Which factors may differentiate lifetime suicide attempters from ideators in obsessive–compulsive disorder patients?

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INTRODUCTION

Obsessive–compulsive disorder (OCD) is characterized by repetitive, persistent, and uncontrollable thoughts

Background: The causes underlying suicidal behaviour in patients with obsessive-compulsive (OCD) are not fully understood.
Aim: In this study, we examined whether lifetime suicide attempt (SA), and suicide ideation (SI) was associated with affective temperaments, impulsivity, childhood traumatic events or separation anxiety.
Methods: We compared OCD patients with lifetime SA (Group 1; n=25), lifetime suicide ideation (SI) (Group 2; n=62), and without lifetime SI and SA (Group 3; n=73) through Beck Scale for Suicidal Ideation (BSSI), Childhood Trauma Questionnaire Questionnaire (CTQ-SF), Separation Anxiety Symptom Inventory (SASI), Baratt Impulsiveness Scale (BIS-11), Temperament Evaluation of Memphis, Pisa, Paris and San Diego (TEMPS-A), and Beck Depression Inventory (BDI).
Results: Post hoc tests showed that educational level was significantly lower in Group 1 than in both Group 2 and 3. Childhood abuse were significantly higher in attempters than ideators, and non-suicidal patients. The depressive, cyclothymic, and anxious temperaments were significantly higher in attempters and ideators compared to control subjects. The aggressive obsessions (p=0.002), childhood abuse history (p=0.009), lifetime major depression (p=0.017), and lower educational levels (p=0.006) strongly predicted the increased risk of lifetime SA, compared to non-suicidal patients. Childhood abuse (p=0.022) was the most significant predictor of lifetime SA in OCD.
Conclusion: We suggested that childhood abuse history emerged as the most significant variable that distinguished lifetime attempters from only ideators in OCD patients.

Key words: Childhood abuse, obsessive–compulsive disorder, suicide

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positive family history for SA,[2] a previous SA,[16] high severity of obsessive–compulsive (OC) symptoms,[6,7,17,18] high prevalence of the comorbidity with major depression and anxiety disorders,[3,4,7,13,19,21] and increased rates of sexual/religious, violent/aggressive, symmetry/ordering, contamination obsessions, washing, repeating, and hoarding compulsions[4,6,17,18,20-22] were linked to suicidality in OCD patients. The association of hopelessness with current suicide ideation in OCD patients was found to be independent of comorbidity with depression.[7,13,17]

Suicide can be conceptualized as a continuum from SI through SA to completed suicide depending on the severity of several precursors.[23] Effective mental health care,[24] connectedness to individuals, family, community, and social institutions; and coping ability[25] are considered as major protective factors for suicide. Although the correlates and substrates of suicidality in OCD have been previously studied, it is unclear why some of the OCD patients with lifetime SI do not attempt suicide. As the majority of OCD patients who have SI never attempt or complete suicide, it would be crucial to identify special clinical, psychological, and psychosocial risk factors that may play a significant contributory role in the occurrence of SA. Therefore, other potential contributing factors that may increase suicide risk are to be screened and identified.

Impulsiveness has previously been found to be an important risk factor for suicidal behavior in adult and adolescent patients with OCD.[16,26] Some authors suggested that impulsivity makes individuals more likely to act on suicidal thoughts and may actually be a more significant indicator of SA than the active SI.[27-29] It was also found that suicide attempters have higher levels of self-reported lack of premeditation compared with ideators.[30] Although SAs are considered to be frequently impulsive, little is known about the influence of impulsivity on SA and SI in patients with OCD.

It is also well known that childhood physical abuse and neglect, emotional abuse and neglect, and sexual abuse is a significant risk factor for both SA and SI in OCD patients.[7,8,14,20,22,30,31] In particular, childhood sexual abuse may predict later SI and SA among individuals with OCD.[9,30] However, the relations of childhood trauma dimensions to SI have not well been studied in OCD patients with lifetime SA. Separation anxiety disorder (SAD) is characterized by excessive anxiety, usually beginning before 18 years of age, regarding separation from the home or attachment figures.[31] Although SAD is known to be associated with an increased risk for SI or SA,[12,33] to our knowledge, no previous study explored the influence of SAD on suicidal behavior among OCD patients.

