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Prevalence and Correlates of Lifetime Suicide Attempt in Obsessive-Compulsive Disorder with Major Depression

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Abstract

Background: Little is known about specific obsessive-compulsive clinical features associated with lifetime history of suicide attempt in individuals with obsessive-compulsive disorder (OCD) and major depression.

Methods: The study sample included 515 adults with OCD and a history of major depression. In exploratory analyses, we compared the distributions of demographic characteristics and clinical features in those with and without a history of attempted suicide and used logistic regression to evaluate the association between specific obsessive-compulsive clinical features and lifetime suicide attempt.

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Declaration of interest

None.

The authors have no conflict of interest to declare.

Results: Sixty-four (12%) of the participants reported a lifetime history of suicide attempt. Those who had attempted suicide were more likely to report having experienced violent or horrific images (52% vs. 30%; $p < 0.001$). The odds of lifetime suicide attempt were more than twice as great in participants with versus without violent or horrific images (O.R.=2.46, 95% CI=1.45-4.19; $p < 0.001$), even after adjustment for other risk correlates of attempted suicide, including alcohol dependence, post-traumatic stress disorder, parental conflict, excessive physical discipline, and number of episodes of depression. The association between violent or horrific images and attempted suicide was especially strong in men, 18-29 year olds, those with post-traumatic stress disorder, and those with particular childhood adversities.

Conclusions: Violent or horrific images are strongly associated with lifetime suicide attempts in OCD-affected individuals with a history of major depression. Prospective clinical and epidemiological studies are needed to elucidate the basis of this relationship.

Keywords

Obsessive-compulsive disorder; suicide attempt; major depression; violent images

1. Introduction

Obsessive-compulsive disorder (OCD) is characterized by intrusive, unwanted thoughts, urges, or impulses that are recurrent and persistent, and that the affected individual attempts to suppress (obsessions), and by repetitive behaviors or mental acts that the individual feels driven to perform (compulsions). These symptoms are time-consuming and cause significant distress and/or impairment (American Psychiatric Association, 1994). The obsessions and compulsions can be quite severe, with adverse impacts on social, educational, and occupational attainments and overall quality of life (Kugler et al., 2013; Pérez-Vigil et al., 2018; Pérez-Vigil et al., 2019).

Historically, clinicians did not consider OCD patients to be at elevated risk of suicide, based on small clinical case series with short-term follow-up (Goodwin et al., 1969; Coryell et al., 1981). However, more recent clinical studies have found that 10% or more of patients with OCD attempt suicide over their lifetimes (Torres et al., 2011; Torreson et al., 2013), and several meta-analyses have reported a mean lifetime prevalence of attempted suicide in OCD of about 14% (Albert et al., 2019; Angelakis et al., 2015; Pelligrini et al., 2020). In addition, several population-based studies have found that the lifetime history of attempted suicide was substantially greater in individuals with OCD than in those with anxiety disorders (Hollander et al., 1996/1997; Torres et al., 2006; Ten Have et al., 2013). Moreover, recent population-based cohort studies have found that OCD diagnosis at baseline was a significant predictor of attempted suicide (Sareen et al., 2005; Fernández de la Cruz et al., 2017) or completed suicide (Meier et al., 2016) during the follow-up period,

The majority of individuals with OCD have lifetime co-occurrence of other psychiatric disorders, especially major depression and anxiety disorders (Brakoulias et al., 2017; Ruscio et al., 2010; Sharma et al., 2021). Several clinical and epidemiologic studies have found that lifetime suicide attempt in OCD-affected individuals is substantially greater in those with lifetime co-occurrence of other psychiatric disorders (Torres et al., 2006; Torres et al., 2011;

Dell'Osso et al., 2018). Major depression is a major risk factor for attempted suicide in OCD (Agne et al., 2022; Alonso et al., 2010; Benatti et al., 2021; Kamath et al., 2007; Torres et al., 2011; it has been reported that 85% of OCD-affected individuals who have attempted suicide have a current or past major depression (Kamath et al., 2007), and 98% have had a major depressive episode (Torres et al., 2011). In addition, bipolar disorder, alcohol use disorder, other substance use disorders, anxiety disorders, and post-traumatic stress disorder (PTSD) have been found to be moderately or strongly associated with lifetime suicide attempt in OCD (Perugi et al., 1997; Hantouche et al., 2003; Angelakis et al., 2015; Gentil et al., 2009; Fontenelle et al., 2012; Albert et al., 2019; Cervin et al., 2022).

