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Violent obsessions are associated with suicidality in an OCD analog sample of college students

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ABSTRACT

The picture of suicide in obsessive-compulsive disorder (OCD) is unclear because previous research did not uniformly control for depressive symptoms when examining the relationship between OCD and suicidality. Specific links between OC symptom dimensions and suicidality were also not adequately studied. As such, we investigated specific associations between OC symptom dimensions and suicidality, beyond the contribution of depressive symptoms, in an OCD analog sample of college students, a group traditionally at risk for suicide. One hundred and forty-six college students (103 females; 43 males) who exceeded the clinical cut-off for OC symptoms on the Obsessive-Compulsive Inventory, Revised (OCI-R) were recruited. Participants completed an online questionnaire containing measures that assessed suicidality and OC and depressive symptom severity. Total OC symptom severity, unacceptable thoughts, and especially violent obsessions exhibited significant positive zero-order correlations with suicidality. However, analyses of part correlations indicated that only violent obsessions had a significant unique association with suicidality after controlling for depressive symptoms. Our findings support the hypothesis that violent obsessions have a specific role in suicidality beyond the influence of depressive symptoms in an OCD analog sample of college students. A strong clinical focus on suicide risk assessment and safety planning in college students reporting violent obsessions is therefore warranted. Future related research should employ longitudinal or prospective designs and control for other possible comorbid symptoms in larger and more representative samples of participants formally diagnosed with OCD in order to verify the generalizability of our findings to these groups.

1. Introduction

Obsessive-compulsive disorder (OCD), as its name implies, manifests as intrusive obsessions and repetitive compulsions (American Psychiatric Association [APA], 2013). The distress experienced with OCD is highly disabling (Lopez & Murray, 1998), and can cause...
significant impairment in home life, work, interpersonal relationships, and other important domains (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012; Ruscio, Stein, Chiu, & Kessler, 2010). Suicide may then be considered as an option for escape when distress overwhelms an individual's ability to cope (Baumeister, 1990). Thus, there is a compelling need to investigate suicidality (i.e. suicidal ideation, plans, and attempts) in OCD (see also Roberts, Yeager, & Seigel, 2003).

Suicidality is well-researched among the anxiety disorders, where OCD was classified (APA, 2000) before the introduction of the fifth version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013). For example, previous large-scale and meta-analytic studies found an elevated risk for suicidal ideation and attempts in individuals with anxiety disorders in general (Cougle, Keough, Riccardi, & Sachs, 2009; Khan, Leventhal, Khan, & Brown, 2002). The picture of suicidality in OCD alone, however, is less clear. While certain studies indicated that having OCD may increase the risk for suicide, and even more so with increased severity of symptoms (Angelakis, Gooding, Tarrier, & Panagioti, 2015; Reddy, Alur, Manjunath, Kandavel, & Math, 2010; Torres, de Abreu Ramos-Cerqueira et al., 2007), several others did not (Alonso et al., 2010; de Haan, Sterk, Wouters, & Linszen, 2013; Dilsaver, Akiskal, Akiskal, & Benazzi, 2006; Kanwar et al., 2013; Maina, Slavi, Tiezzi, Albert, & Bogetto, 2007). Hence, there is a stark contrast in the consistency of suicide-related findings between research in OCD and that in anxiety disorders in general.

A possible reason for this difference could be that previous research did not uniformly account for how depressive symptoms may be involved in suicidality in OCD (see Hung et al., 2010), especially since individuals with OCD commonly experience clinical levels of depression (Kessler, Chiu, Demler, & Walters, 2005; Ruscio et al., 2010), and depressive symptoms are a strong risk factor for suicide (Hawton, Casañas i Comabella, Haw, & Saunders, 2013). The few studies that additionally explored depressive symptoms in OCD simply observed increased suicidality with increased depressive symptom severity, without ascertaining the unique contribution of OCD (Angst et al., 2005; Hollander et al., 1996/1997). This is further demonstrated by the findings of a meta-analysis by Angelakis et al. (2015): although there was a moderate to high association between OCD and suicidality across studies examined, this was not always obtained exclusively of the influence of comorbid depressive symptoms. Therefore, it is apparent that before any conclusions about suicidality in OCD can be made, the contributions of depressive symptoms to the potential relationship between OCD and suicidality need to be considered more carefully. In the present study, we controlled for depressive symptoms while determining whether a unique association between OC symptom severity and suicidality could be obtained.