Affective temperaments are conceived as the subaffective manifestations and often the precursors of major unipolar and bipolar disorders. Affective temperaments are also considered to interact with adverse life events and therefore can significantly affect the polarity and long-term course of mood episodes and outcome including suicidality and other forms of self-destructive behaviors.[34-37] Most recent studies have found that in contrast to hyperthymic temperament, which seems to be a protective factor against suicidal behavior,[35-38] cyclothymic, irritable, depressive, and anxious affective temperaments were significantly overrepresented in suicide attempters with mood disorders.[39-41] Although several studies have revealed an association between affective temperaments and suicide-related behaviors among individuals with mood disorders, relatively a few studies have investigated such an association among OCD patients. In a study, cyclothymic affective temperament was reported to be associated with higher rates of SA in OCD patients.[11] Therefore, it still remains uncertain whether some affective temperaments, impulsivity traits, childhood traumatic experiences, or separation anxiety, singly or in combination, may contribute to the occurrence of lifetime SA among patients with OCD.

In this study, our primary aim was to provide some evidence regarding the factors that may differentiate the lifetime suicide attempters from ideators in OCD patients. We hypothesized that OCD patients with lifetime SA had higher impulsivity traits, childhood traumatic experiences, or separation anxiety relative to ideators and to the individuals who had never SI and SA. Second, we aimed to test the hypothesis that particular temperaments would be even more strongly associated with lifetime SA, and hyperthymic temperaments are protective against the occurrence of lifetime SA among OCD patients.

**MATERIALS AND METHODS**

**Participants**

The individuals admitted to outpatient clinics of a university hospital were assessed using the Structured Clinical Interview for the DSM-IV[42] for lifetime OCD and lifetime major depression. Inclusion in this study was based on receiving a primary diagnosis of OCD. The patients with a significant medical or neurologic illness, schizophrenia, bipolar disorder, mental retardation, and substance use disorder were excluded from the study. Therefore, the sample comprised 160 patients with OCD, aged between 18 and 65 years. The severity and types of OCD symptoms were assessed using the Yale–Brown OC Scale.[43,44] 62.5% of the participants (n = 100) were taking several antidepressants including clomipramine (11.8%), paroxetine (3.7%), sertraline (21.8%), fluoxetine (11.2%), duloxetine (4.3%), citalopram (4.3%), escitalopram (3.7%), fluvoxamine (15.6%), and venlafaxine (4.3%). Concomitant medications were anxiolytics (5.6%) and antipsychotics (18.7%). The sociodemographic and clinical characteristics of participants, including age, sex, educational level,
marital status, and duration of OCD, were recorded through a semi-structured interview form. The duration of OCD was determined from the age that the patient, or a family member, remembered as the beginning of the OC symptoms.

Participants were asked if they have ever seriously thought about killing themselves and if they have ever attempted suicide after the onset of OCD. The intensity of current suicide ideation was evaluated by the Beck Scale for SI. This scale is a 21-item instrument that assesses the presence and intensity of suicide ideation in a week before evaluation.[45,46] Each item is scored based on an ordinal scale from 0 to 2, and the total score is 0–38. There is no specific cutoff point, or levels with higher scores indicate more severe SI.

Affective temperamental traits were assessed through Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto-questionnaire (TEPS-A) which was developed by Akiskal et al. 2005.[47] The original scale consists of 109 items for males and 110 items for females. The Turkish version consists of 99 items to define depressive, irritable cyclothymic and anxious subtypes.[48]

To assess traumatic experiences before 18 years old, we used the short form of Childhood Trauma Questionnaire (CTQ-SF) in which the 28 items are rated on a five-point Likert scale.[49,50] This scale includes the subscales of emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect subscales. For the statistical analysis, we summed the first three subscale scores into a variable “childhood neglect.” We obtained the variable “childhood neglect” by summing up emotional and physical neglect scores.

