.**Results**: After evaluation of 89 papers, only 6studies were ascertainedfor analysis after these papers fulfilled both inclusion and exclusion criteria. The present study reveals that body dysmorphic disorder (BDD) and OCD are associated with suicidality ideation. The combination of exposure and response prevention therapy and pharmacotherapy was reported to be effective in helping the patient manage the anxiety and distress stemming from the patient's OCD with suicidal obsession. **Conclusion:** Overall, suicidality appears a relevant phenomenon in OCD. Certainly, BDD remains underdiagnosed due to a variety of factors which means patients are unlikely to receive the treatment they require and continue to suffer. Personality traits such as alexithymia and perfectionism may contribute to high suicidality in patients with OCD, and patients suffering with unacceptable thoughts need to be assessed more carefully for warning signs of suicide. Thus, patients with OCD are at a substantial risk of suicide. Importantly, this risk remains substantial after adjusting for psychiatric comorbidities. Suicide risk should be carefully monitored in patients with OCD. Particular attention should be given to comorbidity with depressive symptoms.

Keywords: Obsessive-compulsive disorder (OCD); Body Dysmorphic Disorder (BDD); Psychiatric Comorbidities

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INTRODUCTION

Obsessive-compulsive disorder (OCD) is a chronic mental disorder. It is characterized by obsessions and compulsions. Obsessions are uncontrollable recurring and distressful thoughts. Compulsions are repetitive behaviors which the person feels the urge to perform in an attempt to decrease the anxiety of the obsessions.[1]Individuals with mental health conditions are at high risk of dying by suicide and attempting suicide, with about 90% of people who kill themselves considered to suffer from a psychiatric disorder. Surprisingly, little attention has been paid to the risk of suicide in obsessive–compulsive disorder

(OCD), one of the most common and disabling mental disorders.[2]

Concerns about one's appearance are recognized and accepted in most cultures as an aspect of normal human behavior. However, if these concerns are excessive and are either significantly distressing or having an impact on the individual's quality of life, the person may be suffering from Body Dysmorphic Disorder (BDD). Although BDD was first described over 100 years ago by Italian psychiatrist Enrico Morselli who coined the term "dysmorphophobia," from the Greek "dysmorphia" which refers to ugliness, the evidence suggests it is still underdiagnosed. Failure to recognize BDD can lead to poor physical and psychiatric outcomes for patients and without treatment BDD appears to have a chronic course.[3]BDD is an obsessive-compulsive related disorder and is characterized by a (delusional) preoccupation concerning presumed or minor flaws in appearance. Patients experience obsessions regarding their appearance which are often accompanied by compulsive behavior, like mirror-checking.[4]

Suicidality in OCD patients has been underestimated or paid less interest over the past decade because people with OCD often tend to avoid potential harm and fend off aggressive impulses using psychodynamic defenses such as "isolation of affect," suicide has been thought to occur infrequently in OCD patients.[5]Therefore the present study was carried to evaluate psychiatric comorbidities and the risk of suicide in obsessive-compulsive and body dysmorphic disorder.

MATERIALS AND METHODS

The inclusion criteria were framed as per internationally standardized PICOS framework, as recommended by PRISMA guidelines:

Participants/population: The study population included psychiatric patients who had psychiatric Comorbidities and the Risk of Suicide in Obsessive-Compulsive and Body Dysmorphic Disorder.

Intervention: Psychiatric patients who died by suicide, attempted suicide and had current suicidal ideation as well as sychiatric Comorbidities due Obsessive-Compulsive and Body Dysmorphic Disorder were included in the review.

Comparator(s)/control: Studies of any of the above-mentioned interventions was included, including studies with no comparator group

Outcome: the key outcomes consider were

Primary efficacy outcomes of the study were to determine association of psychiatric patients with suicidal ideation as well as psychiatric Comorbidities due Obsessive-Compulsive and Body Dysmorphic Disorder.

Study design: The review included all types of experimental studies, observational studies and case series which have reported the outcomes of the above-mentioned treatment therapy.

