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Impact of a brief education about mental illness on stigma of OCD and violent thoughts

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ABSTRACT

Obsessive–compulsive disorder (OCD) has been largely ignored in the stigma literature. The present study examined perceptions of violent thoughts that varied in terms of the diagnostic label – OCD, Schizophrenia, or no diagnostic label – assigned to a target experiencing such thoughts. Participants were randomly assigned to read a vignette about a target with one of the three diagnostic labels. Participants then completed measures of social distance and reported how dangerous and unpredictable they found the target, in addition to providing the diagnosis they believed the target had. They were then given a brief education about OCD and Schizophrenia and asked to complete assessments again. Results indicated that while an OCD diagnosis was not credible before education, it became the most credible diagnosis following education. Results indicated that education resulted in significantly decreased negative attitudes toward the target, which was accounted for by the shift to determining that the target had OCD.

1. Introduction

The value of education in informing the public about various mental disorders has a considerable history (Corrigan & Penn, 1999; Rüsch, Angermeyer, & Corrigan, 2005). Stigma towards individuals with mental disorders is extensive (see Jorm & Oh 2009), and is often considered to be a product of misinformation about the disorders (e.g., Penn, Kommana, Mansfield, & Link, 1999). Although not all attempts to decrease stigma through informational avenues have been successful (Corrigan & Penn, 1999), reducing misinformation or increasing knowledge of mental disorders is likely a fruitful way to decrease negative attitudes towards individuals with such disorders (e.g., Mino, Yasuda, Tsuda, & Shimodera, 2001).

One of the most significant contributors to stigma, or the desire to distance oneself from someone with a mental disorder, is the fear that individuals with mental disorders are dangerous and unpredictable (Angermeyer & Dietrich, 2006). Fears and/or distaste towards individuals with mental disorders are so powerful that just adding a diagnostic label to information related to a participant increases negative attitudes towards a hypothetical target relative to an identical target with no diagnostic label or a label that is not related to a psychiatric diagnosis (Arkar & Eker, 1994; Nieradzik & Cochrane, 1985). Although fears of individuals with mental illnesses are generally gross exaggerations of actual dangerousness, these fears can be challenging to alleviate (e.g., Penn & Link, 2002). Of the numerous disorders that have been examined in terms of stigma towards individuals with mental disorders, Schizophrenia has emerged as one of the most stigmatized disorders, in part due to the fear people have of individuals with this disorder (Jorm & Oh, 2009; Jorm, Reavley, & Ross, 2012). It is interesting to note, when one considers the high rates of "taboo" violent thoughts in Obsessive–Compulsive Disorder (OCD; Brakoulias et al., 2013), how understudied attitudes towards violent thoughts associated with OCD are in the stigma literature. Indeed this gap in the literature is compelling when one considers the association between fears of danger and stigmatizing beliefs towards individuals with mental illness.

Although there is minimal research into public attitudes towards and information about individuals with OCD, what existing data indicates is that the public does not know much about the disorder. For example, when presented with a vignette of an individual with various obsessions, participants acknowledged that the target likely had a psychological problem, but they were unable to determine what that problem was (Coles, Heimberg, & Weiss, 2013). This challenge extends even to mental health professionals (Wahl et al., 2010), who struggle with identifying the diagnosis of individuals with taboo thoughts in comparison to targets with the more typical contamination obsessions of OCD (Glazier, Calixte, Rothschild, & Pinto, 2013). Interestingly, investigation of taboo thoughts specifically is minimal in the stigma literature. One study that used vignettes of three different types of presentations of OCD symptoms – a compulsive washer, a compulsive checker, or a person with violent thoughts found that the

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individual in the violent thoughts vignette was perceived in the most negative light (Simonds & Thorpe, 2003). Similarly, Corcoran and Woody, 2008 found, in a creative study using vignettes to determine perceptions of hypothetical individuals with various common themes of intrusive thoughts – blasphemous, sexual, and violent – that the individuals with violent intrusive thoughts were perceived most negatively. When one considers that a considerable amount of the social distance desired from individuals with other psychological disorders is generally seen as a product of fear of the target or the perception that he/she is dangerous (Angermeyer & Dietrich, 2006) the fact that individuals with intrusive violent thoughts are viewed so negatively may not be surprising. Unfortunately, shame regarding symptoms in OCD sufferers is a significant barrier in seeking treatment (e.g., García-Soriano, Rufer, Delsignore, & Weidt, 2014), and with negative attitudes towards violent intrusive thoughts so high, it appears valuable to consider how education may impact these attitudes.

