Masterthesis

Clinical and Health Psychology
Utrecht University

The association between childhood trauma and Obsessive Compulsive Disorder severity in adulthood

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Preface

The present study is based upon the data from the Netherlands Obsessive Compulsive Disorder Association (NOCDA) study, an ongoing multi-centre 6-year longitudinal naturalistic cohort study on the course of OCD.

We both were interested in the influence of childhood trauma on later psychopathology and therefore very motivated to study the association between childhood trauma and OCD severity, under supervision of Prof. Dr. Marcel van den Hout of the Utrecht University. Prof. Dr. Marcel van den Hout is specialized in experimental psychology of childhood trauma and provided us theoretical advice. Additionally, we have been working together with Drs. Henny Visser, who is directly involved in the NOCDA study and gave us important information about the study. This combination of supervision provided us with a comprehensive insight in the association between childhood trauma and OCD severity and the possibility to discuss relevant topics from two different points of view.

Throughout the entire process of conducting this masterthesis, as researchers we worked this joint project in very good cooperation. It was informative and instructive to discuss about the subject and to consider each others views. We have been writing the thesis together, that is after a part was written by one the other read it thoroughly and wrote further if necessary. Although we have been talking about the content in advance, the discussion we wrote individually.

We would like to owe many thanks to Drs. Henny Visser for the informative and enthusiastic supervision during the study. Furthermore, we would like to express our gratitude to our supervisor Prof. Dr. Marcel van den Hout. His support and advice helped us in accomplishing this masterthesis. Also thanks to Prof. dr. Boelen who gave us statistical advice.

Finally, we wish to express our thanks to our family and friends who have supported us throughout.

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Abstract
There is widespread support for the relationship between childhood trauma and psychiatric morbidity in adulthood. However the association with Obsessive Compulsive Disorder has not been studied frequently. It was hypothesized that there is a positive correlation between childhood trauma, distinguished in sexual, physical, emotional abuse, and physical and emotional neglect, and severity of OCD in adulthood. Besides, we expected the association between childhood trauma and OCD to be at least partly accounted for by co-occurring anxiety or depression, OCD cognitions, personality characteristics and other comorbidity. The data for the present study (N = 281) were obtained from the Netherlands Obsessive Compulsive Disorder Association (NOCDA) study, an ongoing multi-centre 6-year longitudinal naturalistic cohort study on the course of OCD. To establish OCD and other current DSM-IV axis I disorders, SCID-I/P was used. Childhood trauma is assessed retrospectively using the Jeugd Vragenlijst, the Dutch version of the Childhood Trauma Questionnaire (CTQ). Pearson correlation indicated that sexual abuse was found to be the only form of abuse having a small but significant correlation with OCD severity. Multivariable regression analyses showed OCD cognitions, neuroticism, number of current diagnoses, anxiety and depression to fully mediate the association between sexual abuse and OCD severity. Only depression remained significant when taking the mediating factors into account altogether. The absence of a direct relationship between childhood trauma and OCD severity may indicate a different etiology for OCD than depression or anxiety. The present study is an initial first step towards evaluating the association between different forms of childhood trauma and the severity of OCD.

Introduction

There is widespread support for the relationship between childhood trauma and psychiatric morbidity in adulthood (Hovens et al., 2009; Browne & Finkelhor, 1986; Kessler et al., 1997). Childhood trauma has been implicated in the pathogenesis of depression in clinical and community surveys (Wiersma et al., 2009; Scott et al. 2010). A relationship between child abuse and the subsequent development of a range of anxiety disorders, including social anxiety disorder, panic disorder, generalized anxiety disorder and specific phobia, has been widely reported as well (Stein, 1996; Cougle, 2010; Scott et al., 2010).

Despite evidence that childhood trauma has far-ranging effects on mental health, its association with obsessive-compulsive disorder (OCD) hasn't been studied frequently. The most compelling evidence for an association between childhood trauma and OCD comes from community samples. Saunders et al. (1992) found in a community sample of 391 women, lifetime rates of OCD to be significantly higher in those who had a history of childhood rape or molestation. Mathews, Kaur and Stein (2008) demonstrated in a sample of 938 undergraduate students that childhood trauma, most consistently emotional abuse, but also physical abuse and physical neglect, had a small but significant association with obsessive-compulsive symptoms. Consistent with these results, the study of Briggs and Price (2009) demonstrated in a community sample consisting of 313 participants that adverse childhood experience was related to obsessive-compulsive symptoms. It should be noted however, that in these community samples only obsessive-compulsive symptoms have been examined, rather than pathological levels of symptoms which fulfill a OCD diagnosis according to the DSM-IV-TR criteria. In the only clinical study published, childhood trauma was assessed in a relative small sample of 74 female OCD patients and compared with healthy controls (Lochner et al., 2002). Levels of childhood trauma in general and emotional neglect in particular, were higher in adult patients with OCD than in controls.