The severity of childhood SAD was measured retrospectively using the Separation Anxiety Symptom Inventory, a self-report inventory consisting of 15 items with four-point Likert type questions.[51,52] We used the Barratt Impulsivity Scale version 11 (BIS-11) to measure the severity of impulsivity.[53,54] BIS-11 has 30 items scored on a Likert scale (ranging from never = 1 point to very frequently = 4 points). It assesses the attentional, motor, and nonplanning dimensions of impulsive behavior. The Beck Depression Inventory (BDI)[50] was used to measure the severity of current depression. BDI is a four-point Likert-type self-reporting scale and includes 21 items which are scored from 0 to 3, and the total score ranges between 0 and 63. The institutional ethics committee approval was obtained before the study (Registration no: 2018/1423), and all participants provided signed informed consent.

Statistical analysis

The analysis of the data was performed using the SPSS for Windows 22 (SPSS Inc., Chicago, IL, USA). We separated participants into three groups: lifetime suicide ideators (Group 1), lifetime suicide attempters (Group 2), and nonsuicidal control group (Group 3). Group 1 consisted of participants reporting only lifetime SI without engaging in SA, Group 2 included the individuals engaging in at least one lifetime SA, and Group 3 consisted of participants reporting no lifetime SI or SA.

Between-group differences in demographic and clinical characteristics were compared using analysis of variance (ANOVA) and the Chi-square test, as appropriate. If the differences were significant, then multiple comparison tests with post hoc Bonferroni test were applied. We used two logistic regression models to estimate the odds ratio of dependent variables between Group 1 and the other two groups. The possible independent predictors were assigned through comparison analyses. The results were reported as the relative risk ratios (odds ratios) with 95% confidence intervals. The goodness-of-fit of the multinomial model was assessed by means of the Hosmer–Lemeshow test. In all analyses, the significance level was accepted as $P < 0.05$.

RESULTS

The results showed that 38.7% ($n = 62$) of our participants reported lifetime SI without any SA, whereas 25 of them (40.3%) had at least one lifetime SA after the onset of OCD. As shown in Table 1, there were no significant differences between the three groups in terms of age, gender, marital status, duration of OCD, severity of childhood separation anxiety symptoms, and the total and subscale scores of BIS-11. The frequency of lifetime aggressive obsessions tended to be higher in attempters than in nonsuicidal patients ($P = 0.04$). Attempters and ideators had significantly higher rates of lifetime major depression ($P < 0.0001$).

The results of ANOVA indicated significant between-group differences for the educational level ($P = 0.01$), the total ($P < 0.0001$), abuse ($P < 0.0001$), and neglect scores of CTQ-SF ($P = 0.003$). In addition, depressive ($P = 0.003$), cyclothymic ($P = 0.007$), and anxious temperament traits ($P < 0.0001$) significantly differed between the three groups. Post hoc Bonferroni tests showed that educational level was significantly lower in the SA group than in ideators ($P = 0.04$) and nonsuicidal patients ($P = 0.01$). Childhood abuse scores were significantly higher in attempters than ideators ($P = 0.001$) and controls ($P < 0.0001$). The ideators and attempters had significantly higher neglect scores than the control group ($P = 0.02; P = 0.01$, respectively). Moreover, we have found that the scores of depressive ($P = 0.04$; $P = 0.05$, respectively), cyclothymic ($P = 0.03$; $P = 0.02$, respectively), and anxious temperaments ($P = 0.003$; $P = 0.004$, respectively) were significantly higher in attempters and ideators compared to controls [Table 1].
To determine the variables which might significantly distinguish lifetime attempters from ideators and nonsuicidals, we conducted two multinomial regression analyses. In the first logistic regression examining the associations of lifetime attempters versus nonsuicidals [Table 2], the final model for lifetime SA was able to explain between 54.6% of variance. The model was found to fit the data adequately (Hosmer and Lemeshow’s χ² = 6.518, P = 0.589) and was able to predict lifetime SAs (Omnibus χ² (5) = 42.562, P < 0.0001). Overall, the model was able to correctly predict 87.9% of all cases. Eight predictors were included in the model to predict an outcome of lifetime SA versus no SI and attempt. The aggressive obsessions (P = 0.002), childhood abuse history (P = 0.009), lifetime major depression (P = 0.006), and lower educational levels (P = 0.006) strongly
predicted the increased risk of lifetime SA during the course of OCD.

