CLARIFYING THE ASSOCIATION BETWEEN OBSESSIVE COMPULISIVE DISORDER AND SUICIDAL BEHAVIOR

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Despite the high prevalence of suicide attempts amongst individuals with obsessive-compulsive disorder, the relationship between OCD and suicidality is under researched and studies have reported contradictory results. In the present project, we examine the connection between OCD symptoms and suicidal behavior through the lens of the Interpersonal Theory of Suicide. In particular, we examine the role of painful and provocative experiences specific to OCD – specifically, painful compulsive behaviors – that may enhance the acquired capability for suicide. We predicted that OCD symptoms that elicit physical pain would be associated with suicidality and acquired capability. Additionally, we predicted that depressive symptoms would be a partial mediator between OCD and suicidal behavior. Our findings suggest that there is a significant, positive association between many OCD symptoms and suicidality. We did not find evidence for the role of compulsivity as a factor increasing the acquired capability or suicidal symptoms, when controlling for OCD and depressive symptoms. In line with our hypothesis, depressive symptoms partially mediated the relationship between OCD symptoms and suicidality.

Approximately 2.2 million Americans suffer from Obsessive Compulsive Disorder.[1] Between 10 and 27 percent of these individuals attempt suicide at least once in their lifetime.[2] In spite of this, the relationship

between OCD and suicidal behavior has been understudied and the few studies that have been conducted have yielded contradictory results.

Several studies have reported that individuals with OCD are at a higher risk to engage in suicidal behavior. Angst and colleagues reported that OCD symptoms were associated with an increased risk for suicide attempt.[3] Sevincok, Akogly, & Kokcu found that patients with co-morbid schizophrenia and OCD were more likely to have attempted suicide in the past and suffered from suicidal ideation than were patients with solely schizophrenia.[4] Additionally, Lester & Abdel-Khalek found a significant relationship between OCD and suicide attempts.[5]

In contrast, other studies have failed to find significant relationships between OCD symptoms and suicidal symptoms. Strauss and colleagues found no differences between non-ideators, ideators, and attempters in rates of OCD.[6] Similarly, Lester & Abdel-Khalek reported that there was no relationship between OCD and suicidal ideation. In this study, however, the authors used a fairly small sample size and did not control for depression, thus obscuring the findings. Valentiner, Gutierrez, & Blacker, found no relationship between OCD and suicidal ideation after controlling for depression.[7]

OCD symptoms often significantly affect the sufferer's quality of life and depressive symptoms are often co-morbid with this disorder.[8] Regarding the effects of depressive symptoms on the relationship between OCD and suicidality, the study by Valentiner et al mentioned above indicated that depressive symptoms may better account for any link between OCD

and suicidal behavior.[7] In contrast, a study by Angst and colleagues found that OCD was not significantly associated with depression.[3] These contradictory findings prompt a need for further clarifying the role of depressive symptoms on the association between OCD and suicidal behavior.

Although the studies discussed above have yielded contradictory results, they do share two common limitations. First, many have failed to examine whether depression fully accounts for the relationship between OCD symptoms and suicidality. We suggest that severity of depressive symptoms may partially mediate the relationship between OCD symptoms and suicidality. A second limitation is that studies have also failed to examine specific aspects of OCD that could possibly increase suicide risk. We therefore suggest that certain facets of OCD may be particularly relevant risk factors of suicidal behavior. In this study, we focus on compulsivity as a factor that may contribute to risk for death by suicide.

Compulsivity is defined as a pattern of repetitive behaviors that are performed according to certain rules or in a stereotypical fashion.[9] It is characterized by a tendency to repeat the same, often purposeless acts, which are often associated with undesirable consequences.[10] These repetitive behaviors at times may be exercised in ways that are extremely physically painful, such as excessive hand washing, hair pulling, and skin picking.[11] [12] [13] Additional research has revealed significant associations between compulsivity and suicidal behavior with patients suffering from OCD.[4]

We examine this study through the lens of the Interpersonal-Psychological Theory of Suicidal Behavior.[14] In short, the theory states that in order to die by suicide, high levels of three specific variables must be present: a sense of thwarted belongingness, a belief that one is a burden on others (perceived burdensomeness), and the acquired capability for suicide. For this study, we focus specifically on the acquired capability for suicide. Joiner argues that in order for an individual to engage in lethal suicidal behavior, he or she must have the desire to die (thwarted belongingness and perceived burdensomeness) and also the capability to act on that desire (acquired capability).[14] The acquired capability to engage in suicidal behavior develops through repeated exposure and habituation to painful physical and provocative events.[14] Compulsive behaviors that are repetitive and painful may enhance the ability to engage in suicidal behavior. We anticipate that compulsivity will serve as a predictor of the acquired capability for suicide even when controlling for other symptoms of OCD and major depression.