Inclusion criteria:

Studies conducted anywhere in the world and articles published after 2012 through June 2022 was included in the study. (Search was conducted onObsessive-Compulsive, Body Dysmorphic Disorder, Suicidal Attempts, psychiatric Comorbidities)

Only those studies published in English language, academic peer-reviewed journals were included in the review.

Exclusion criteria:

Studies conducted on animals were excluded from the study.

Literature search:

A systematic literature search was performed in PubMed, Embase, clinical trial.gov and Cochrane Library through 2022 in the English language by two independent authors using a structured search strategy. The searches were screened by the references of selected articles to find those that did not appear in the search databases. Additional references were not obtained by free internet search from Google as the number of studies were large. The detail search strategy is given in Table 1.

Process of screening and selection of articles:

All the citations along with the title and abstract was added to a specified endnote library and final list of studies to be screened for inclusion in the study was prepared by removing the duplicates. Two researchers carefully screened the articles by assessment of the title and thorough reading the abstracts to shortlist the studies which are likely to satisfy the inclusion criteria of the review. Attempts were made to obtain full-text articles for all these shortlisted studies, and thorough assessment was done for the satisfaction of inclusion and exclusion criteria. Studies not satisfying inclusion criteria was excluded further. The list of excluded studies and the reasons for exclusion were presented in the "characteristics of excluded studies" table. "PRISMA flow chart" was used to clearly represent the screening and selection process. (Figure 1).

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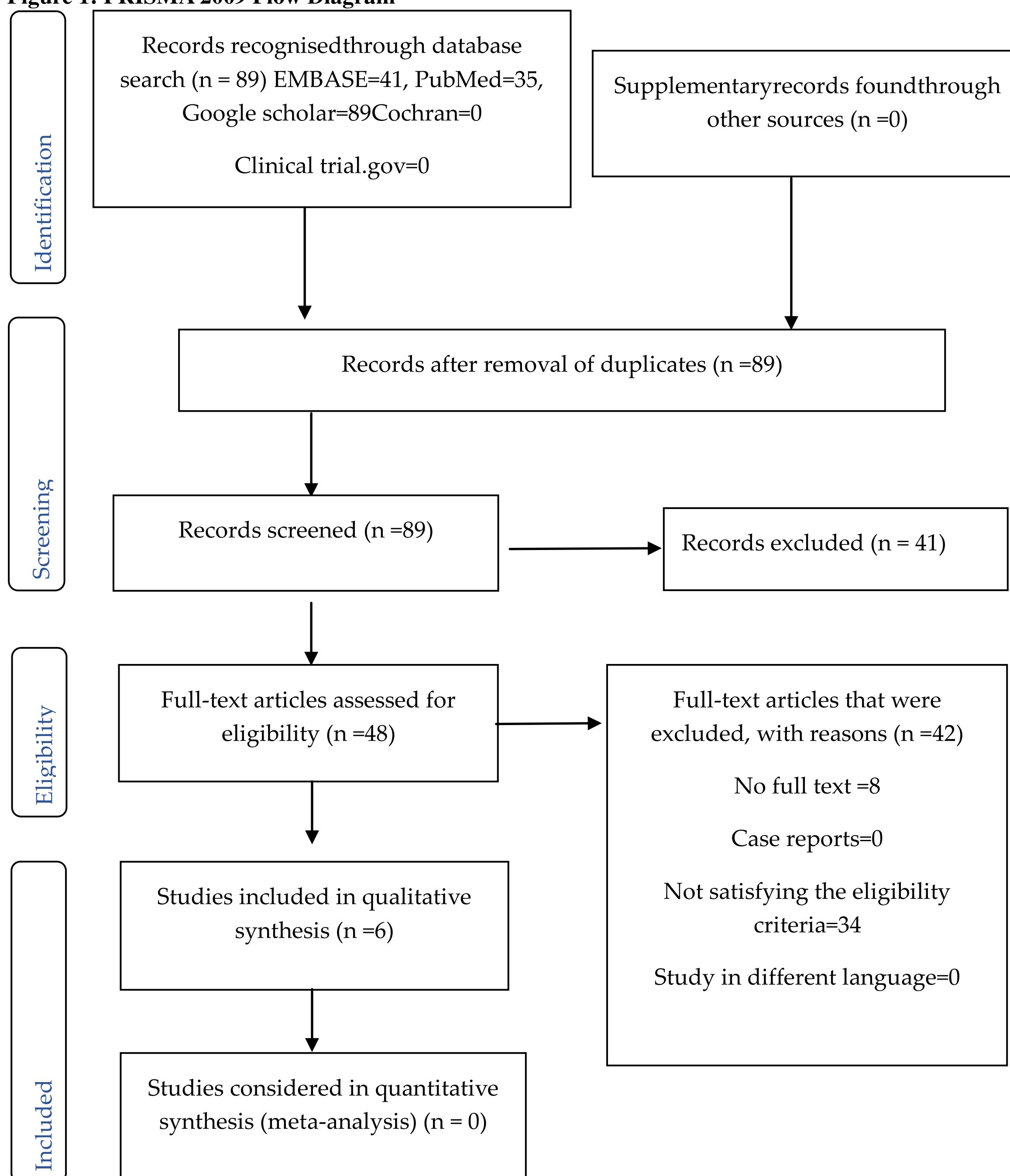
Figure 1: PRISMA 2009 Flow Diagram