It is interesting that of the minimal research conducted to date of intrusive violent thoughts, no studies have manipulated or provided a label for such experiences. Instead, attributions of the thoughts are made in the absence of a label and participants are asked to make sense of such experiences (e.g., Corcoran & Woody, 2008). One way researchers have attempted to understand how individuals evaluate various hypothetical targets with other disorders has been to manipulate the diagnosis, or label, that is assigned to the target. Indeed, the label given to a person with various symptoms or behaviors can have considerable impact. Demonstrating the influence labels can have, individuals labeled with a mental health diagnosis are seen more negatively than individuals with the identical experiences who are labeled as having such experiences due to a physical illness (Socall & Holtgraves, 1992). Interestingly, who assigns the label may be less important than the label that is ultimately assigned to the person. When participants are asked to draw conclusions about a target based on behaviors or symptoms outlined in a vignette, participant-labeling of the target as mentally ill, regardless of disorder, is related to increases in social distance desired from that target (Angermeyer & Matschinger, 2005). It appears, then, that diagnoses and labels, when provided to a participant or when they are participant-determined, can evoke negative evaluations of a target.

It remains unclear whether psychoeducation can improve the negative perceptions of individuals with violent thoughts and lessen the negative attitudes towards individuals who suffer such thoughts. Further, is it unknown if education can be so powerful that it could even change perceptions of and labels assigned to individuals with violent thoughts if they were originally provided a diagnosis to help explain the violent thoughts. The present study aims to answer these questions.

For the present study, individuals were randomly assigned to read one of three vignettes that described a person with violent thoughts. In one group, no diagnosis was specified, in a second group, the only modification to the vignette was that a doctor noted that the target had obsessive–compulsive disorder, and in a third vignette the doctor noted the target had Schizophrenia. Participants' perspectives of the target's diagnosis were assessed, as was social distance desired from the target, perceived dangerousness, and unpredictability of the target. Participants were also asked what diagnosis they thought the person in the vignette had. Participants were then provided information, directly from DSM-5 (American Psychiatric Association, 2013), about obsessive–compulsive disorder and about Schizophrenia. After reviewing the information about the diagnoses, they read the vignette again and performed all the assessments again, including a diagnosis for the person in the vignette.

The present study had multiple aims. First, the present study aimed to determine the impact of label assigned to the target in terms of perceptions of the target, both the label provided *to* participants and the label provided *by* the participants. It was expected that targets who were given the label "OCD" in the vignettes would be perceived more positively (e.g., less social distance would be desired from them and they would be seen as less dangerous and unpredictable) than individuals who were given the label "Schizophrenia," given how poorly Schizophrenia is perceived (Jorm & Oh, 2009). It was expected, however, that the OCD label would not be particularly credible to participants before the education intervention, as the public as very poor at recognizing OCD (e.g., Glazier, Calixte, Rothschild, & Pinto, 2013). Specifically, it was expected that participants would largely reject the OCD label that was provided to them and provide a diagnosis other than OCD when asked to determine a diagnosis for him. This was not expected for the target who was labeled with Schizophrenia in the vignette; it was expected that the Schizophrenia label would be quite credible to participants before the education intervention and most participants would diagnose him with Schizophrenia when asked their opinion of the target's diagnosis, as violent thoughts and/or dangerousness are often associated with Schizophrenia (e.g., Jorm et al., 2012). In terms of participant-determined diagnosis, a similar pattern of results was expected. It was expected that participants would see targets they perceived as having Schizophrenia in a more negative light than targets they perceived as having OCD. The present study also aimed to determine the potential value of an education intervention on both the perception of the target with violent thoughts and also the possibility that the person in the vignette had OCD. It was expected that education would result in decreased desire for social distance from the target, and it was anticipated that an OCD diagnosis would become significantly more credible following the education.

2. Method

2.1. Participants

90 students were recruited from a University in the American Midwest. In order to participate in this study, participants had to be over 18 and speak English fluently. There were no other exclusion criteria. Students received course credit for participating. Thirty-eight participants (41.8%) were majoring in psychology, and all were enrolled in a psychology course at the time of participation. Each participant provided informed consent for participation and voluntarily agreed to participate. Participant characteristics are shown in Table 1. The present study was approved by the institution's IRB.

2.2. Materials

2.2.1. Vignettes

Participants were randomly assigned to read one of three vignettes each describing a person who often experiences violent thoughts of stabbing his niece (adapted from Corcoran & Woody, 2008), but who has no violent history. The vignettes for each of the conditions are presented below.

No label condition: Steve is a 20 year old male. Often when he is with his six-year-old niece, he has thoughts about stabbing his niece with a sharp kitchen knife.

Table 1
Participant characteristics.

	N	%
Gender		
Male	11	12.20%
Female	79	87.80%
Race		
Caucasian	76	84.40%
African-American	5	5.60%
Latino	2	2.20%
Asian	3	3.30%
Other	4	4.40%
	Mean (*SD*)	Min–max
Age	20.31(2.89)	18–41

This has been going on for some time. He has not behaved in any violent behavior in his life to date.

Schizophrenia condition: Steve is a 20 year old male. Often when he is with his six-year-old niece, he has thoughts about stabbing his niece with a sharp kitchen knife. This has been going on for some time. He has not behaved in any violent behavior in his life to date. At his most recent doctor's visit, his doctor told him the experiences he has been having are due to Schizophrenia.