The possible association between childhood trauma and later OCD does not necessarily imply a direct one, since other factors could account for this relationship. Anxiety, depression, cognitive beliefs, personality characteristics and comorbid diagnoses are pointed out as possible mediators in relevant literature.

Firstly, it is possible that a probable association between OCD and childhood trauma is accounted for by the relationship between trauma and a higher order construct related to this specific anxiety disorder, like anxiety or depression (Sadock & Sadock, 2007). In accordance with this assumption, Mathews et al. (2008) found in their sample of 938

students the association between emotional abuse and physical neglect and obsessive-compulsive symptoms to be fully mediated by comorbid anxiety and post traumatic stress disorder. However, in a small subset of respondents with high levels of obsessive-compulsive symptoms, a significant but small positive relationship was found between emotional trauma and obsessive-compulsive symptoms, independent of comorbid anxiety. Briggs and Price (2009) have challenged this independent association. After controlling for anxiety and depression, there was no longer a significant association between adverse childhood experience and obsessive-compulsive symptoms in their community sample. The conclusion was reached that adverse childhood experience was related to obsessive-compulsive symptoms but that this association was indirect, among other things, via the association with anxiety and depression.

Secondly, childhood abuse might modify how children and adolescents perceive both their environments and their responses to them (Stein et al., 1996). Early victimization may lead to hypervigilance, to the overestimation of threat, excessive blame, guilt, and punishment, to an inflated sense of responsibility and the over-importance of thoughts (Salkovskis, Shafran, Rachman, & Freeston, 1999; Sookman & Pinard, 2002; Stein et al., 1996; Briggs & Price, 2009). These maladaptive beliefs have been associated with a greater prevalence of obsessive-compulsive symptoms (Frost & Steketee, 2002). Briggs and Price (2009) claim indeed a relationship between adverse childhood experience and obsessive-compulsive symptoms in a community sample that was found to be partially mediated by OCD-related dysfunctional beliefs. This supports an effect of child abuse on the development of OCD partially via the development of these beliefs.

In addition, childhood trauma might play a role in the development of OCD via the development of specific personality traits. Childhood trauma appeared to be associated with the broader personality trait domains of the Big Five; neuroticism, extraversion, conscientiousness and agreeableness were found to be related to child abuse, while openness was not (Mathews et al., 2008). Besides, Mathews et al. (2008) found in a community sample a positive correlation between obsessive-compulsive symptoms and high levels of conscientiousness, although this was only the case for those with low to moderate symptoms. The conclusion was reached that there was an indirect relationship between childhood trauma and obsessive-compulsive symptoms mediated through the personality facet of conscientiousness. The association between conscientiousness and obsessive-compulsive symptoms has been challenged in a clinical sample. High levels of neuroticism and low levels of extraversion and agreeableness have been proposed as possible

vulnerability traits for several psychiatric disorders in the affective spectrum and specifically for OCD, although no differences were observed on the domains of openness and conscientiousness between OCD patients and community controls (Clark, Watson & Mineka, 1996; Samuels et al., 2000). Replication is needed to clarify the mediating role of personality traits in the association between childhood trauma and OCD severity.

Lastly, childhood trauma seems to be related with the development of multiple mental disorders (Cougle et al., 2008; Widom, DuMont & Czaja, 2007). Also, comorbid psychiatric disorders are common in OCD (Rachman, 2004; Khanna & Reddy, 2004). This could suggest an effect of childhood abuse on the severity of OCD, perhaps accounted for by the development of multiple mental disorders.

So far, results suggest that if any, only a marginal direct relationship between childhood trauma and obsessive-compulsive symptoms in adulthood exists in community samples (Saunders et al., 1992; Mathews et al., 2008; Briggs & Price, 2009). To date, only one study examining the association between childhood trauma and OCD in a clinical sample has been published (Lochner et al., 2002). Due to the small sample size and the exclusive focus on female patients, results of this study may not be generalizable to other clinical populations. Also it failed to examine the effects of any mediating factors. Moreover, none of the published studies has taken the severity of OCD into account. This leads to a gap in scientific knowledge concerning this issue.