DATA EXTRACTION

Data was thoroughly read through and were extracted from included studies was extracted manually on to a structured data extraction form. The parameters to determine association of psychiatric patients with suicidal ideation as well as psychiatric Comorbidities due Obsessive-Compulsive and Body Dysmorphic Disorder were studied.

RISK OF BIAS IN INDIVIDUAL STUDIES

The methodological quality of studies included in the systemic review was assessed according to Fowkes and Fulton quality assessment.[6]

STUDY OUTCOMES

Table 1 evaluates of parameters of various studies reporting suicidal ideation. Total 38649 psychiatric patients were evaluated in the present study. Out of total 6 studies that fulfilled inclusion criteria, 2 studies were from United States of America, 2 were from Brazil, 1 each from Sweden and South Korea. We could not locate any Indian study reporting psychiatric comorbidities and the risk of suicide in obsessive-compulsive and body dysmorphic disorder.The 4 studies reported presence of suicidal ideation that varied from 10.8% to 56.8%.Regarding assessment of cases in one study reported that out of 36 788 OCD patients, 545 died of suicide and 4297

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attempted suicide. No study has similar data for statistical analysis, so only qualitative analysis is carried out. Table 2 shows assessment of aim, observation and conclusion of various studies. The studies concluded that clinicians should provide clients with comorbid MD and suicidality with appropriate coping tools to manage distress from suicidal thoughts outside of engaging in compulsive exercise characteristic of BDD symptoms, particular attention should be given to comorbidity with depressive symptoms, differentiating between suicidal ideation in the context of other psychiatric illnesses and suicidal obsessions in OCD is critical to ensuring accurate diagnosis and timely provision of most appropriate treatment, the risk of suicide remains substantial after adjusting for psychiatric comorbidities and suicide risk should be carefully monitored in patients with OCD. Personality traits such as alexithymia and perfectionism may contribute to high suicidality in patients with OCD, and patients suffering with unacceptable thoughts need to be assessed more carefully for warning signs of suicide. Suicidality could be analyzed as a severity continuum and patients should be carefully monitored since they present with suicidal ideation. Table 3 reports factors affecting suicidal tendency.