In sum, we had the follow central hypotheses for the study: 1) OCD symptoms will be positively associated with measures of suicidality, 2) depressive symptoms will partially mediate the relationship between OCD symptoms and suicidality, 3) compulsivity will predict acquired capability and suicidal symptoms, controlling for OCD and depressive symptoms, and 4) compulsivity will interact with depression to predict suicidality.

Method

Participants and Procedure

Two-hundred seventeen Florida State University undergraduates participated in this experiment as a means of fulfilling class research requirements between 2010 and 2011. The majority of the participant pool was female (n =155, 71.4%), and the mean age for males and females was 19.1 (SD = 1.743, range 18-35 years). The vast majority of individuals were Caucasian and non-Hispanic (80.2%), with African American students comprising 13.8%, Asian-Americans comprising 4.6%, American Indian student comprising 0.9%, and Native Hawaiian students comprising 0.5%. Participants took part in this study under their own volition and signed informed consent forms prior to taking the computerized questionnaires. The participants completed a series of questionnaires, which are described in detail below, in the lab. To control for possible order effects, the order of presentation was varied randomly across presentation.

Measures

Vancouver Obsessional Compulsive Inventory (VOCI)[15]

The VOCI is a self-report measure of Obsessive-Compulsive symptoms that consists of 55 items. The items are rated on a 5-point Likert scale and assess the symptom severity of OCD on five dimensions: contamination, checking, obsession, just right, and indecisiveness. In the present sample, the VOCI demonstrated good internal consistency (alpha = .93).

Beck Scale for Suicide Ideation (BSS)[16]

This 21-item scale assesses suicidal ideation and intent over the past week. This scale addresses five

factors of suicidality, including suicidal ideation, active suicidal desire, planning, passive suicidal desire, and concealment. The first 19 questions inquire about the severity of suicidal wishes, attitudes, and plans.[17] The last two questions inquire about the number of past suicide attempts and the intention to die in the most recent suicide attempt. Participants rate each item on a scale from 0 to 2, 0 being the least severe and 2 being the most severe. Alpha in the current sample was .87, indicating adequate internal consistency.

Beck Depression Inventory II (BDI-II)[18]

The BDI is a 21-item scale used to measure the severity of depressive symptoms with strong psychometric properties. Each item is rated on a scale of 0 to 3, with 0 being the least severe and 3 being the most severe. Alpha in the current sample was .88, indicating adequate internal consistency.

Acquired Capability for Suicide Scale[19]

The ACSS is a 20-item measure designed to assess fearlessness about death and pain tolerance associated with serious self-injury. Item scores range from 1 (not at all like me) to 5 (very much like me). Examples of items include, "Things that scare most people don't scare me" and "I can tolerate more pain than most people." The alpha of the ACSS in our sample was .836.

Dimensional Assessment of Personality Pathology[20]

The DAPP is a self-report inventory designed to tap into 18 dimensions of personality that are believed to be associated with personality disorders.[19] The items are rated on a 5-point Likert scale ranging from 1 (very unlike me) to 5 (very like

me). For this study, we will examine only the Compulsivity Scale of the DAPP. The compulsivity dimension of the DAPP inquires about orderliness, precision, and conscientiousness. The DAPP Compulsivity scale evidenced good internal consistency (alpha = .91) in the present sample.

Results

Hypothesis 1: OCD symptoms will be positively associated with measures of suicidality.

Correlations, means, and standard deviations are presented in Table 1. Notably, we did find evidence supporting a significant positive correlation between OCD symptoms and suicidality. As anticipated, OCD symptoms on the whole were significantly positively correlated with BSS scores. In contrast to all other scales of the VOCI, however, contamination fears failed to demonstrate a significant correlation with the BSS. We failed to find significant relations between most symptoms of OCD and suicide attempts – the only exception was a small significant positive correlation with the "Just Right" subscale of the VOCI.

Hypothesis 2: Severity of depressive symptoms will partially mediate OCD symptoms and suicidality.