However, relatively little has been reported about the association between OCD-specific clinical features and attempted suicide in OCD-affected individuals, and the findings have been inconsistent between studies (Albert et al., 2019). In a prospective study, Alonso et al. (2010) found that symmetry obsessions and ordering compulsions predicted suicide attempt in 218 patients with OCD. Breet et al. (2019) found that symmetry/ordering symptoms, harm-related obsessions and compulsions, and severity of OCD symptoms were associated retrospectively with attempted suicide in 496 OCD-affected individuals. Velloso et al. (2016) found that sexual, religious, symmetry/ordering, and aggressive OC symptom dimensions, as well as total obsessive-compulsive (OC) symptom severity and impairment scores, were associated with suicide ideation and attempt in 548 patients with OCD. Balci & Sevincok (2010) found that aggressive obsessions and severity of OC symptoms were associated with current suicide ideation in 44 patients with OCD. More recently, Cervin et al. (2022) found that a "taboo obsessions" factor (which included sexual, religious, and moral concerns) was related to a broad suicidality factor (which included suicidal ideation, plans, and attempts) in 1001 individuals with OCD, independent of other risk correlates of suicidality. More research is needed to identify specific obsessions and compulsions and other OCD-related risk correlates of attempted suicide in OCD; whether the relationships between OCD-specific features and suicide attempt are independent of other risk correlates of suicide attempt in OCD; and whether the relationships between OCD-specific features and suicide attempt are modified by other demographic characteristics or clinical features in OCD-affected individuals. This knowledge is important for identifying OCD-affected individuals, in the clinic and the community, who are at greatest risk for attempting suicide, and for planning prevention and treatment strategies to reduce that risk.

Therefore, in the current study, we investigated the relationships between obsessive-compulsive clinical features and lifetime suicide attempt in OCD-affected individuals with a lifetime history of major depression. We addressed the following research questions:

- 1) Are OCD-specific clinical features (age at onset; severity; symptoms) associated with suicide attempt in OCD-affected individuals with a lifetime history of major depression?
- 2) Are these independent of non-OC specific features (demographic; history of psychiatric disorders; childhood adversities) that may be associated with suicide attempt in OCD?
- 3) Are associations between OCD-specific clinical features and suicide attempt modified by demographic and clinical characteristics?

2. Material and methods

2.1 Participants

The individuals included in the current analyses were adult OCD-affected adults, at least 18 years old at the time of interview, with a lifetime history of major depression, who were probands (i.e., index cases) in the OCD Collaborative Genetic Association Study (OC GAS), a multisite investigation conducted from 2007 to 2012, which has been described in detail previously (Mattheisen et al., 2015). In brief, participants were recruited from outpatient and inpatient clinics, referrals from clinicians in the community, web sites, media advertisements, self-help groups, and annual conventions of the International OCD Foundation. To be considered affected, a participant had to meet DSM-IV diagnostic criteria for OCD and major depression at any time in his/her life (American Psychiatric Association, 1994), with first onset of obsessions and/or compulsions occurring before 18 years of age. Probands with schizophrenia, severe mental retardation, Tourette disorder, or OCD occurring exclusively in the context of depression were excluded.

The study was conducted in accordance with the most recent version of the Declaration of Helsinki. The protocol was approved by the institutional review board at each study site. Participants signed a written, voluntary, informed consent prior to participation, and after study procedures had been fully explained.

2.2 Measures

Diagnostic assessments were conducted by experienced clinicians (psychiatrists or PhD-level psychologists), who examined participants directly using a semi-structured format for the evaluation of psychopathology. At each study site, each case was reviewed independently by expert diagnosticians who reviewed case materials and assigned final best-estimate diagnoses.

The Structured Clinical Interview for DSM-IV (SCID-IV) (First et al., 1996) was used for assessing major Axis I diagnoses other than OCD. Suicidality was rated by the examiner if the participant reported ever having had an episode of depressed/irritable mood, and/or an episode of diminished interest/pleasure. Pathological nail biting, pathological skin picking, and trichotillomania were operationalized as described previously (Bienvenu et al., 2000; Cullen et al., 2001).