Table 1: Evaluation of parameters of various studies reporting suicidal cases

Author	Year	Study design	Country	Methodology	Age	Time duration
Grunewald W et al [7]	2022	Longitudinal study, a three-wave autoregressive cross-lagged model.	Ohio, USA	self-report measurement at three time points over 6 weeks.	-	-
Agne NA et al[8]	2022	-	Brazil	An elastic net model was performed to recognize the predictors of SA among OCD patients, using clinical and sociodemographic variables.	-	-
Rachamallu V et al [9]	2017	Case report	Texas, USA	The combination of exposure and response prevention therapy and pharmacotherapy	28 years male	6-month history of depressed mood and anxiety
Fernández de la Cruz L et al [2]	2017	Case–cohort design,	Sweden	Retrospective analysis (Swedish National Patient Register)	Not reported	National Patient data between 1969 and 2013
Kim H et al [5]	2016	Cross-sectional, self report study	South Korea		mean age: 28.89 years, SD=7.95 years, 62% men.	-
Velloso P et al [10]	2016	Cross-sectional study, survey	Brazil	Patients were evaluated by OCD experts using standardized instruments including: Yale-Brown Obsessive–Compulsive Scale (YBOCS); Dimensional Yale-Brown Obsessive–Compulsive Scale (DYBOCS); Beck Depression and Anxiety Inventories; Structured Clinical	-	-

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				Interview for DSM-IV (SCID); and the SF-36 QoL Health Survey.		

Table 1 (continued): Study variables continued as per table 1

	Author (year)	Study sample	Control	Died by suicide	Attempted suicide	Current suicidal ideation
	Grunewald W et al (2022)[7]	272 US men displaying sub-clinical MD symptoms	-	-	-	Present (Certain MD symptoms were longitudinally predicted by suicidal ideation).
	Agne NA et al (2022)[8]	959 outpatients with OCD	-	-	-	The prevalence of suicide attempt (SA) in our sample was 10.8%
	Rachamallu V et al (2017)[9]	1	-	-	-	Present
	Fernández de la Cruz L et al (2017)[2]	36 788 OCD patients	Matched general population controls (1:10)	545	4297	Not evaluated
	Kim H et al (2016)[5]	81 patients with OCD	-	Not evaluated	37%	56.8%
	Velloso P et al (2016)[10]	548 patients diagnosed with OCD		-	-	-

Table 3: Assessment of aim, observation and conclusion of various studies.

Author (year)	Aim	Observation	Conclusion
Grunewald W et al (2022) [7]	Longitudinal relationships between muscular dystrophy (MD) symptoms (BDD) and suicidal ideation to establish the direction of the MD-suicidality relationship.	Certain MD symptoms were longitudinally predicted by suicidal ideation. Specifically, suicidal ideation longitudinally predicted increased drive for size and appearance intolerance.	Clinicians should provide clients with comorbid MD and suicidality with appropriate coping tools to manage distress from suicidal thoughts outside of engaging in compulsive exercise characteristic of MD symptoms
Agne NA et al (2022) [8]	To identify predictors of SA in OCD patients using a machine learning algorithm	All aspects of suicidal phenomena need to be carefully investigated by clinicians in every evaluation of OCD patients.	Particular attention should be given to comorbidity with depressive symptoms.
Rachamallu V et al (2017) [9]	-	The unwanted nature of the thought, the connection of the thought to sympathetic arousal, and the reinforcing compulsive behaviors led to the decision to provide a trial of exposure therapy	Differentiating between suicidal ideation in the context of other psychiatric illnesses and suicidal obsessions in OCD is critical to ensuring accurate diagnosis and timely provision of most appropriate treatment.
Fernández de la Cruz L et al	To estimate the risk of suicide in OCD and	In unadjusted models, individuals with OCD had an increased risk	The risk of suicide remains substantial after

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(2017)[2]	identify the risk and protective factors associated with suicidal behavior in this group.	of both dying by suicide (odds ratio (OR)=9.83 (95% confidence interval (CI), 8.72–11.08)) and attempting suicide (OR=5.45 (95% CI, 5.24–5.67)), compared with matched controls.	adjusting for psychiatric comorbidities. Suicide risk should be carefully monitored in patients with OCD.
Kim H et al (2016)[5]	To investigated the potential contributing traits such as alexithymia and perfectionism and clinical risk factors including symptom dimensions associated with high suicidality in OCD patients	Those with lifetime suicide attempts scored significantly higher for alexithymia and ego-dystonic perfectionism than those without such history	Personality traits such as alexithymia and perfectionism may contribute to high suicidality in patients with OCD, and patients suffering with unacceptable thoughts need to be assessed more carefully for warning signs of suicide.
Velloso P et al (2016) [10]	To empirically investigate whether the suicidal phenomena could be analyzed as a suicidality severity continuum and its association with obsessive–compulsive (OC) symptom dimensions and quality of life (QoL), in a large OCD sample.	There were extremely high correlations between all the suicidal phenomena. OCD patients with suicidality had significantly lower QoL, higher severity in the “sexual/religious”, “aggression” and “symmetry/ordering” OC symptom dimensions, higher Beck Depression and Anxiety Inventories scores and a higher frequency of suicide attempts in a family member.	Suicidality could be analyzed as a severity continuum and patients should be carefully monitored since they present with suicidal ideation