Another major drawback of previous research on suicide in OCD is that OC symptom dimensions were not always individually considered, especially in light of the heterogeneous nature of OCD. As such, extant research is unclear as to which OC symptom dimensions are specifically linked to increased suicidality. In fact, there is reason to suspect that the relationship between OCD and suicidality differs as a function of symptom presentation. For example, in Raines, Capron, Bontempo, Dane, and Schmidt’s (2014) study, the obsessing subscale of the Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002), which is related to the unacceptable thoughts symptom dimension, was uniquely associated with suicide risk, particularly among those with high levels of anxiety sensitivity. Additional studies suggest that violent (e.g. Balci & Sevincok, 2010; Huz et al., 2016; Perugi et al., 1997)
and sexual obsessions (e.g. Dell’Osso, 2013; Torres, Ramos-Cerqueira, et al., 2011), both of which are also related to the unacceptable thoughts symptom dimension, may particularly be associated with increased suicide risk among those diagnosed with OCD. A few other studies found similar relationships between suicidality and symmetry/ordering (Alonso et al., 2010; Storch et al., 2015) or contamination concerns (Gupta, Avasthi, Grover, & Singh, 2014) in OCD patient samples. These dimensions therefore span almost the entire range of the most widely researched OC symptom groups. No studies have, however, simultaneously examined the different contributions of the various core OC symptom dimensions (e.g. contamination concerns, responsibility for preventing harm, symmetry and/or ordering concerns, and/or unacceptable thoughts; Abramowitz et al., 2010; Williams, Mugno, Franklin, & Faber, 2013) to suicidality outside of clinical settings.

Therefore, the present study sought to clarify which specific OC symptom dimensions were related to suicidality in an OCD analog sample of college students, a group traditionally at risk for suicide (Haas, Hendin, & Mann, 2003; Schwartz, 2006). In order to improve the diversity of OC symptom dimensions examined, we parsed the unacceptable thoughts symptom dimension into three separate components: sexual, violent, and religious obsessions. Recent research provides some empirical support for this division (Wetterneck, Siev, Adams, Slimowicz, & Smith, 2015; Williams, Elstein, Buckner, Abelson, & Himle, 2012). We hypothesized that if suicidality is indeed linked to OC symptoms even after controlling for depressive symptoms, this will present as significant unique associations with each of the symptom dimensions of sexual, violent, and religious obsessions, in addition to unacceptable thoughts in general (see also Raines et al., 2014), due to their greater prominence in past related research, compared with other symptom dimensions such as symmetry/ordering and contamination concerns.

The treatment implications will be significant, as findings may be useful for targeting at-risk individuals (e.g. college students) endorsing certain OC symptoms that merit a more detailed suicide risk assessment. Understanding which OC symptom dimensions tend to be associated with a higher risk for suicidal ideation and subsequent attempts will also allow clinicians to better adjust safety planning priorities for clients presenting with different OC symptoms.

2. Method

2.1. Participants and procedure

An OCD analog sample of 146 college students (103 females; 43 males) recruited from research participant pools at two large universities in the United States participated for course credit. Their mean age was 22.52 years (SD = 7.75). The total sample comprised 117 non-Hispanic Whites, 7 Blacks/African-Americans, 10 Asians/Asian Americans, 1 Native American, and 11 individuals of other ethnoracial identities. These participants were selected from a larger sample of 1322 college students (from another larger, OCD-related study) because they each exceeded the clinical cut-off score of 21 on the Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002) (M = 28.23, SD = 2.18). After obtaining informed consent to participate, participants were emailed a link directing them to a secure web-based portal for data collection, on which they completed an online battery of measures assessing constructs of interest (i.e. suicidality, OC symptoms, and depressive
symptoms). Participants were required to complete all items, after which they were provided a list of mental health resources for their OCD-related issues. No participant reported being actively suicidal at the time of study. Nonetheless, participants who endorsed lifetime suicidality were contacted by research assistants who provided options for help. This online study was approved by the universities’ institutional review boards.

2.2. Measures

2.2.1. Obsessive-compulsive inventory-revised (OCI-R; Foa et al., 2002)
The OCI-R is a reliable and valid 18-item self-report measure that assesses the degree of distress associated with the OC-related symptoms of washing, obsessing, hoarding, ordering, checking, and neutralizing in the past month. Each statement is rated on a five-point scale from 0 to 4 for not at all to extremely. Higher scores indicate greater OC symptom severity. The OCI-R was included solely to determine eligibility to participate. The OCI-R demonstrated excellent reliability in the present sample, Cronbach’s $\alpha = .91$.