OCD condition: Steve is a 20 year old male. Often when he is with his six-year-old niece, he has thoughts about stabbing his niece with a sharp kitchen knife. This has been going on for some time. He has not behaved in any violent behavior in his life to date. At his most recent doctor's visit, his doctor told him the experiences he has been having are due to Obsessive–Compulsive Disorder.

2.2.2. Participant-determined diagnosis

After reading the vignette, participants' perspectives of the target's diagnosis were assessed using the open-ended question, "What diagnosis do you think the person in the vignette has?" Participant responses were recorded and classified as 1) OCD, 2) Schizophrenia, 3) Other diagnosis, 4) No diagnosis, or 5) "I don't know".

2.2.3. Social distance, perceived dangerousness, and perceived unpredictability

Social distance was assessed using the Social Distance Scale (SDS) employed by Link, Cullen, Frank, and Wozniak (1987). The SDS is widely used to determine the extent to which a person is unwilling to accept a social relationship with a target individual. The measure has been shown to have an excellent internal consistency reliability (.92; Link et al., 1987; .90; Angermeyer, Matschinger, and Corrigan, 2004), good construct validity (Link, Yang, Phelan, & Collins, 2004), and appears to be resistant to social desirability effects (Norman, Sorrentino, Windell, & Manchanda, 2008). The internal consistency for the SDS within our sample was found to be excellent at both time points: Cronbach's alpha pre-intervention=.91, post-intervention=.92. The SDS consists of 7 items corresponding to seven social roles: roommate, coworker, neighbor, child, etc. Participants indicate how willing they would be to have the target fulfill one of these roles using a Likert scale ranging from 1 ('Definitely willing') to 5 ('Definitely unwilling'). Participants were also asked to indicate how dangerous they perceived the individual to be on a Likert scale ranging from 1 ('Not dangerous') to 7 ('Very dangerous'), as well as their level of perceived unpredictability, ranging from 1 ('Not unpredictable at all') to 7 ('Very unpredictable).

2.3. Procedures

After reporting basic demographic criteria, participants were randomly assigned to read one of the three vignettes via random number table (which resulted in unequal group sizes). Participants were asked, after reading their assigned vignette, to fill out the modified SDS form (including perceived dangerousness and unpredictability items) and to indicate what diagnosis they thought the person in the vignette had. Participants were then provided with two sheets of paper detailing the DSM-5 diagnostic criteria for obsessive–compulsive disorder and Schizophrenia. For Schizophrenia, DSM-5 definitions for the following key terms were provided: delusions, hallucinations, disorganized thinking (formal thought disorder), grossly disorganized or abnormal motor behavior, and negative symptoms. For OCD, DSM-5 definitions were provided for the following terms: obsessions and compulsions. In addition, the main themes of obsessions and compulsions listed in the DSM-5 was provided. After reading these two informational handouts, participants were asked to read the same vignette a second time. Then they completed the modified SDS form again and answered the diagnostic question with respect to the person in the vignette to determine the participant-determined diagnosis post-education.

3. Results

3.1. Preliminary analyses

A number of preliminary analyses were conducted to determine if demographic variables were related to the dependent variables of the study at baseline and, thus, if they needed to be considered as covariates in the primary analyses. Independent sample *t*-tests revealed no effect of gender on social distance, $t(89)=.025$, $p=.327$, perceived dangerousness, $t(89)=.185$, $p=.327$, or unpredictability, $t(89)=.152$, $p=.429$. Age was uncorrelated with social distance, $r(89)=.114$, $p=.283$, perceived dangerousness, $r(89)=.126$, $p=.237$, or unpredictability, $r(89)=.093$, $p=.382$. Given the number of participants who fell into racial groups other than Caucasian (5 African American, 2 Latino, 3 Asian, and 4 who classified themselves as "Other"), race was examined as Caucasian or Other. No differences emerged between Caucasian or Other for social distance, $t(89)=-.73$, $p=.47$, perceived dangerousness, $t(89)=-.30$, $p=.76$, or unpredictability, $t(89)=-.64$, $p=.53$. As a result, these demographic variables will not be considered further.

3.2. Primary analyses

3.2.1. Impact of experimental manipulations on social distance, perceived dangerousness, and perceived unpredictability of the target

It was expected that participants would desire less social distance from the target labeled with OCD in the vignette than the target with the Schizophrenia label. The same pattern of results was expected for perceived dangerousness and perceived unpredictability of the target – it was expected that the target with OCD would be perceived more positively than the target with Schizophrenia. It was also expected that post-education, social distance desired from the target would decrease relative to the social distance desired pre-education. In addition, perceived dangerousness and perceived unpredictability were expected to decrease post-education. To examine these hypotheses for social distance, a 2 (time: pre-education or post-education) × 3 (vignette type: no diagnosis, OCD label, or Schizophrenia label) repeated measures ANOVA was conducted with time of assessment as the within-subjects variable and vignette type as the between subjects variable. A significant main effect for time emerged with social distance decreasing significantly from pre-education to post-education (see Table 2). There was no between-subjects effect for vignette type, $F(2,87)=.838$, $p=.436$, $\eta^2=.019$, and no significant interaction between vignette type and time, $F(2,87)=2.43$, $p=.093$, $\eta^2=.053$.