The purpose of the present study is to investigate whether childhood trauma, distinguished in sexual, physical, emotional abuse, and physical and emotional neglect, is related to severity of OCD in adulthood. Taking these different types of childhood trauma into account, makes it is possible to specifically examine the association with OCD for each form of trauma. We hypothesize that there is a positive correlation between childhood trauma and severity of OCD in adulthood. Additionally, we want to investigate the extent to which this association reflects a direct connection, or if such connection is mediated by other factors. Based on literature, we expect the association between childhood trauma and OCD to be at least partly accounted for by co-occurring anxiety or depression, OCD cognitions, personality characteristics and other comorbidity.

Method

Subjects

The data for the present study were obtained from the Netherlands Obsessive Compulsive Disorder Association (NOCDA) study, an ongoing multi-centre 6-year longitudinal naturalistic cohort study on the course of OCD. Participants are patients aged 18 years or over, with a primary diagnosis of OCD, as determined by the Structural Diagnostic Interview for DSM-IV disorders (SCID I). Patients are admitted for treatment in one of the healthcare centers that participate in the NOCDA study. Exclusion criteria were limited to an inadequate understanding of the Dutch language. After complete description of the study to the respondents, written informed consent was obtained. The study was approved by the local ethical committee. Detailed sample characteristics and methodology of NOCDA are described elsewhere (Schuurman, 2011). Since participants filled in the Dutch Childhood Trauma Questionnaire (CTQ) one year after the baseline measurement, the participants in the present study are selected when baseline measurement is available as well as the one-year follow–up measurement. Respondents who did not participate in the follow-up measurement did not differ in gender ($p=.14$), age ($p=.14$), level of education ($p=.25$), severity of obsessive compulsive symptoms ($p=.20$), age at onset ($p=.84$), depression ($p=.42$) and neuroticism ($p=.11$). However, they reported more state-anxiety ($p<.05$) and had lower scores on OCD cognitions ($p<.001$). A total of 281 adults constitute the present study.

Measurements

DSM-IV disorders

To establish OCD and other current (in the past month) DSM-IV axis I disorders, the Structured Clinical Interview for DSM-IV-TR (SCID-I/P) (First, Spitzer, Gibbon, Williams, 1996) was used for all patients. The SCID-I/P is a widely used semi-structured interview for diagnosing mental disorders and is a reliable instrument (Luteijn et al., 2008).

OCD severity

OCD severity was assessed using the Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman, Price, Rasmussen, Mazure, & Delgado, 1989a; Goodman, Price, Rasmussen, Mazure, & Fleischmann, 1989b) severity scale. The severity scale is a 10-item rater-administered measure of current severity of obsessions and compulsions with total scores ranging from 0 to 40. This scale is a reliable and valid instrument for assessing the severity of

OCD symptoms (Goodman et al., 1989b). A total of 281 participants were assessed by the Y-BOCS.

Childhood trauma

Childhood trauma is assessed retrospectively using the *Jeugd Trauma Vragenlijst*, which is the Dutch version of Childhood Trauma Questionnaire (CTQ). This questionnaire is distinguished into 5 subscales; emotional abuse, physical abuse, sexual abuse, physical neglect and emotional neglect. Each subscale consists of 5 items, with the exception of the sexual abuse subscale. Because the translated item, "I believe I was molested", appeared not to be a valid indicator of childhood sexual abuse in the Dutch version (Thombs, Bernstein, Lobbestael & Arntz, 2009), this item was removed. 281 participants were asked to give an indication of the frequency of the particular abuse on a five-point scale, whereas 1 = never true and 5 = very often true. Validity and reliability of the 24-item Dutch CTQ has been reported to be satisfactory (Thombs et al., 2009).

Personality characteristics

Personality characteristics according to the Big Five were established with the 100-item Five-Factor Personality Inventory (Hendriks, Hofstee, & De Raad, 1999), which uses 5 dimensions for personality: extraversion, agreeableness, conscientiousness, neuroticism and openness. The FFPI is a reliable and valid measure of personality (Hendriks, 2003). The number of participants filled in this questionnaire was 280.

Depression

The Beck Depression Inventory (BDI-II) (Beck, Steer & Brown, 1996), a self report questionnaire consisting of 21 items, was used to asses the severity of the cognitive, affective and somatic symptoms of depression. The patients had to choose one of the four statements in accordance with their feelings during the past week. The BDI-II has high reliability and construct validity (Luteijn et al., 2008). 279 participants completed the BDI-II.