The OCD section of the assessment package was adapted from the Schedule for Affective Disorders and Schizophrenia-Lifetime version modified for the study of anxiety disorders SADS-LA-R (Mannuzza et al., 1986), and included detailed screening questions; the Yale Brown Obsessive Compulsive Scale (YBOCS) and symptom checklist (YBOCS-CL) (Goodman et al., 1989); the age of onset of, time occupied by, and level of distress due to, each obsessive-compulsive symptom; and additional questions about OCD onset, course, insight, impairment, and treatment. The YBOCS score was ascertained for the worst-ever episode of obsessive-compulsive symptoms.

Relevant items from the Structured Instrument for the Diagnosis of DSM-IV Personality Disorders (SIDP-IV) were used for the assessment of schizotypal, avoidant, dependent, and

obsessive-compulsive personality disorder criteria (Pfohl et al., 1997). In order to limit the length of the clinical examinations, the study did not assess other personality disorders. Each trait was rated as “not present”, “subthreshold”, “present”, or “strongly present”. Personality disorder dimensions were derived by counting the number of traits rated “present” or “strongly present”.

Demographic characteristics were assessed with questions about participant age, sex, ethnicity, education, and marital status at the time of interview. Childhood adversities were assessed by questions about the experience, before age 16 years, of parental death, parental conflict, parental separation or divorce, inappropriate sexual contact with a family member, excessive physical discipline, insecurity from home break-ins, hospitalization for more than one week, or being ill in bed for several weeks or more. Participants also were asked whether they were involved in religious practices, either at home or school, while growing up.

2.3 Statistical analysis

Our analytic plan, in this exploratory study, was: first, to explore whether any obsessive-compulsive features (symptoms, severity, age of onset) are associated with attempted suicide; second, to explore whether these associations were independent of other clinical features (Axis I disorders, personality disorders, adverse childhood events) that were found to be associated with attempted suicide; and third, to explore whether any associations between obsessive-compulsive features (identified above) and attempted suicide were modified by other demographic and clinical variables assessed by the study.

We compared demographic characteristics, clinical features, and childhood adversities in the participants with and without a history of suicide attempt, using the chi-square test for categorical variables and the Student t-test for continuous variables. This resulted in 77 tests. In this exploratory study, tests with two-tailed p-values <0.05 were considered to be significant; we also report tests with p-values <0.00065 (i.e., $0.05/77$), the critical value after Bonferroni correction for multiple testing. We used logistic regression to evaluate associations between specific obsessive-compulsive clinical features and lifetime suicide attempt; to determine if any associations were independent of other clinical variables (Axis I disorders; schizotypal, avoidant, dependent, and obsessive-compulsive personality disorder dimensions; and childhood adversities) that were associated with lifetime suicide attempt; and to explore whether the strength of the associations between obsessive-compulsive features and lifetime suicide attempt were modified by other clinical variables.

3. Results

3.1 Demographic characteristics of study participants

The OCGAS sample included 885 adult probands who were diagnosed with lifetime OCD. Of these, 604 (68%) were diagnosed with lifetime major depression, of whom 515 had a non-missing value on the suicide attempt item and were included in the current study sample. Sixty-four (12%) of these participants reported a lifetime history of one or more suicide attempts, whereas 451 (88%) did not.

The ages of participants ranged from 18 to 75 years, with mean age of 36 years (SD=12.9). Women comprised 300 (61%), and men 215 (39%) of the sample. Most (94%) of the participants identified themselves as white; 9, as Hispanic; 8, as Black; and 15, as other racial/ethnic groups. Most individuals (52%) were college graduates, and another 31% had attended or were attending college. Distributions of demographic characteristics were not significantly different in those with and without a history of suicide attempt (Table 1).

3.2 Obsessive-compulsive clinical features and attempted suicide

The lifetime prevalence of almost all obsession and compulsion symptom groups were similar in participants with and without a history of attempted suicide. However, aggressive (or, harm-related) obsessions were significantly more prevalent in those who had attempted suicide (84% vs. 73%; $\chi^2_1=4.11$, $p=0.04$). Of the specific aggressive obsessions, those who had attempted suicide were more likely to report having experienced violent or horrific images (52% vs. 30%; $\chi^2_1=11.7$, $p<0.000649$; Bonferroni-corrected p -value = 0.049). The prevalence of all other specific aggressive obsessions were similar in the two groups (Table 2). All other obsessive-compulsive clinical features evaluated, including onset and course, severity and impairment, and treatment history, were similar in those who had and had not attempted suicide (Appendix, Table A1).