To examine the hypotheses above specific to the perceived dangerousness of the target, a 2 (time: pre-education or post-education) × 3 (vignette type: no diagnosis, OCD label, or Schizophrenia label) repeated measures ANOVA was conducted with time of assessment as the within-subjects variable and vignette type as the between subjects variable. Similar to the findings for social distance, there was a significant main effect of time on perceived dangerousness, such that individuals perceived the target as significantly more dangerous before the education than after the education (see Table 2). Also, similar to social distance, no main effect for vignette type, $F(1,87)=.305$, $p=.502$, $\eta^2=.016$, and no time × vignette type interactions emerged, $F(1,87)=.696$, $p=.686$, $\eta^2=.009$.

Finally, the same analysis strategy—a 2 (time: pre-education or post-education) × 3 (vignette type: no diagnosis, OCD label, or Schizophrenia label) repeated measures ANOVA—was conducted for perceived unpredictability. Perceived unpredictability of the target before the education decreased significantly following the brief education (see Table 2). Vignette type again showed no significant

Table 2
Stigma scores before and after education.

Measure	Pre-education		Post-education		*F*-value (1,87)	*p*	η^2
	M	*SD*	*M*	*SD*			
Social distance	21.537	.463	19.897	.49	27.146	< .001	.238
Perceived dangerousness	4.783	.121	4.372	.139	18.760	< .001	.177
Perceived unpredictability	4.869	.147	4.568	.156	7.850	< .01	.083

main effect, $F(1,87)=.746$, $p=.477$, $\eta^2=.017$, or interaction with time for perceived unpredictability of the target, $F(1,87)=.625$, $p=.299$, $\eta^2=.027$.

3.2.2. Impact of participants' self-determined diagnosis of target on social distance, perceived dangerousness, and perceived unpredictability of target

We predicted that the label participants determined that the target had would be related to how they evaluated the target. Specifically, we expected that targets given a Schizophrenia diagnosis would be perceived more negatively – they would desire more social distance from, would be seen as more dangerous and more unpredictable – than would targets given an OCD diagnosis by participants. We performed one-way ANOVAs, one set pre- and one set post-education, to examine these hypotheses. Participant self-determined diagnoses were categorized as: (1) OCD; (2) Schizophrenia; (3) None (the participant reported his/her impression was that the target had no diagnosis); (4) Other (i.e., the participant reported his/her impression was that the target had a psychological issue or disorder that was neither Schizophrenia nor OCD); or (5) I don't know (i.e., the participant reported "I don't know" to the question, "What diagnosis do you think the person in the vignette has?"). Post-education intervention, one participant reported an impression that the target had "both OCD and Schizophrenia." Since the purpose of the study was to examine how OCD or Schizophrenia responses were compared to other responses and to each other, the authors determined this response did not fall into any of the categories appropriately and this person was not included in post-education analyses that involved participant labeling.

Pre-education there was a significant effect for self-determined diagnosis on social distance, $F(4, 85)=8.13$, $p<.001$. Post-hoc LSD tests revealed that participants desired equivalent amounts of social distance from the target when the target was determined by the participant to have a diagnosis of OCD ($M=18.55$, $SD=4.01$) and when the target was determined to have No Diagnosis ($M=16.33$, $SD=3.71$), and participants desired less social distance from the targets they concluded had either OCD or No Diagnosis than they did from targets they determined had Schizophrenia ($M=21.93$, $SD=3.98$), Other diagnoses ($M=22.54$, $SD=3.68$), and targets who were given an I Don't Know response ($M=23.89$, $SD=3.50$), none of which differed from one another. Pre-education, there was also a significant effect for self-determined diagnosis on perceived dangerousness, $F(4, 85)=4.69$, $p=.002$. Post-hoc LSD tests revealed that participants who gave the target No Diagnosis ($M=3.44$, $SD=1.01$) perceived the target to be less dangerous than did any other group (OCD [$M=4.45$, $SD=1.04$], Schizophrenia [$M=4.91$, $SD=1.07$], Other [$M=5.04$, $SD=.92$], or those who reported an I Don't Know diagnosis [$M=5.06$, $SD=1.25$]), none of which differed from one another. Finally, there was a significant effect at pre-education for self-determined diagnosis on perceived unpredictability of the target, $F(4, 85)=5.35$, $p=.001$. Post-hoc LSD tests revealed the same pattern of results as of perceived dangerousness – individuals who determined the target had No Diagnosis ($M=3.11$, $SD=1.36$) perceived the target to be less unpredictable than participants who "diagnosed" the target in any of the other categories of responses, (OCD [$M=4.54$, $SD=1.29$], Schizophrenia [$M=5.04$, $SD=1.29$], Other [$M=5.19$, $SD=1.13$], or those who reported an I Don't Know diagnosis [$M=5.17$, $SD=1.33$]), and none of those 4 groups differed from one another.