Anxiety

The Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown & Steer, 1988) is a 21- item self report measure, used to assess the severity of anxiety symptoms for 281 participants. The patients were asked to rate to which extent they have been bothered by certain anxiety symptoms during the last week, on a 4-point scale, whereas 1 = totally not and 4 = severely. The reliability and validity of the BAI have been demonstrated in several studies (Wilson, Chambless & de Beurs, 2004).

OCD cognition

To measure the interpretation of intrusive thoughts that have occurred recently, 270 participants filled in the III questionnaire (Triple I). The participants were asked to come up with two examples of intrusions and subsequently had to identify in 31 items to what extent they believed negative appraisals of these thoughts. Although this suggests a strong overlap with Y-BOCS, both instruments appear to measure other constructs, since the correlation between these is .30. Besides, there was sufficient variance in the scores, revailing a normal distribution. Examination of validity and reliability indicates high internal consistency, promising validity and excellent reliability (Obsessive compulsive cognitions working group, 2001; Obsessive compulsive cognitions working group, 2003; Sica et al., 2002).

Demographic characteristics

Structured questions were used to determine socio-demographic and socio-economic characteristics.

Data Analysis

Statistical analyses were conducted using Predictive Analytics SoftWare Statistics 18.0. Means, standard deviations and percentages were calculated to describe the sample. Furthermore, Pearson correlations were calculated for all variables. Since the assumption of normality was violated for the sexual abuse variable, a dummy variable was created. In addition univariate regression analyses were used to calculate the R Square, which indicate the amount of variation which can be explained by a particular variable. Lastly, to examine whether the relationship between childhood abuse and OCD severity still exist after adjusting for anxiety, depression, OCD cognitions, personality characteristic and comorbid current diagnoses, a series of multivariable regression analyses were conducted.

Results

Sample characteristics

The study sample of 281 OCD patients consisted of 41.1% men and 58.3% women. The mean age at baseline was 37.7 years (SD = 11.13). Just over half the sample (55%) reported to be never married. Average years of education were 12.7 (SD = 3.3). The mean (SD) severity of OCD symptoms as established by administration of the Y-BOCS was 19.4 (8.3), which reflects moderate severity. Of the sample 53% met the criteria of at least one other Axis I disorder at the time of the baseline interview. In 18% of the sample there was total absence of any trauma as measured with the Dutch CTQ. The percentage of trauma in Table 1 represents the percentage participants who reported at least no absence of trauma, that is; the participants answered at least one question with 'rarely true'. Table 1 illustrates these main characteristics of the respondents.

Table 1. Demographic characteristics of participants in the present sample

Characteristics	Respondents N = 283
Gender	
Male	118 (41.7%)
Female	165 (58.3%)
Age of baseline interview	
Mean (SD)	37.7 (11.13)
Minimum	17
Maximum	79
Marital status	
Never married	156 (55.1%)
Married	112 (39.6%)
Divorced	14 (4.9%)
Widowed	1 (0.4%)
Years of education, mean (SD)	12.74 (3.28)
OCD severity, mean (SD)	19.43 (8.26)
Current comorbidity (2 or more diagnoses)	53%
Percentage trauma*	
Emotional abuse	72.4%
Physical abuse	19.1%
Sexual abuse	16.3%
Emotional neglect	90.1%
Physical neglect	58%
Total absence of trauma	18%

* Participants reported at least no absence of trauma

As can be seen from Table 2 correlations between physical abuse, emotional abuse, sexual abuse, physical neglect and emotional neglect were modest in magnitude. Sexual abuse was found to be the only form of abuse having a significant correlation with OCD severity. Even total score of trauma didn't correlate with OCD severity.

Table 2. Pearson correlations between OCD severity and forms of trauma

	OCD severity	Emotional abuse	Physical abuse	Sexual abuse	Physical neglect	Emotional neglect	Total trauma
OCD severity	-	.11	.10	.20**	.00	.03	.11
Emotional abuse		-	.56**	.30**	.57**	.69**	.88**
Physical abuse			-	.30**	.45**	.38**	.69**
Sexual abuse				-	.35**	.25**	.51**
Physical neglect					-	.61**	.77**
Emotional neglect						-	.85**
Total trauma							-

** Significant at the .01 level (two-tailed).

Pearson correlation analyses indicated that five variables were significantly related to both severity of OCD and sexual abuse, and therefore might mediate the relationship between OCD severity and sexual abuse: anxiety, depression, OCD cognitions, neuroticism and number of current diagnoses. Results obtained from Pearson correlation analyses are presented in Table 3.