Second, we examined the factors which might best differentiate OCD patients with lifetime SA from those with only SI. The final model for lifetime SA was able to explain between 18.3% of variance. The model was found to fit the data adequately (Hosmer and Lemeshow’s $\chi^2 = 8.224, P = 0.313$) and was able to predict lifetime SAs (Omnibus $\chi^2 (1) = 11.670, P = 0.003$). Overall, the model was able to correctly predict 75.6% of all cases. Our results indicated that only childhood abuse ($P = 0.022$) was significantly associated with the occurrence of lifetime SA [Table 3].

**DISCUSSION**

Suicidal individuals are different from nonsuicidal individuals in risk factors including life events, stress, acute episodes of mental illness, and specific genetic factors predisposing to suicidal behavior.[25] Although the studies examining the causes of lifetime SI and SA among OCD patients reported a wide range of risk factors, whether affective temperaments, impulsivity traits, childhood traumatic experiences, or separation anxiety increased the risk of SA among OCD patients who have SI are not well studied.

In accordance with the previous studies,[19] we found that a lower level of education may appear to be a risk factor for attempting suicide in OCD patients. Attempters had significantly lower educational levels than both ideators and nonsuicidal patients. Lower education significantly predicted the outcome of attempters or nonsuicidal patients. Higher education may reflect a greater tendency for seeking help rather than a risk of suicidal behavior. Our results also demonstrated that suicide attempters had significantly higher aggressive obsessions than nonsuicidal OCD patients. Aggressive obsession was a significant factor in predicting SA. We found that the content of OC symptoms did not differ between ideators and attempters. Previous studies indicated that specifically, unacceptable sexual or aggressive thoughts are highly disgusting to the individuals. Compared to other OC symptoms, these thoughts are linked to greater distress and are considered as being more ego-dystonic and more aversive.[26] Previous studies have found that aggressive and sexual obsessions were associated with suicidal behavior in OCD patients.[17,18,20] Aggressive obsessions may lead patients to consider or attempt suicide to escape from their distressing symptoms.[17] Sexual obsessions can elicit suicidality by reducing self-esteem and inducing pathological guilt.[15]

Most of the previous researches[3,7,13,19,20] reported that suicidality in OCD patients was related to high comorbidity with major depression. Accordingly, we have found that the presence of lifetime major depression significantly predicted the distinction between attempters and nonsuicidal patients after controlling for some affective temperament traits. Our results also demonstrated that the frequency of previous depressive episodes did not differentiate those who ever attempted suicide from those who experienced SI. Therefore, we suggested that lifetime major depression did not emerge as a clinical risk factor which distinguishes between attempter and ideator OCD patients.

In this study, we could not find any differences between the three groups of OCD patients with regard to impulsivity traits. Similar to our results, a few studies reported that impulsivity was not associated with SI in patients with OCD.[37,38] In contrast, some studies suggest that inadequate control of aggressive impulses might be a greater indicator of risk for impulsive SA.[59,60] A recent study has found that suicide attempters do not have significantly elevated trait impulsiveness compared to ideators.[61]

Affective temperament might be helpful in estimating the risk of SA in patients with OCD. Our findings demonstrated that although depressive, cyclothymic, and anxious temperament traits were significantly higher in ideators and attempters than in control OCD individuals, these traits did not predict SA after when controlling for aggressive obsessions, childhood abuse, educational level, and lifetime depression. In addition, we could not conclude that hyperthymic traits may be protective against suicide among OCD patients. To date, relatively, a few studies have explored the relationship between affective temperaments and suicidal behavior in OCD patients. In a study, cyclothymic affective temperament was reported to be associated with higher rates of SA in OCD patients.[61] Some studies showed that rapid mood switching[62] and variability in SI,
as the result of cyclothymia, were significant predictors of previous SAs. [63]

SAD is frequently found in patients with OCD. [65] However, no previous study examined whether SAD is associated with SA or SI in patients with OCD. Similar to previous studies that failed to find an association between childhood SAD and suicidal behavior among patients with anxiety disorder, [65] we could not find an association between SAD and suicidal behavior among patients with OCD.