We had planned to follow a similar analysis strategy to examine the relationship between post-education self-determined diagnosis and social distance, perceived dangerousness, and perceived unpredictability for the 5 groups we used pre-education, but, unlike responses pre-education, where at least 10% of the sample fell into each of the 5 categories (OCD, Schizophrenia, Other, No Diagnosis, and I Don't Know), 90% of the responses fell into only 2 categories: OCD ($n=65$) and Schizophrenia ($n=13$). Only 3 participants reported "I Don't Know" as a diagnosis for the target, only 2 gave an Other diagnosis, and only 4 responded that the target had No Diagnosis. As a result, examination across all 5 groups did not seem meaningful and so we conducted t-tests to look at differences between Schizophrenia and OCD for the 3 dependent variables of interest. In terms of social distance, participants desired less social distance when they determined the target had OCD ($M=19.95$, $SD=4.42$) than when they determined the target had Schizophrenia ($M=22.92$, $SD=4.33$), $t(76)=-2.97$, $p=.004$, $d=.68$. Similarly, participants who believed the target had OCD considered the target significantly less dangerous ($M=4.15$, $SD=1.24$) than participants who believed the target had Schizophrenia ($M=4.92$, $SD=1.26$), $t(76)=-2.04$, $p=.045$, $d=.47$. With respect to perceived unpredictability, no significant difference emerged between individuals who determined the target had OCD ($M=4.40$, $SD=1.36$) and those who determined the target had Schizophrenia ($M=5.15$, $SD=1.62$), though there was a trend for less perceived unpredictability for the target if the participant-determined diagnosis was OCD, $t(76)=-1.77$, $p=.08$, $d=.41$.

3.2.3. Concordance between participant diagnoses and doctor diagnoses before and after education

It was expected that the Schizophrenia label, when provided to participants, would be largely credible to participants, such that the concordance between participant diagnoses and doctor diagnoses was predicted to be high before education. This was not expected for targets given the OCD label – it was predicted that concordance would be low as it was expected that participants would largely reject the OCD label given to them by the hypothetical doctor. It was expected

Table 3
Participant label by vignette type pre-education.

Vignette type (Doctor's label)	Participant label				
	None	OCD	Schizophrenia	Other	Don't know
OCD	2	9	3	13	7
Schizophrenia	1	1	21	4	3
None	6	1	3	9	7
Total	9	11	27	26	17
Percent total	10.0%	12.2%	30.0%	28.9%	18.9%
Participant label by vignette type post-education					
OCD	1	27	4	0	1
Schizophrenia	1	20	5	1	1
None	2	18	4	1	1
Total	4	65	13	2	3
Percent total	4.6%	74.7%	14.9%	2.3%	3.4%

that the OCD label would become credible after the education intervention. Table 3 shows the frequency of participants' diagnoses according to vignette type before the education and after the education. We checked for an effect of vignette type on participant diagnoses pre- and post-education using Fisher's exact tests. The test was significant pre-education, $X^2(8)=40.458$, $p<.001$, Cramer's $V=.503$. Bonferroni-corrected column comparisons revealed that for the Schizophrenia vignette condition, more participants proposed a Schizophrenia diagnosis ($n=21$) than proposed an OCD diagnosis ($n=1$), Other diagnosis ($n=4$), No Diagnosis ($n=1$), or said they did not know ($n=3$). The frequency of responses for the OCD, Other, No Diagnosis or Don't Know categories did not differ significantly from one another. For the OCD vignette condition, more people thought that the target had OCD ($n=9$) or an Other diagnosis ($n=13$) than thought the target had Schizophrenia ($n=3$). The frequency of Schizophrenia, Don't Know ($n=7$) or No Diagnosis ($n=2$) responses did not significantly differ from each other. There were no statistically significant differences between the number of people who thought the target had OCD, an Other diagnosis, No Diagnosis, or who didn't know. For the No Label vignette condition, there were more no diagnosis ($n=6$) responses than Schizophrenia ($n=3$) responses. There were no statistically significant differences between the number of people who responded with No Diagnosis or a Schizophrenia diagnosis than responded with an Other diagnosis ($n=9$), an OCD diagnosis ($n=1$), or who said they did not know ($n=7$). Of note, in the Schizophrenia label condition, 70% of participants agreed with the doctor's Schizophrenia diagnosis prior to the education intervention. In the OCD label condition, only 26% of participants agreed with the doctor's OCD diagnosis pre-education. The Fisher's exact test for the post-education was not significant, $X^2(8)=3.735$, $p=.963$, Cramer's $V=.126$, suggesting no consistent differences in frequency distribution according to vignette type at post-education.