Among the 169 participants who experienced violent or horrific images, the mean age of onset of these images was 16.3 years (SD=11.6). Nearly 40% reported that these thoughts intruded more than 3 hours per day during their worst period, and 77% reported severe or extreme distress when experiencing them. The mean age at onset of major depression in individuals with violent or horrific images was 18.6 years (SD=7.5).

3.3 Other risk correlates of attempted suicide

The lifetime prevalence of most Axis I disorders was similar in participants with and without a history of attempted suicide. However, PTSD was significantly more prevalent in those who had attempted suicide than those who had not (20% vs 9%; $\chi^2_1=7.35$, $p<0.01$). In addition, alcohol dependence was more prevalent in those who had attempted suicide than those who had not (23% vs. 11%; $\chi^2_1 = 7.62$, $p<0.01$). Furthermore, the mean lifetime number of episodes of major depression was greater in those who had attempted suicide than those who had not (8 vs. 4 episodes; $t_{457} = 3.66$, $p<0.001$). The mean age at onset of depression was earlier in those who had attempted suicide, at the threshold of statistical significance (18 vs. 20 years; $t_{511} = 1.77$, $p=0.08$) (Table 3).

The mean numbers of schizotypal (0.8 vs 0.8; $t_{495} = 0.10$, $p=0.92$), avoidant (1.9 vs 1.5; $t_{513} = 1.28$, $p=0.20$), obsessive-compulsive (3.0 vs 2.8; $t_{496} = 0.52$, $p=0.61$), and dependent personality disorder (2.0 vs 1.6; $t_{513} = 1.83$, $p=0.07$) traits were similar in participants with vs. without a suicide attempt, respectively.

Participants who had attempted suicide were more likely to report having experienced substantial parental conflict in childhood (58% vs. 41%; $\chi^2_1 = 5.53$, $p=0.02$). They also were more likely to report having experienced excessive physical discipline in childhood (25% vs. 14%; $\chi^2_1 = 4.56$, $p=0.03$). The reported prevalence of other childhood adversities was similar in the suicide attempt and non-attempt groups (Table 4).

3.4 Logistic regression analyses

The odds of lifetime suicide attempt were more than twice as great in participants with than without violent or horrific images (O.R.=2.46, 95% CI=1.45-4.19; $p<0.001$). The magnitude of this association did not appreciably change, after simultaneously controlling for all other aggressive obsessions (adjusted O.R.=2.82, 95% CI=1.50-5.31; $p=0.001$). We did not find a relationship between attempted suicide and number of aggressive obsessions (O.R.=1.09; 95% CI=0.97-1.22; $p=0.14$); number of “taboo” (sexual or religious) obsessions (O.R.=0.96; 95% CI=0.79-1.16; $p=0.64$); number of aggressive, sexual, or religious obsessions (O.R.=1.04; 95% CI=0.96-1.13; $p=0.40$); or number of any obsessions or compulsions (O.R.=1.00; 95% CI=0.97-1.03; $p=0.99$).

The magnitude of this association between violent or horrific images and suicide attempt was similar in adjusted models that included other risk correlates of attempted suicide (alcohol dependence, PTSD, parental conflict, excessive physical discipline, and number of episodes of depression). These other risk correlates also were associated with attempted suicide, independent of violent or horrific images, in these models (Table 5). The association between violent or horrific images and attempted suicide did not appreciably change, after adjustment for age at onset of depression (O.R.=2.61, 95% CI=1.45-4.72; $p=0.001$).

The magnitude of the association between violent or horrific images and suicide attempt differed by twofold or more across different strata of several demographic and clinical variables. The association between violent or horrific images and suicide attempt was stronger in men than women, and it was inversely related to age group, being strongest in 18-29 year olds and progressively weaker in older age groups. The association was stronger in participants reporting parental separation or divorce, or inappropriate sexual contact with a family member, in childhood, as well as in those with PTSD. There was a very strong relationship between violent or horrific images and suicide attempt in participants who reported having not been regularly involved in religious practices, either at home or in school, while growing up (Table 6).