2.2.2. Dimensional obsessive-compulsive scale (DOCS; Abramowitz et al., 2010) with supplementary Sexual, Violent, and Religious Obsessions subscales

The DOCS was the main measure of OC symptom severity in the present study, and assesses severity on the four OC symptom dimensions of contamination-related concerns, responsibility for preventing harm, injury, or bad luck, unacceptable obsessional thoughts, and symmetry, completeness, and exactness. In the current study, the unacceptable thoughts subscale was parsed into three supplementary subscales for sexual, violent, and religious obsessions in order to more intricately assess their links to suicidality (see Wetterneck et al., 2015). For each of the seven symptom dimensions, five parameters of severity spanning the past month are assessed on a five-point scale, from 1 to 5 for no symptoms at all to extreme symptoms: (a) time occupied by symptoms; (b) avoidance; (c) distress experienced with symptoms; (d) functional impairment; and (e) difficulty ignoring and/or refraining from symptoms. Higher scores indicate greater OC symptom severity. In the original psychometric study for the DOCS (Abramowitz et al., 2010), mean total scores for individuals with OCD, individuals with other anxiety disorders, and non-clinical college students were 30.06 (SD = 15.49), 16.75 (SD = 13.14), and 11.93 (SD = 9.87), respectively. The DOCS has also demonstrated good reliability and validity, and has consistently retained its intended four-factor structure in the aforementioned samples in the original study. Additionally, the sexual obsessions subscale exhibited good reliability and validity in the study by Wetterneck et al. (2015). In support of these psychometric properties, the original four-subscale version of the DOCS showed excellent reliability in the present sample, Cronbach’s $\alpha = .93$. There is also excellent reliability within each of the seven subscales, Cronbach’s $\alpha = .91$ to .95.

2.2.3. Suicide-related aspects questionnaire (SRAQ; Torres, Ramos-Cerqueira et al., 2011)

This measure was used to assess current and lifetime suicidal thoughts, plans, and attempts. Six yes/no questions asked whether the respondent had: (1) ever thought that life was not worth living; (2) ever wished to be dead; (3) ever thought about killing himself/herself; (4) ever made suicidal plans; (5) ever attempted suicide; and (6) been entertaining suicidal thoughts currently. A higher number of endorsements of the six core questions indicates
greater suicidality. In the original psychometric study of 582 outpatients with a primary diagnosis of OCD, the mean number of endorsements on this measure was 1.77 (Torres, Ramos-Cerqueira et al., 2011). The SRAQ demonstrated good reliability in the present sample, Cronbach’s α = .81.

2.2.4. Beck depression inventory-II (BDI-II; Beck, Steer, & Brown, 1996)
The BDI-II is a widely used 21-item self-report measure of depressive symptoms. Items assess the cognitive, affective, and somatic symptoms of depression on a four-point scale from 0 to 3, with higher numbers on the scale indicating greater depressive symptom severity. The BDI-II has evinced excellent psychometric properties in a wide variety of samples (e.g. Sprinkle et al., 2002). The BDI-II demonstrated excellent reliability in the present sample, Cronbach’s α = .92.

2.3. Analytical procedure
Descriptive statistics and zero-order Pearson’s correlations for all measures were first obtained, followed by part correlations between total OC symptom severity (based on the original four-subscale version of the DOCS) and different OC symptom dimensions, on the one hand, and suicidality, on the other, after controlling for depressive symptom severity.

3. Results
Table 1 displays descriptive statistics and zero-order correlations for all measures, as well as part correlations of interest. The large majority of zero-order associations in the correlation matrix were significantly positive, and their magnitudes ranged from moderate to high. As expected, there were high significant zero-order correlations between scores on the unacceptable thoughts subscale of the DOCS and those on the three supplementary subscales, rs = .52 to .63, ps < .001. This is not incompatible with Wetterneck’s et al. (2015) finding of strong discriminant validity of the sexual obsessions subscale against the unacceptable thoughts subscale; in their study, substantial, significant zero-order correlations of .42 and .53 were still found between the two subscales in a large non-clinical sample and an OCD patient sample, respectively. Notably, suicidality had significant positive zero-order correlations with total OC symptom severity (based on the original four-subscale version of the DOCS; r = .18, p < .05), as well as the specific OC symptom dimensions of unacceptable thoughts in general (r = .26, p < .01) and violent obsessions (r = .33, p < .001). However, because of the predictably significant zero-order correlations between these variables and depressive symptom severity (rs = .29 to .45, ps < .001), there remained a need to control for the contributions of depressive symptoms to elucidate the unique links between suicidality and OC symptoms and their different dimensions. Part correlations with Bonferroni correction (corrected α = .007) were thus obtained. As a result, only violent obsessions exhibited a significant positive association with suicidality after controlling for depressive symptom severity, part r = .21, p = .004. These findings therefore suggest that the relationship between OC symptoms in general and suicidality is better accounted for by depressive symptoms, and that there is a specific role for violent obsessions in suicidality beyond the influence of depressive symptoms. Importantly, the latter finding would not have been detected had the separate components of unacceptable thoughts not been individually examined.
Table 1. Descriptive statistics and zero-order correlations for all measures, and part correlations with SRAQ (controlling for BDI-II).