As can be seen in Table 3, it appears the diagnoses/labels participants were given had a significant impact on their initial impressions of the diagnosis of the individual in the vignette, but after the education intervention, participants were more swayed by their own impressions than by the stated diagnosis of the hypothetical doctor.

3.2.4. Change of self-determined diagnosis following education intervention

It was expected that following education, an OCD diagnosis would become significantly more plausible to participants than it was prior to the education intervention and, as a result, it was expected that participants would demonstrate a significant shift to an OCD diagnosis for the target. Table 3 shows totals for participants' proposed diagnoses before and after the brief education. To determine whether people tended to change their minds about labeling the target with OCD or with Schizophrenia following the education, two McNemar tests were conducted (Table 4). There was a significant change in Schizophrenia labeling before and after the education. Of 26 participants who initially determined the target in the vignette had Schizophrenia, 23 participants switched their diagnosis away from Schizophrenia after the education intervention. In other words, 88% of participants who initially thought the target had Schizophrenia changed their minds after the brief education intervention. After the education, 10 participants switched their diagnosis to Schizophrenia from some other diagnosis. This pattern of change was significant, $X^2(1)=4.364$, $p<.05$. Thus, out of the 23 participants who initially decided the target had Schizophrenia, only 3 participants continued to believe the target had Schizophrenia after the brief education.

None of the participants who initially chose OCD changed their minds following the education. Interestingly, 55 participants, 61% of the entire sample, switched their diagnosis to OCD after the brief education. Thus, 55 of the 65 individuals who determined post-education that the target had OCD did so only after they received the education. This pattern of change was significant, $X^2(1)=53.018$, $p<.001$.

Table 4
Participant labels for vignette pre- and post-education.

OCD label (pre-education)	OCD label (post-education)	
	No	Yes
No	22	55
Yes	0	10
	Schizophrenia label (post-education)	
Schizophrenia label (pre-education)	No	Yes
No	51	10
Yes	23	3

Two participants had missing responses at post-education and were therefore dropped from this analysis. In addition, one participant gave a post-education diagnosis of both Schizophrenia and OCD and was therefore dropped from this analysis.

3.2.5. Decreases in social distance, perceived dangerousness, and perceived unpredictability accounted for by changes in participant diagnoses

We wanted to test whether these changes in self-determined diagnosis following the education intervention could account for the changes we measured in social distance, perceived dangerousness and perceived unpredictability. We ran a repeated measures ANOVA with social distance as a repeated measure, while covarying for post-education switches in self-determined diagnosis to OCD. After accounting for the changes in social distance observed among people who switched diagnoses to OCD, the main effect of the brief education on social distance was reduced to non-significance, $F(1,88)=1.381$, $p=.243$, $\eta^2=.016$. We performed the same analysis for perceived dangerousness and unpredictability and found similar results: after covarying for the changes observed among people who switched their diagnoses to OCD, the effect of time on perceived dangerousness, $F(1,88)=1.847$, $p=.178$, $\eta^2=.021$, and on perceived unpredictability, $F(1,88)=2.897$, $p=.097$, $\eta^2=.031$, was reduced to non-significance. In other words, the decreases in stigma scores following the education intervention could be fully accounted for by the fact of participants changing their minds and deciding that the target had OCD, and not by the fact that participants simply abandoned the Schizophrenia diagnosis.

We also tested whether the effect of the education on these scores could be as easily accounted for by the changes in the scores of those participants who switched their proposed label from Schizophrenia pre-education to another label post-education. After covarying for the changes in unpredictability of those participants who switched their diagnosis from Schizophrenia at pre-education to another diagnosis at post-education, the effect of education on unpredictability was reduced to non-significance, $F(1,88)=2.531$, $p=.115$, $\eta^2=.028$. However, even after covarying for the changes in the scores of these participants, the effect of education on social distance, $F(1,88)=10.411$, $p<.01$, $\eta^2=.106$, and perceived dangerousness, $F(1,88)=7.846$, $p<.01$, $\eta^2=.082$, remained significant. Thus, the decreases in stigma scores following the brief education intervention were best accounted for by those participants who switched their diagnosis to OCD.