4. Discussion

There are several major findings from this study of attempted suicide in OCD-affected adults with a history of major depression. First, nearly 12% reported having attempted suicide sometime in the past, consistent with prevalence estimates from several previous clinical and epidemiological studies of OCD (Angelakis et al., 2015; Pelligrini et al., 2020). This is considerably higher than the lifetime prevalence of suicide attempt (5%) in the U.S. general population (Nock & Kessler, 2006), and comparable to the mean lifetime prevalence of suicide attempt (17%) in a recent meta-analysis of studies of patients with major depression (Cai et al., 2021).

Second, there was a strong relationship between violent or horrific images and lifetime suicide attempt in study participants. None of the other specific aggressive or harm-related obsessions, which are thoughts rather than images, was associated with attempted suicide, nor were any of the other obsessive-compulsive clinical features that were assessed (onset, course, treatment, severity, or impairment) associated with suicide attempt. Although several

previous studies have found a relationship between attempted suicide in OCD and: number of aggressive obsessions; number of sexual and religious obsessions; number of aggressive, sexual, or religious obsessions; or total number of obsessions (Perugi et al., 1997; Balci & Sevincok, 2010; Velloso et al. 2016; Breet et al., 2019), we did not. Rather, we found a specific relationship between violent or horrific images and attempted suicide in individuals with OCD and a history of major depression. Interestingly, Huz et al (2016) found that obsessions about speaking or acting violently were associated with suicidality in college students, and Ching et al. (2017) found a significant correlation between violent obsessions and suicidality scores in college students with a high score on the Obsessive-Compulsive Inventory (OCI-R) (Foa et al., 2002).

Third, alcohol dependence, PTSD, and specific childhood adversities were associated with lifetime suicide attempt in study participants. Alcohol dependence (Borges et al., 2017), PTSD (Stevens et al., 2013), and childhood adversities (Dube et al., 2001) have been found to be strongly associated with attempted suicide in depressed individuals. Several previous studies also found that these clinical features are associated with attempted suicide in OCD-affected individuals. Torres et al. (2011) and Gentil et al. (2009) found a nearly threefold increase in the odds of lifetime suicide attempt in OCD patients with PTSD or alcohol use disorders. Ay and Erbay (2018) reported a significant correlation between childhood trauma and suicidal ideation scales in OCD patients. Khosravani et al. (2017) found a significant correlation between childhood sexual abuse and suicidal ideation scales in OCD patients with lifetime suicide attempts. It has been proposed that these and other clinical features may correlate with more severe psychopathology, anhedonia, impulsiveness, emotional reactivity, and hopelessness, leading to psychological distress that becomes unbearable in some individuals (Nock et al., 2008). Nevertheless, in the current study, the relationship between violent or horrific images and attempted suicide was independent of, and not explained by, these other clinical features.

Fourth, the magnitude of the association between violent or aggressive images and attempted suicide was substantially (at least two-fold) greater in men than women, and in younger (18-29 year-old) than older participants. The relationship between violent or aggressive images and attempted suicide also was substantially greater in those with a lifetime history of PTSD, as well as in those reporting childhood adversities of parental separation/divorce or inappropriate sexual contact with a family member. Moreover, the relationship between violent or aggressive images and attempted suicide was much stronger in those who reported not engaging in religious practices in childhood. It has been proposed that social integration and support provided by religious affiliation, as well as stigmatization of suicide by religious communities, may reduce the risk of attempted suicide in vulnerable individuals (Dervic et al., 2004; Nock et al. 2008).

There are several possible explanations for the relationship between violent or horrific images and suicide attempt in OCD-affected individuals. First, among aggressive obsessions, violent or horrific images may be so disturbing that affected individuals seek escape by attempting suicide (Balci & Sevincok, 2010; Khosravani et al., 2017). Second, violent or horrific images and suicide may share certain clinical features (such as severity of depression and other psychopathology), personality characteristics (such as impulsive

traits), environmental exposures (such as childhood and adult traumatic experiences), or neurochemical abnormalities (such as serotonergic dysfunction) (Sareen et al., 2005; Mann, 2013), and a recent prospective twin study found that genetic factors explain much of the association between taboo obsessions and suicide attempt in young adults (Krebs et al., 2021). Third, these images could emerge after, and in response to, a suicide attempt. For example, Wetzler et al. (2007) describe a patient who had a major depressive episode, without OCD, in whom violent obsessions of harming herself and others emerged following a suicide attempt. Fourth, as has been proposed for repeated exposure to violent situations, it is possible that repeated exposure to violent or horrific images may contribute to the acquired capability for attempting suicide in vulnerable individuals (Bryan et al., 2010; Smith & Cukrowicz, 2010; Holaday & Brausch, 2015).