Consistently, with previous research, [7-9,14,20,30,66,67] the most prominent finding of the present study was that childhood neglect and abuse were direct predictors of lifetime SI and SA in OCD patients, respectively. Particularly, childhood abuse emerged as the strongest risk factor which might be associated with the occurrence of lifetime SA in OCD patients during the course of the illness. In previous studies, childhood trauma has been shown to predispose to psychiatric disorders associated with impulsivity, notably substance dependence, and antisocial personality disorder, as well as to suicidal behavior. [68,69] The underlying mechanisms explaining the relationship between childhood abuse and suicidality in OCD are not well understood. The individuals who experienced abuse in childhood may have distrust toward the social environment. [70] These thoughts can lead to depression enhancing the possibility of suicidal risk. Anxiety and depression may mediate the relationship between childhood trauma and suicide. [65] Moreover, OCD patients may consider suicide as a way to escape from the conflicts of abuse and ego-dystonic unacceptable thoughts. [71] Some authors reported that parental relationships, friendships, anxiety, and depression mediated the relationship between childhood maltreatment and SI. [72] In our study, it is noteworthy that a higher lifetime rate of aggressive obsession was also a significant predictor of lifetime SA as well as childhood abuse. Childhood traumatic experiences may increase the frequency and intensity of obsessions and determine the content of the obsession. [73] According to the schema theory, [70] adverse experiences during childhood may lead to the development of early maladaptive schemas. The presence of early abuse schemas may be significantly correlated with an increased risk for suicidality in patients with OCD, and maladaptive intrusive thoughts may cause learned inappropriate assumptions to cope with childhood traumatic experiences. [9,74,75] On the other hand, the patients with childhood trauma may report difficulties in emotion regulation, personal relationships, and self-concept. [74] It is also known that childhood traumatic events may be associated with neurobiological changes increasing the risk of developing psychiatric disorders in adulthood. [77] In addition to the serotonergic dysregulation in OCD, [78] a statistically significant correlation between lower high-density lipoprotein-cholesterol levels and suicidality was reported in OCD patients. [79,80] There have been a lot of data about the effects of traumatic childhood events on the development, regulation, and responsiveness of several brain structures. Childhood trauma may influence several systems such as limbic–hypothalamic–pituitary–adrenal axis, sympathetic nervous, and serotonin systems and therefore may enhance the risk of both depression and suicide in adults. [81-84]

Neuropsychological studies also tend to show that children who had a history of violence, abuse, or neglect experienced several cognitive difficulties. [82,83] In further research, the possible influences of childhood trauma on brain morphology and functionality in adult suicidal OCD patients.

Limitations and implications of the study

The findings of the present study should be interpreted in light of some limitations. First, this study was limited by its use of a retrospective design, which involved collecting self-report data for childhood. Our study investigated the presence of at least one previous SA and did not explore the overall number of attempts, the methods used in the attempts, the lethality of the attempts, or the presence of major depression at the time of index SA. Moreover, we did not consider some factors affecting suicidal risk, such as recent stressful events, family history of SAs, hopelessness, comorbid anxiety disorder, and personality disorders. Despite these limitations, the present study tried to identify the differences between suicide attempter and ideator OCD patients. Future research using longitudinal and prospective designs is required to confirm the present results and to provide evidence for the factors which may protect OCD patients from SAs. In future studies, other predictors such as economic stress, family dysfunction, legal issues, and lack of material resources also need to be included.

CONCLUSION

In the present study, we found that at lower levels of education, more previous depressive episodes, the presence of lifetime aggressive obsessions, and a more severe childhood abuse history were prominent factors which can increase the risk of lifetime SA among OCD patients. Childhood abuse history emerged as the most significant variable that differentiated between lifetime ideator and attempters. In contrast to our hypotheses, affective temperament and impulsivity traits and separation anxiety during childhood were not related to SI and attempt in our sample.

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Conflicts of interest

There are no conflicts of interest.
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