<table>
<thead>
<tr>
<th></th>
<th>M (SD)</th>
<th>DOCS-C</th>
<th>DOCS-H</th>
<th>DOCS-U</th>
<th>DOCS-Sy</th>
<th>DOCS-Se</th>
<th>DOCS-V</th>
<th>DOCS-R</th>
<th>SRAQ</th>
<th>BDI-II</th>
<th>SRAQ w/o BDI-II</th>
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<tbody>
<tr>
<td>DOCS-4</td>
<td>31.21 (12.57)</td>
<td>.70***</td>
<td>.81***</td>
<td>.74***</td>
<td>.73***</td>
<td>.56***</td>
<td>.58***</td>
<td>.62***</td>
<td>.18*</td>
<td>.29***</td>
<td>.05</td>
</tr>
<tr>
<td>DOCS-C</td>
<td>7.03 (4.21)</td>
<td>.37***</td>
<td>.33***</td>
<td>.38***</td>
<td>.30***</td>
<td>.34***</td>
<td>.59***</td>
<td>.04</td>
<td>.05</td>
<td>−.02</td>
<td></td>
</tr>
<tr>
<td>DOCS-H</td>
<td>7.84 (4.03)</td>
<td>.51***</td>
<td>.55***</td>
<td>.40***</td>
<td>.43***</td>
<td>.33***</td>
<td>−.14</td>
<td>.33***</td>
<td>−.01</td>
<td></td>
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</tr>
<tr>
<td>DOCS-U</td>
<td>7.75 (3.98)</td>
<td>.30***</td>
<td>.63***</td>
<td>.40***</td>
<td>.40***</td>
<td>.16</td>
<td>.14</td>
<td>.10</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>DOCS-Sy</td>
<td>8.60 (4.67)</td>
<td>.32***</td>
<td>.30***</td>
<td>.45***</td>
<td>.63***</td>
<td>.14</td>
<td>.24**</td>
<td>.03</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>DOCS-Se</td>
<td>7.01 (4.01)</td>
<td>.45***</td>
<td>.33***</td>
<td>.29***</td>
<td>.21**</td>
<td>.05</td>
<td>.06</td>
<td>.03</td>
<td></td>
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<tr>
<td>DOCS-R</td>
<td>5.82 (3.85)</td>
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<td></td>
<td></td>
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<tr>
<td>SRAQ</td>
<td>1.99 (1.77)</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>BDI-II</td>
<td>18.20 (11.23)</td>
<td></td>
<td></td>
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Notes: DOCS-4 = total of original four-subscale version of the Dimensional Obsessive-Compulsive Scale (DOCS); DOCS-C = DOCS-Contamination subscale; DOCS-H = DOCS-Responsibility for Harm subscale; DOCS-U = DOCS-Unacceptable Thoughts subscale; DOCS-Sy = DOCS-Symmetry subscale; DOCS-Se = DOCS-Sexual obsessions subscale; DOCS-V = DOCS-Violent obsessions subscale; DOCS-R = DOCS-Religious obsessions subscale; SRAQ = Suicide-Related Aspects Questionnaire; BDI-II = Beck Depression Inventory-II; and SRAQ w/o BDI-II = part correlations with SRAQ (controlling for BDI-II).

*p < .05; **p < .01; ***p < .001 (two-tailed).
4. Discussion

In an OCD analog sample of college students, significant zero-order relationships were found between suicidality and total OC symptom severity, unacceptable thoughts in general, and violent obsessions. However, analyses of part correlations indicated that only violent obsessions showed a unique association with suicidality after controlling for depressive symptoms. Therefore, although depressive symptoms better account for suicidality when overall severity across OC symptom dimensions is considered, violent obsessions actually have an incremental role in explaining suicidality. More crucially, the role of violent obsessions in suicidality would have gone undetected had unacceptable thoughts been assessed only in general terms, instead of specifically examining obsessions about violence. These findings were obtained by assessing severity on the most comprehensive range of OC symptom dimensions to date (cf. Huz et al., 2016), and support the hypothesis that violent obsessions have a specific role in suicidality beyond the influence of depressive symptoms. This is also consistent with Balci and Sevincok’s (2010) finding that violent obsessions uniquely predicted heightened suicidal ideation in a small sample of individuals with OCD. However, the question remains of why only violent obsessions, and not sexual and religious obsessions (see Williams, Wetterneck, Tellawi, & Duque, 2015; cf. Perugi et al., 1997), are uniquely related to suicidality.