4. Discussion

The present study was an investigation into how diagnostic labels, both provided *to* participants and provided *by* participants, affect attitudes towards individuals with violent thoughts. In

addition, the present study investigated the impact of a brief education about OCD and Schizophrenia and how such an education influences perceptions of individuals with violent thoughts. Finally, the credibility of OCD and Schizophrenia diagnoses for targets described with violent thoughts was examined, both before and following an education about the disorders. As expected, our brief education about disorders resulted in significant decreases in desired social distance, perceived dangerousness, and perceived unpredictability attributed to the target. Also as expected, unlike Schizophrenia, OCD was not a credible diagnosis to participants for the target before our education intervention. Following the education, however, an OCD diagnosis was adopted by a remarkable 75% of the entire sample. In fact, our results indicated that the decreases in social distance that followed the education intervention, in addition to the decreases in perceived dangerousness and perceived unpredictability of the target, could be entirely accounted for by the extraordinary shift in participant-determined diagnosis to OCD. This study is compelling in its demonstration of the usefulness of education about OCD and other psychological disorders in decreasing negative attitudes towards and increased understanding of individuals with violent thoughts.

Violent thoughts are evaluated negatively, which may not be too surprising considering the research linking perceived dangerousness to negative evaluations for other mental illnesses (see Jorm & Oh, 2009; Jorm et al., 2012). For example, it is clear that individuals with Schizophrenia are seen negatively and this is due, in part, to how dangerous they are considered (Marie & Miles, 2008). Although one common symptom of OCD is disturbing violent and "taboo" thoughts (see Brakoulias et al., 2013), research related to desire for social distance from individuals with OCD, and with violent thoughts in particular, has been lacking. Examination of extant research indicates that a common treatment-seeking barrier for individuals with OCD is the shame they experience from their symptoms and fear of discrimination (García-Soriano et al., 2014; Marques et al., 2010). In the example of violent obsessions, it may be particularly understandable why individuals would be nervous to disclose their thoughts – the public is poorly educated about this and other forms of OCD (Coles et al., 2013), and what little research has been conducted on evaluations of individuals with intrusive violent thoughts indicates individuals with such experiences are, indeed, evaluated negatively (Corcoran & Woody, 2008; Simonds & Thorpe, 2003). The present study provides evidence that even individuals who initially reject the possibility that someone's violent thoughts are due to OCD can determine, from a very brief education, that OCD is, indeed, a reasonable diagnosis for someone with these experiences. What is even more important, perhaps, is that such a brief education appears to result in significant positive changes in how the person with violent thoughts is perceived. Indeed, educating the public about OCD and intrusive violent thoughts appears to have the potential for significant impact.

As even mental health providers are poor at recognizing taboo thoughts as OCD (Glazier et al., 2013; Wahl et al., 2010), it is not surprising that our sample of undergraduates did not find OCD to be a credible diagnosis for these symptoms before education. Still, the magnitude of their rejection of an OCD label before the education intervention, even when it was provided to them, was quite remarkable. Previous research has demonstrated the impact that labels and diagnoses can have on how information is processed and interpreted (e.g., Socall & Holtgraves, 1992). Despite the target having a diagnosis (i.e., label) of OCD detailed in the vignette, only 26% of individuals assigned to the OCD vignette agreed with the "doctor's" conclusions. Thus, in the OCD diagnosis vignette, many more participants rejected as opposed to accepted the label that was given to the target. This is in stark contrast to the individuals who received the Schizophrenia vignette condition, of whom 70% of individuals agreed with the doctor's diagnosis. These findings highlight how counterintuitive or implausible an OCD diagnosis appears to be for violent thoughts, as even a manipulation as seemingly powerful as a label already provided to participants was more often rejected than accepted. This was not the case for Schizophrenia, which seemed quite plausible to participants, likely due to how violent the public already considers individuals with Schizophrenia to be (Jorm et al., 2012). These findings highlight that participants relied on the limited "knowledge" they have, which, it should be noted, is based on faulty information, to make their decisions and to make their evaluations about individuals with violent thoughts, even when a presumed expert gave a diagnosis that was counter to their presumptions. Interestingly, however, our study demonstrates that this knowledge base appears to be quite open to change, as the shifts that occurred after the brief education about OCD and Schizophrenia were so notable.

This study begs the question of what kind of education would be most effective for increasing the public's understanding of and decreasing stigma associated with OCD. This question has been asked many times for other disorders, and the answers are unclear. Despite a push to move towards biological models of explanations for mental disorders in an attempt to decrease stigma and blame for people with those disorders, such attempts have more often resulted in increased, as opposed to decreased stigma toward individuals with Schizophrenia (e.g., Angermeyer et al., 2014; Speerforck, Schomerus, Pruess, and Angermeyer 2014). Further, there is no evidence that a diathesis-stress model reduces the stigma of Schizophrenia better than the biological-only model (Schlier, Schmick, & Lincoln, 2014). There is evidence that educational programs can be effective (e.g., Griffiths, Carron-Arthur, Parsons, & Reid, 2014), but the best way to approach education remains unclear and there is evidence that the same beliefs about causes of mental disorders can yield different results for different disorders (e.g., Speerforck et al., 2014). It remains extremely unclear, then, how to approach education about OCD, and more empirical evidence is needed to make this determination as it is quite untested at this time. Of note, however, our study indicates that simply informing people about the diagnostic features of OCD reduces stigma toward people with symptoms consistent with violent OCD. Education that makes OCD seem more plausible as a diagnosis for individuals with taboo thoughts may be a step in the right direction.