A major strength of the current study is the thorough, semi-structured examination of participants by experienced doctoral-level clinicians. In particular, the rigorous evaluation of specific types of obsessions and other symptoms allowed us to distinguish intrusive images in OCD from memories of adverse events in PTSD and to identify a specific aggressive obsession (i.e., violent or horrific images) as a major independent risk factor for suicide attempt in study participants (Lipinski & Pope, 1994; Sprekens et al., 2007).

However, several potential limitations of the current study must be acknowledged. First, we evaluated attempted suicide only in individuals with a history of major depression. The great majority (over 85%) of OCD-affected individuals who have attempted suicide have lifetime major depression (e.g., Kamath et al., 2007; Torres et al., 2011), which is a major risk factor for suicide attempt in OCD-affected and other individuals (Torres et al., 2011; Fernández de la Cruz, 2017). However, the current findings may not be generalizable to those without a history of depressive symptoms. We also did not evaluate the severity of depression, which may be an important correlate of suicide risk in OCD (Benatti et al., 2021). Moreover, we excluded individuals with a history of schizophrenia, Tourette disorder, or mental retardation. Future studies are needed to identify risk factors for attempted suicide in OCD-affected individuals without major depression, and in other clinical and community samples. Second, information was based on retrospective self-report and is subject to recall bias and other sources of potentially inaccurate reporting. Moreover, the temporal relationship between clinical symptoms and suicide attempts is unclear, as age at suicide attempt was not assessed. However, in the current study, the mean age at onset of violent or horrific images was several years earlier than that of major depression and, presumably, the age at first suicide attempt. Third, the diagnosticians did not evaluate several important features of suicidality, such as intent and lethality (Posner et al., 2011), and future studies are needed to investigate their relationship with specific obsessive-compulsive symptoms and other psychopathology in individuals with OCD. Fourth, childhood adversities were not evaluated with a standardized instrument. Moreover, only four personality disorders were assessed by the clinicians; other personality disorders, such as borderline personality disorder, that may be associated with suicide in OCD, were not evaluated (Breet et al., 1999). Fifth, the analyses were exploratory, and we did not have a priori hypotheses about association between specific obsessive-compulsive symptoms and attempted suicide in OCD. Despite these limitations, the results of this study encourage future investigations

testing the hypothesis of a specific relationship between violent or horrific images and attempted suicide in OCD-affected individuals.

5. Conclusions

Clinicians should be aware that violent or horrific images, as well as alcohol dependence, PTSD, and childhood adversities, may be strongly associated with lifetime suicide attempts in OCD-affected patients with a history of major depression. Moreover, violent or horrific images may be an especially important risk factor for suicide attempt in men, young adults, and those who have experienced traumatic events and specific childhood adversities. Given that prior suicide attempt is a major risk factor for completed suicide (Bostwick et al., 2016) and that population-based, longitudinal cohort studies have found increased risk of suicide in individuals with OCD (Sareen et al., 2005; Fernández de la Cruz et al., 2016; Meier et al., 2016), these individuals may be at increased risk for attempting suicide in the future. Prospective clinical and epidemiological studies are needed to elucidate the basis of the relationship between violent or horrific images and attempted suicide in OCD-affected individuals and to develop effective intervention and prevention strategies in the clinic and community.

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Appendix

Table A1

Additional obsessive-compulsive clinical features in study participants, by history of suicide attempt

	Suicide Attempt		Significance	
	Yes (N=64)	No (N=451)	χ^2_1	p-value
	Number (%)	Number (%)		
Onset, gradual	43 (69)	293 (67)	0.10	0.75
Course, continuous	57 (91)	373 (84)	1.88	0.17
Global impairment, marked/extreme	30 (53)	231 (55)	0.13	0.72
Insight, poor or lacked	7 (11)	80 (18)	2.15	0.14
Ever treated for OC symptoms	62 (100)	407 (97)	1.67	0.20
Received CBT	35 (63)	261 (68)	0.58	0.45
Received SSRIs	60 (97)	400 (98)	0.65	0.42
CBT response, if received ^a	14 (44)	127 (51)	0.67	0.41
SSRI response, if received ^a	24 (40)	183 (46)	0.78	0.38