There are a few possible explanations. For example, there may be a neurochemical basis for greater suicidality in violent obsessions. Specifically, heightened serotonergic system abnormalities in violent obsessions may be associated with a greater tendency to entertain suicidal thoughts or engage in suicide plans and/or attempts, even after controlling for the involvement of depression (Apter et al., 1990; Leckman et al., 1990; Stein, Apter, Ratzoni, Har-Even, & Avidan, 1998). Additionally, previous research has uncovered a greater negative psychological impact (e.g. egodystonia, shame, and guilt about harm, especially toward loved ones) with violent obsessions, compared with other OC symptom dimensions (Abramowitz, Franklin, Schwartz, & Furr, 2003; McDermott, 2006). As such, there may be greater consideration of suicide as an option for escape from overwhelming distress (Baumeister, 1990). Studies that have uncovered greater help-seeking rates particularly in individuals with violent obsessions also support this notion of greater distress, and hence consequently elevated suicidality, with such symptoms (Fullana et al., 2009; García-Soriano, Rufer, Delsignore, & Weidt, 2014). Alternatively, previous research has indicated strong interrelationships among violent thoughts, cognitive hostility (i.e. anger-fueled cognitions and emotions that might manifest as rage and resentment; Derogatis, 1994), and substance use, which could account for incidents of impulsive, substance-induced suicide attempts in individuals with such obsessions (Brakoulis et al., 2013). Even more speculatively, according to the psychoanalytic tradition (e.g. Kaslow et al., 1998), the negative effects of egodystonic obsessions about violence may contribute to a breakdown of ego functioning and promote dysfunctional defense mechanisms such as self-directed aggression, which may culminate in suicide. Regardless, it is premature to posit such explanations in relation to the present findings, and future research should investigate mechanisms underlying the link between violent obsessions and suicidality in greater detail.
4.1. Limitations

The present study had a few limitations. For example, although all participants in the present study reported total scores that exceeded the OCI-R clinical cut-off for OCD symptom severity, the sample remains a possibly non-clinical one since the OCI-R cannot be used to establish OCD diagnostic status. The recruitment of a larger and more representative sample of participants clinically diagnosed with OCD is therefore required to improve the generalizability of present findings to OCD patient populations. Additionally, several other symptoms still need to be assessed and controlled for, given that previous research has demonstrated interrelationships between OC symptoms, suicidality, traumatic history (Peles, Adelson, & Schreiber, 2009), schizophrenia (Sevincok, Akoglu, & Kokcu, 2007), and eating disorders (Sallet et al., 2010). Furthermore, because suicide obsessions are sometimes experienced as part of violent obsessions (see Wetzler, Elias, Fostick, & Zohar, 2007), there might have been a possible conceptual conflation with the suicidal ideation item in the SRAQ (e.g. Wetterneck, Williams, Tellawi, & Bruce, 2016). This was a possible limitation that could have been addressed with knowledge of number of suicide attempts. The present study also relied on self-report measures, and was correlational and cross-sectional in nature, which limited discussion of the directionality of possible underlying mechanisms connecting violent obsessions to suicidality. Future related research should address these limitations accordingly.

4.2. Conclusions

In summary, violent obsessions have a distinctive role in suicidality beyond the contribution of depressive symptoms in our OCD analog sample of college students, a group that research has shown to be significantly at risk for suicide (Haas et al., 2003; Schwartz, 2006). A strong clinical focus on suicidality in college students reporting violent obsessions is therefore warranted. Specifically, our findings emphasize the need to target college students endorsing violent obsessions for more detailed suicide risk assessment, and if necessary, comprehensive safety planning. We also recommend incorporating safety checks into specialized psychotherapy for violent obsessions (e.g. regular check-ins about suicidality before, during, and after imaginal and/or in vivo exposure exercises conceived around feared themes of violence to the self and/or others), consistent with suggestions for the prioritization of suicide prevention programs in the treatment of this particular OC symptom dimension (e.g. Moulding, Aardema, & O’Connor, 2014). Lastly, future research should further investigate the various mechanisms that may underlie the link between violent obsessions and suicidality.

Conflict of interest

The authors declare no conflict of interest.

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