Table 3: Factors affecting suicidal tendency

Author (year)	Factors affecting suicidal tendency
Grunewald W et al (2022) [7]	Muscle Dysmorphia (MD) is a severe subtype of body dysmorphic disorder (BDD) reports associations between eating disorders/BDD and suicidality.
Agne NA et al (2022) [8]	Relevant predictors of SA founded by the elastic net algorithm were the following: previous suicide planning, previous suicide thoughts, lifetime depressive episode, and intermittent explosive disorder.
Rachamallu V et al (2017) [9]	The combination of exposure and response prevention therapy and pharmacotherapy with sertraline and olanzapine was effective in helping the patient manage the anxiety and distress stemming from the patient’s OCD with suicidal obsession.
Fernández de la Cruz L et al (2017)[2]	After adjusting for psychiatric comorbidities, the risk was reduced but remained substantial for both death by suicide and attempted suicide. Within the OCD cohort, a previous suicide attempt was the strongest predictor of death by suicide. Having a comorbid personality or substance use disorder also increased the risk of suicide. Being a woman, higher parental education and having a comorbid anxiety disorder were protective factors.
Kim H et al (2016)[5]	In the binary logistic regression analysis, high score for alexithymia and the responsibility for harm, injury, or bad luck were significant determinants for lifetime suicide attempts. As for current suicide ideation, ego-dystonic perfectionism and the dimension of unacceptable thought were significant predictors of suicidal risk.
Velloso P et al (2016) [10]	Lower QoL scores, higher scores on the sexual dimension and a family history of suicide attempts should be considered as risk factors for suicidality among OCD patients.

DISCUSSION

Literature reveals information on those who have died by suicide through interviews with individuals who were close to them, potentially introducing recall biases by priming these informants to think about particular risk factors (e.g., mental disorders) that could explain the suicide, the used record linkage data (where mental health service use data were linked with suicide data at the individual level). Identifying the presence of mental disorders in this way overcomes the recall bias inherent in psychological autopsy studies; those who have made contact with these services are likely to have been diagnosed with a mental disorder or at least to have presented with mental health concerns.[11]The present study reveals that body dysmorphic disorder (BDD) and OCD are associated with suicidality ideation.The combination of exposure and response prevention therapy and pharmacotherapy was reported to be effective in helping the patient manage the anxiety and distress stemming from the patient's OCD with suicidal obsession. After adjusting for psychiatric comorbidities, the risk could be reduced but remained substantial for both death by suicide and attempted suicide. Within the OCD cohort, a previous suicide attempt is one of the strongest predictor of death by suicide. Having a comorbid personality or substance use disorder also increased the risk of suicide. Being a woman, higher parental education and having a comorbid anxiety disorder were protective factors.