	Mean (SD)	Mean (SD)	t _{df}	p-value
Age at onset of OC symptoms	9.8 (5.7)	9.6 (5.8)	t ₅₁₁ = 0.27	0.79
Age at diagnosis of OCD	13.6 (7.0)	14.1 (8.1)	t ₄₉₉ = 0.44	0.66
Age at first treatment for OCD	21.2 (9.8)	22.6 (11.3)	t ₄₅₉ = 0.93	0.36
Y-BOCS ^b , total severity score, worst episode	30.3 (6.3)	29.6 (6.8)	t ₅₁₁ = 0.27	0.79

^aModerate improvement, or total remission.

^bYale-Brown Obsessive Compulsive Scale.

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Highlights

- We studied suicide attempt in adults with obsessive compulsive disorder and depression
- Suicide attempt was strongly associated with violent/horrific images
- This relationship was independent of other risk correlates of suicide
- This relationship was especially strong in those with childhood adversities or PTSD

Table 1
Sociodemographic characteristics in study participants, by history of suicide attempt

	Suicide Attempt		Significance
	Yes (N=64)	No (N=451)	
	Number (%)	Number (%)	Test statistic
			p-value
Sex			
Men	24 (38)	191 (42)	
Women	40 (62)	260 (58)	$\chi^2_1 = 0.54$
			0.46
Age at interview, years			
18-29	20 (31)	178 (40)	
30-39	18 (28)	97 (21)	
40-49	19 (30)	93 (21)	
50-75	7 (11)	83 (18)	$\chi^2_3 = 5.99$
			0.11
Age at interview, mean (SD), years	35.6 (10.7)	36.4 (13.1)	$t_{513} = 0.42$
			0.67
Race/Ethnicity			
White	57 (89)	426 (94)	
Other	7 (11)	25 (6)	$\chi^2_1 = 2.80$
			0.09
Education			
Less than college	9 (14)	80 (18)	
Some college	25 (40)	134 (30)	
College graduate	29 (46)	234 (52)	$\chi^2_2 = 2.51$
			0.29
Marital status			
Married, cohabiting, widowed	19 (30)	171 (38)	
Separated or divorced	8 (13)	51 (12)	

	Suicide Attempt		Significance
	Yes (N=64)	No (N=451)	
	Number (%)	Number (%)	
Never married	36 (57)	226 (50)	$\chi^2_2 = 1.52$ 0.48
Has children			
Yes	18 (29)	168 (39)	
No	45 (71)	264 (61)	$\chi^2_1 = 2.50$ 0.11
Childhood religious practices			
Yes	42 (67)	327 (73)	
No	21 (33)	122 (27)	$\chi^2_1 = 1.04$ 0.31

Table 2
Obsessive-compulsive symptom groups and other features in study participants, by history of suicide attempt

	Suicide Attempt		Significance
	Yes (N=64)	No (N=451)	
	Number (%)	Number (%)	
			χ^2_1 p-value
Obsessions:			
Aggressive	54 (84)	324 (73)	4.11 0.04
Sexual	26 (41)	170 (38)	0.23 0.63
Religious	27 (42)	166 (37)	0.57 0.45
Contamination	42 (67)	304 (68)	0.05 0.83
Symmetry	42 (66)	257 (58)	1.34 0.25
Somatic	20 (32)	152 (35)	0.23 0.64
Hoarding	23 (36)	164 (37)	0.01 0.92
Compulsions:			
Cleaning	46 (73)	313 (70)	0.26 0.61
Checking	49 (79)	336 (75)	0.52 0.47
Repeating	36 (58)	287 (64)	0.80 0.37
Counting	31 (50)	203 (46)	0.44 0.51
Ordering	39 (62)	245 (55)	1.09 0.30
Hoarding	25 (40)	157 (35)	0.50 0.48
Specific aggressive obsessions:			
Fear might harm self	22 (34)	113 (25)	2.52 0.11
Fear might harm others	26 (41)	159 (35)	0.68 0.41
Violent or horrific images	33 (52)	136 (30)	11.7 0.00064
Fear of blurring out obscenities or insults	14 (22)	86 (19)	0.26 0.61
Fear of doing something else embarrassing	13 (20)	93 (21)	0.003 0.95