It should be noted that our education was limited only to informing participants of the diagnostic features of OCD and Schizophrenia. Thus, it cannot be argued that OCD became more acceptable to participants because we corrected misconceptions about violent behavior associated with mental illness. We were careful when we devised our education materials not to give participants information regarding rates of harm or violence committed by individuals with OCD or Schizophrenia diagnoses, in an effort to ensure our hypotheses would not drive the information we presented to participants. Instead, the only information that was provided to participants was the DSM-5 diagnoses with definitions of various terms (also taken directly from DSM-5). This seems to support that the decrease in stigma following the education intervention was due to changes in perceived diagnosis specifically, rather than to corrections of misconceptions about rates of violence associated with each diagnosis.

It is unclear what made OCD more acceptable to participants than Schizophrenia. We doubt this difference was due solely to the education participants received as a part of our education intervention, since individuals already found the target with a participant-determined diagnosis of OCD to be more acceptable than the target with a participant-determined diagnosis of Schizophrenia prior to the education. How Schizophrenia and OCD are portrayed in the media is one possibility for the contrast in how they were perceived in the present study. Not only is Schizophrenia widely known to be poorly received by the public (e.g., Jorm & Oh, 2009), but media depictions of individuals with Schizophrenia are also terribly negative, including

how individuals with Schizophrenia are depicted in movies/entertainment, where they are usually presented as violent (e.g., Owen, 2012). Although media depictions of OCD are not accurate portrayals of individuals who suffer with the disorder, individuals with OCD, in contrast to individuals with Schizophrenia, are generally depicted as intelligent functional members of society (Fennell & Boyd, 2014), which may help form more positive attitudes towards individuals with OCD than to individuals with other disorders. Thus, although media depictions of OCD may not be accurate, it is possible they are more positive.

We were surprised our vignette label (no diagnosis, OCD, or Schizophrenia) was not related to desired social distance, perceived dangerousness, or perceived unpredictability, as we had anticipated that participants would find the individual given a doctor's diagnosis of Schizophrenia to be the most disturbing and have the highest negative ratings. Closer examination of our findings, however, makes it apparent why our results did not emerge the way we expected – the OCD diagnosis was simply not credible to participants, even when the diagnosis was determined by a hypothetical doctor. Thus, it appears participants responded to questions of social distance, perceived dangerousness, and perceived unpredictability based on their own impressions of the target, not on the label that was provided to them. Their impressions of the target did, however, prove to be quite related to all of these measures of stigma. Although we expected OCD would be perceived in a more positive light than Schizophrenia, we did not expect individuals to desire as little social distance from the target as when that target had no participant-determined diagnosis before the education. In contrast to OCD, when participants labeled the target with Schizophrenia, another diagnosis, or when the participant reported he/she did not know the target's diagnosis, they were perceived more negatively than individuals who were participant-labeled to have no diagnosis.

One limitation of our study is that our educational intervention only gave information about two diagnostic labels, OCD and Schizophrenia, as opposed to a wide variety. Given the misunderstanding of taboo or violent thoughts and OCD in the general population and even among mental health professionals (e.g., Coles et al., 2013; Glazier et al., 2013), we thought it useful to compare someone with violent thoughts to a diagnosis well-documented to be frightening to the general public, Schizophrenia (Jorm et al., 2012). There is evidence that violent intrusive thoughts are perceived negatively (Simonds & Thorpe, 2003), so we were curious whether these negative attitudes could be modified with a brief education. OCD has been sadly omitted from the many studies that have compared stigma of Schizophrenia with the stigma of various other disorders (e.g., Speerforck et al., 2014), and this study was an attempt to fill that gap in the literature. Although a study such as the present one is likely a step in the right direction for understanding stigma of OCD, it remains unclear how OCD would be perceived relative to disorders other than Schizophrenia, an avenue likely fruitful for future research. This study provides some preliminary data that despite OCD sufferers' understandable concerns about discrimination and being perceived negatively (García-Soriano et al., 2014), when their symptoms are understood as being features of OCD they may be perceived more positively than they anticipate.

5. Conclusions

The present study demonstrated that violent thoughts are not generally attributed to OCD and, in fact, even when participants are told a target with violent thoughts has OCD, that explanation is discounted. In contrast, Schizophrenia was a credible diagnosis for a target with violent thoughts. After reviewing DSM-5 descriptions of OCD and Schizophrenia, however, an OCD diagnosis for a person with violent thoughts became not only credible, but the primary explanation participants had for the violent thoughts. Social distance desired from targets decreased following education about the diagnostic criteria of OCD and Schizophrenia, and targets with OCD were seen in a more positive light than were individuals with other disorders, both before and after the education. The present study highlights the impact of even a brief education about psychiatric disorders on the stigma of intrusive violent thoughts.

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