In a systemic review by Albert U et al,[12] in clinical samples, the mean rate of lifetime suicide attempts is 14.2% (31 studies: range 6- 51.7%). Suicidal ideation deation is referred by 26.3-73.5% of individuals (17 studies, mean 44.1%); current suicidal ideation rate ranges between 6.4 and 75% (13 studies, mean 25.9). Epidemiological studies found that OCD increases significantly the odds of having a lifetime suicidal ideation as compared to the general population (OR: 1.9-10.3) and a history of lifetime suicide attempts (OR: 1.6- 9.9). Predictors of greater suicide risk are severity of OCD, the symptom dimension of unacceptable thoughts, comorbid Axis I disorders, severity of comorbid depressive and anxiety symptoms, past history of suicidality and some emotion-cognitive factors such as alexithymia and hopelessness.[12] Fontenelle LF et al[13]reported that earlier age at OCD onset, alcohol-related disorders, contamination-washing symptoms, and self-mutilation disorder were all independently associated with pre-traumatic OCD. In addition, patients with post-traumatic OCD without a previous history of obsessive–compulsive symptoms (OCS) showed lower educational levels, greater rates of contamination-washing symptoms, and more severe miscellaneous symptoms as compared to post-traumatic OCD patients with a history of OCS.Rachamallu V et al[9] revealed that the unwanted nature of the thought, the connection of the thought to sympathetic arousal, and the reinforcing compulsive behaviors led to the decision to provide a trial of exposure therapy. The treatment utilized, exposure and response therapy (ERP, a form of CBT), combined with pharmacotherapy with a serotonin reuptake inhibitor (SSRI) plus antipsychotics for the treatment of OCD, was effective in helping the patient manage the anxiety and distress stemming from his OCD with suicidal obsession.

The Body Dysmorphic Disorder (BDD) construct has existed in psychiatric literature since the last century and its essence is a preoccupation or excessive concern in a normal-appearing person.[14]Suicidal ideation, suicide attempts, and completed suicide appear common in individuals with body dysmorphic disorder (BDD). Available evidence indicates that approximately 80% of individuals with BDD experience lifetime suicidal ideation and 24% to 28% have attempted suicide.[15]Angelakis I et al[16] reported a positive and statistically significant association was found between BDD and suicidality (OR = 3.63, 95% CI = 2.62 to 4.63). Subgroup analyses showed that BDD was associated with increased odds for both, suicide attempts (OR = 3.30, 95% CI = 2.18 to 4.43) and suicidal ideation (OR = 2.57, 95% CI = 1.44 to 3.69). The evidence concerning suicide deaths in BDD was scarce. BDD-specific factors and comorbid diagnoses of Axis I disorders were likely to worsen suicidality in BDD.

Fernández de la Cruz L et al[2] found that in unadjusted models, individuals with OCD had an increased risk of both dying by suicide (odds ratio (OR)=9.83 (95% confidence interval (CI), 8.72–11.08)) and attempting suicide (OR=5.45 (95% CI, 5.24–5.67)), compared with matched controls. After adjusting for psychiatric comorbidities, the risk was reduced but remained substantial for both death by suicide and attempted suicide. Within the OCD cohort, a previous suicide attempt was the strongest predictor of death by suicide. Having a comorbid personality or substance use disorder also increased the risk of suicide. Being a woman, higher parental education and having a comorbid anxiety disorder were protective factors.

Those with lifetime suicide attempts scored significantly higher for alexithymia and ego-dystonic perfectionism than those without such history. In the binary logistic regression analysis, high score for alexithymia and the responsibility for harm, injury, or bad luck were significant determinants for lifetime suicide attempts. As for current suicide ideation, ego-dystonic perfectionism and the dimension of unacceptable thought were significant predictors of suicidal risk.[5] An accurate risk algorithm can be created using clinical and sociodemographic variables. All aspects of suicidal phenomena need to be carefully investigated by clinicians in every evaluation of OCD patients[8] as these patients with OCD are at a substantial risk of suicide. Importantly, this risk remains substantial after adjusting for

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psychiatric comorbidities. Suicide risk should be carefully monitored in patients with OCD.[2]

CONCLUSION

Overall, suicidality appears a relevant phenomenon in OCD.Certainly, BDD remains underdiagnosed due to a variety of factors which means patients are unlikely to receive the treatment they require and continue to suffer. Personality traits such as alexithymia and perfectionism may contribute to high suicidality in patients with OCD, and patients suffering with unacceptable thoughts need to be assessed more carefully for warning signs of suicide. Thus, patients with OCD are at a substantial risk of suicide. Importantly, this risk remains substantial after adjusting for psychiatric comorbidities. Suicide risk should be carefully monitored in patients with OCD. Particular attention should be given to comorbidity with depressive symptoms.

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