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	Suicide Attempt		Significance	
	Yes (N=64)	No (N=451)	χ^2	p-value
	Number (%)	Number (%)		
Fear will act on unwanted impulses	15 (23)	115 (26)	0.13	0.72
Fear will steal things	5 (8)	37 (8)	0.013	0.91
Fear will harm others because not careful	23 (36)	129 (29)	1.45	0.23
Fear will be responsible for something else terrible	22 (34)	153 (34)	0.004	0.95

Lifetime history of Axis I disorders, and other clinical features, in study participants, by history of suicide attempt

Table 3

	Suicide Attempt		Significance
	Yes (N=64)	No (N=451)	
	Number (%)	Number (%)	
Recurrent major depression	50 (78)	321 (71)	1.34 0.25
Mania	5 (8)	21 (5)	1.22 0.27
Mania or hypomania	6 (10)	31 (7)	0.64 0.42
Separation anxiety disorder	9 (15)	85 (19)	0.68 0.41
Panic disorder	12 (19)	79 (18)	0.10 0.76
Agoraphobia	11 (18)	65 (15)	0.37 0.54
Social phobia	14 (22)	121 (27)	0.67 0.41
Specific phobia	8 (13)	74 (17)	0.62 0.43
Generalized anxiety disorder	17 (27)	146 (33)	0.80 0.37
Post-traumatic stress disorder	12 (20)	39 (9)	7.35 0.007
Hypochondriasis	2 (3)	19 (4)	0.19 0.67
Body dysmorphic disorder	6 (9)	23 (5)	1.84 0.18

Table 4

Childhood adversities^a in study participants, by history of suicide attempt

	Suicide Attempt		Significance test	
	Yes (N=64) Number (%)	No (N=451) Number (%)	χ^2_1	p-value
Parental death	3 (6)	7 (2)	2.87	0.09
Parental separation or divorce	7 (14)	52 (14)	0.01	0.99
Parental conflict	33 (58)	166 (41)	5.53	0.02
Excessive physical discipline	14 (25)	55 (14)	4.56	0.03
Sexual contact with relative	9 (16)	45 (12)	1.03	0.31
Home break-ins	3 (5)	19 (5)	0.03	0.87
Hospitalized more than one week	5 (9)	23 (6)	0.80	0.37
Home in bed several weeks	5 (9)	33 (8)	0.01	0.93

^abefore age 16 years old.

Table 5
Association between violent or horrific images and history of suicide attempt in study participants, adjusting for other correlates of suicide attempt, logistic regression models

	Model 1	Model 2	Model 3	Model 4	Model 5
Odds ratio (95% CI)					
Violent or horrific images	2.74 (1.59-4.72) ^c	2.34 (1.35-4.06) ^b	2.87 (1.63-5.06) ^c	3.15 (1.77-5.62) ^c	2.56 (1.41-4.64) ^b
Alcohol dependence	2.85 (1.46-5.57) ^b				
PTSD		2.64 (1.28-5.45) ^b			
Parental conflict			1.89 (1.07-3.34) ^a		
Excessive physical discipline				2.29 (1.15-4.56) ^a	
Major depression, number of episodes					1.05 (1.02-1.08) ^b

^a p<0.05

^b p<0.01

^c p<0.001

Relationship between violent or horrific images and history of suicide attempt in study participants, stratified by other variables, logistic regression models

Table 6

Stratifying variable	Odds ratio (95% CI)
Sex	
Men	4.48 (1.82-11.0) ^b
Women	1.76 (0.89-3.47)
Age at interview, years	
18-29	5.09 (1.77-14.6) ^b
30-39	2.54 (0.91-7.05)
40-49	1.88 (0.66-5.37)
50-75	0.70 (0.08-8.21)
Childhood religious practices	
No	9.00 (3.05-26.6) ^c
Yes	1.48 (0.77-2.86)
Post-traumatic stress disorder	
No	2.09 (1.14-3.83) ^a
Yes	4.06 (1.05-15.7) ^a
Parental separation or divorce before 16 years old	
No	2.70 (1.41-5.14) ^b
Yes	8.18 (0.92-72.9)
Inappropriate sexual contact before 16 years old	
No	2.41 (1.29-4.49) ^b

100
c
p<0.001
100
q
p<0.01
p<0.05
r

Odds ratio (95% CI) ^a	Stratifying variable
5.08 (1.10-23.4) ^a	Yes

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