In order to examine our hypothesis that depressive symptoms would partially mediate the relationship between OCD symptoms and suicidality, meditational analyses were conducted. Using VOCI total scores as the independent variable and BDI total scores as the mediator, mediational analyses using the statistical approach advanced by Baron and Kenny were conducted for predicting BSS scores.[21] As number of suicide attempts was not significantly associated with VOCI total scores, per Baron and Kenny's

Table 1- Means and Correlations

	1	2	3	4	5	6	7	8	9	10	11	12
1. VOCI – Checking	1.0											
2. VOCI – Obsessions	.435**	1.0										
3. VOCI – Hoarding	.448**	.546**	1.0									
4. VOCI – Just Right	.590**	.560**	.544**	1.0								
5. VOCI – Indecision	.413**	.474**	.494**	.673**	1.0							
6. VOCI – Contamination	.443**	.379**	.546**	.561**	.467**	1.0						
7. VOCI – Total	.695**	.727**	.753**	.879**	.773**	.758**	1.0					
8. DAPP – Compulsivity	.123	-.017	.036	.384**	.105	.233**	.217*	1.0				
9. ACSS	-.063	.050	-.051	-.011	-.097	-.172*	-.076	-.047	1.0			
10. BSS	.159*	.539**	.370**	.249**	.226**	.070	.336**	-.084	.183**	1.0		
11. BDI	.212*	.529*	.409**	.365**	.424**	.282	.479**	-.115	.021	.475**	1.0	
12. Suicide attempts	.077	.097	.032	.189**	.027	-.006	.098	.098	.228*	.289**	.165*	1.0
Means	1.544	2.037	1.677	5.442	3.894	3.489	18.143	54.663	39.871	.668	7.212	.08
Standard Deviations	2.637	3.490	2.839	5.047	3.544	4.349	16.980	12.003	12.766	2.269	7.102	.43

Note. * p < .05, ** p <.001

recommendations, we did not proceed with meditational analyses.[19]

According to Baron and Kenny, four criteria must be satisfied for a mediational model to be applied.[19] First, the independent variable is significantly associated with the dependent variable. Secondly, the independent variable is significantly associated with the mediator. Third, the mediator is, in turn, associated with the dependent variable. And, lastly, the inclusion of the mediator significantly reduces the variance in the dependent variable explained by the independent variable. Full mediation is supported when the mediator reduces the variance in the dependent variable explained by the independent variable to a nonsignificant value.

With respect to BSS scores, linear regression analyses revealed that the VOCI total score was significantly associated with BSS scores (β=.045, p<.001) as well as BDI total scores (β=.200, p<.001). BDI scores, in turn, were associated with BSS scores (β=.152, p<.001). Together these results satisfy the first three steps outlined by Baron and Kenny (1986). Turning to step four, the

variance in BSS scores accounted for by VOCI total scores was reduced but remained significant (β=.019, p=.039). Sobel's test was significant (z=4.75), providing further support for the partial mediation. Our data, therefore, is consistent with partial statistical mediation, as predicted. See Figure 1 for a diagram of mediational analysis.

Hypothesis 3: Compulsivity will predict acquired capability and suicidal symptoms, controlling for OCD and depressive symptoms.

Our second hypothesis suggested that compulsivity would predict acquired capability levels and suicidal symptoms, controlling for OCD and depressive symptoms. In order to evaluate this, hierarchical regression analyses were used. In step 1, BDI scores and VOCI scores were entered. In step 2, we entered compulsivity levels. Results failed to support our predictions as compulsivity failed to predict ACSS total scores (F[216] = .730, β = - .016, p=n.s.) and BSS scores (F[216] = 23.177, β = - .076, p=n.s.). Refer to Tables 2 and 3.

Figure 1:Depressive symptoms partially mediate relationship between OCD symptoms and suicidality

Figure 2: Interaction of Compulsivity and Depressive Symptoms predicting BSS

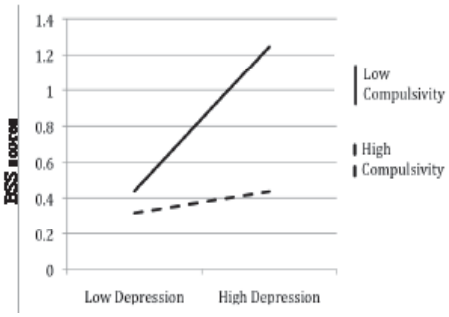

Table 2- Hierarichical multiple regression predicting acquired capability

Predictors		F for set	R^2	t for predictors	β	*p*
1	(constant)			29.696		<.001
	BDI - total			.954	.074	.341
	VOCI – total	1.075	.010	-1.435	-.111	.153
2	(constant)			9.527		<.001
	BDI - total			.863	.069	.389
	VOCI – total			-1.291	-.106	.198
	DAPP - Compulsivity	.730	.010	-.221	-.016	.825

Table 3- Hierachical multiple regression predicting suicidality

Predictors		F for set	R^2	t for predictors	β	*p*
1	(constant)			-2.887		.004
	BDI - total			6.002	.407	<.001
	VOCI – total	33.970	.241	2.082	.141	.039
2	(constant)			.232		.817
	BDI - total			5.499	.386	<.001
	VOCI – total			2.356	.168	.019
	DAPP - Compulsivity	23.177	.246	-1.204	-.076	.239

Hypothesis 4: Compulsivity will interact with severity of depressive symptoms to predict suicidality.

Our final prediction was that levels of compulsivity would moderate the effect of depressive symptoms on suicidality such that individuals high in compulsivity and depression would evidence the greatest levels of suicidal symptoms. Results did not support a significant interaction between compulsivity and depressive symptoms in predicting BSS scores ($F[216] = 56.493$, $\beta = .001$, p=n.s.).

Discussion

Conflicting results have been reported in prior research on the relationship between suicidality and Obsessive Compulsive Disorder, highlighting the need for further study. This central goal of this project was to further clarify this relationship, primarily through the lens of the Interpersonal-Psychological Theory of Suicide.[14] There were four central aims of this study. First, we examined the magnitude of the relationship between OCD and suicidal behavior. Second,

we investigated whether any significant relationship between OCD and suicidal behavior is fully explained by severity of depressive symptoms. Third, we attempted to determine whether compulsivity would interact with severity of depressive symptoms to predict suicidality. Lastly, we aimed to determine whether a specific facet of OCD – namely, compulsivity – would interact with depression to predict suicidality.

Regarding the hypothesized meditational role of depressive symptoms, results of the current study revealed that the severity of depressive symptoms did partially mediate OCD symptoms and suicidality. These results are somewhat in line with the findings of Valentiner and colleagues that suggested that depressive symptoms might account, in some degree, for any link between OCD and suicidal behavior.[7] Our results indicate that depression partially mediated the link between OCD and suicidality. This was as predicted and suggests that depressive symptoms do not fully account for the relationship between suicidality and OCD symptoms.

Following this, we examined the role of compulsivity on suicidality. In particular, we anticipated that compulsivity would predict suicidality, when controlling for severity of OCD and depressive symptoms. Results were counter to our prediction. As such, our predictions regarding compulsivity are in contrary to previous research by Sevincok, Akoglu, & Kokcu that found compulsivity (measured by the compulsion scale of the Yale-Brown Obsessive-Compulsive Scale II) to be a significant predictor of suicide attempts.[4]

Similarly, our results regarding

the role of compulsivity on the acquired capability for suicide were also contrary to our hypotheses. We hypothesized that repetitive and painful compulsive actions might enhance the ability to engage in suicidal behavior. This hypothesis was examined through the lens of the Interpersonal-Psychological Theory of Suicidal Behavior, which posits that repeated exposure to painful and provocative events (e.g., painful compulsive behaviors) will increase one's acquired capability for suicide.[14]

Lastly, we anticipated that levels of compulsivity would moderate the effect of depressive symptoms on suicidality, hypothesizing that individuals with high levels of compulsivity and depression would be at greatest risk for experiencing suicidal symptoms. This prediction was not supported, as there was no significant interaction between compulsivity and depressive symptoms. This result is consistent with the findings of Angst et al., a study that found no association between OCD and unipolar depression.[3]

Several limitations of this study are worth highlighting. The sample consisted of 217 undergraduate students, a population that exhibited some range of OCD symptoms, but may not have had the symptom severity to meet diagnosis for OCD. Clinical interviews were not performed on these participants and, as such, formal clinical diagnoses were not established. It would be advisable for projects to include an increased sample size with more age variability and symptom severity variability in the population. Using a community based sample and including formal structured clinical interviews would be ideal. We also

did not control for general anxiety by using an anxiety inventory (e.g., BAI), so we are unsure about whether the OCD symptoms or general anxiety symptoms associated with OCD account for the relationship between OCD symptoms and suicidality. Subsequent studies should include anxiety measures designed to assess general anxiety symptoms as a control measure.

This project has several scientific and clinical implications. First, by providing information regarding the relationship between OCD and suicidal behavior, this study has added clarity to a relationship that is in need of further understanding in both the scientific and clinical communities. By providing evidence that indicates OCD plays a role in suicidality (attempts and ideation), this information can prompt clinicians and researchers to further assess for suicide risk in the OCD population, particularly in individuals suffering from co-morbid depressive symptoms. This study aimed to elucidate the relationship between OCD and suicidality and examine which symptom subsets of OCD are particular risk factors for suicidality. Our findings offer further clarification in the midst of inconsistent literature on this research topic, suggesting OCD appears to be strongly associated with suicidal behavior. Further research on the relationship between OCD, its symptom subsets (e.g., compulsivity) and suicidality is required to solidify what specific OCD symptoms are robust predictors for suicide risk. Future research in this area is crucial to understanding the extent to which OCD and its symptom subsets influence suicidal behavior.

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