Table 3. Pearson correlations between OCD severity, sexual abuse and all possible mediators

	OCD severity	Sexual Abuse
Anxiety	.41**	.25**
Depression	.46**	.24**
OCD cognitions	.30**	.21**
Extraversion	-.28**	-.10
Openness	-.18**	-.03
Neuroticism	.33**	.17**
Agreeableness	-.04	.02
Conscientiousness	-.00	.05
Number of current diagnoses	.33**	.29**

** Significant at the .01 level (two-tailed).

Since the distribution of sexual abuse was not normal, a dummy variable is created and is used in the analyses. To test to what extent the relationship between sexual abuse and OCD severity is mediated by these five variables, a series of multivariable regression analyses were conducted. The potential mediating factors have been tested one by one to find out to what extent the magnitude of the correlation between sexual abuse and OCD severity changes when taking these into account. As can be seen from Table 4, all five variables were found to fully mediate the relationship between sexual abuse and OCD severity, since sexual abuse was no longer related to OCD severity when controlling for these factors.

Table 4. Multivariable analyses, OCD severity, sexual abuse and the potential mediators one by one

	OCD severity	
	Beta (R)	R square
Sexual abuse	.07	.17
Anxiety	.39**	
Sexual abuse	.05	.21
Depression	.45**	
Sexual abuse	.10	.10
OCD cognitions	.29**	
Sexual abuse	.11	.12
Neuroticism	.31**	
Sexual abuse	.09	.12
Number of current diagnoses	.32**	

** Significant at the .01 level (two-tailed).

In order to examine the unique contribution of each variable to the explained variability in OCD severity, a multivariable analysis containing all possible mediators was performed. The results, presented in Table 5, indicated that there is no independent relationship between sexual abuse and OCD severity, but there is a direct relation between depression and OCD severity. Furthermore, depression explained variability in OCD severity independent of other factors. The factors all together appeared to account for 24% of the total variance of OCD severity ($F = 13.52$, $p < .00$).

Table 5. Multivariable analysis with OCD severity and the independent variables

	OCD severity
	Beta
Sexual abuse	.02
Anxiety	.12
Depression	.31**
OCD cognitions	.06
Neuroticism	.01
Number of current diagnoses	.05

** Significant at the .01 level (two-tailed).

Another multivariable analysis is performed to test which construct is most important in the relation between sexual abuse and OCD severity when leaving anxiety, depression and number of current diagnoses aside. As can be seen from Table 6, neuroticism appeared to be the only variable significantly related to OCD severity, since OCD cognitions and sexual abuse are no longer significantly associated with OCD severity when taking neuroticism into account. Neuroticism, OCD cognitions and sexual abuse appeared to account for 15% of the total variance of OCD severity ($F = 15.21$, $p < .00$).

Table 6. Multivariable analysis with OCD severity and OCD cognitions and neuroticism

	OCD severity Beta
Sexual abuse	.07
OCD cognitions	.19
Neuroticism	.24**

** Significant at the .01 level (two-tailed).

Discussion

Contrary to expectations, the results of the current study indicate no strong relationship between childhood trauma and OCD severity. Physical abuse, emotional abuse, physical neglect, emotional neglect and total number of trauma do not seem to be associated with OCD severity. Sexual abuse appeared to be the only form of childhood trauma having a significant association with OCD severity, although this link is small and indirect. As expected, several factors are found to account for the relationship between sexual abuse and OCD severity. Depression, anxiety, number of current diagnoses, OCD cognitions and neuroticism were all found to fully mediate this relationship. Despite the significant association between sexual abuse and OCD severity, the prevalence rate of sexual abuse in the present sample (16 %) is approximately consistent with the prevalence of sexual abuse in the community sample of Mathews et al. (13 %) (2008). In the clinical sample of Wiersma et al. (2009) prevalence rate of sexual abuse for chronically depressed patients was quite higher (26 %) than the prevalence in the current study, although different instruments were used to assess childhood trauma.

The present finding that childhood trauma is associated with OCD severity only marginally and indirectly is in line with findings of prior studies on the relationship between childhood trauma and OCD symptoms conducted in community samples (Mathews et al., 2008; Briggs & Price, 2009). However, our results failed to demonstrate a significant association between total number of childhood trauma and OCD severity, while some previous studies (Briggs & Price, 2009) did find evidence of an association, although indirect, between childhood trauma in general and OCD symptoms. Perhaps it is the presence of the symptoms of OCD that is related to childhood trauma, rather than the severity of the disorder. That is, having a history of childhood trauma might make people vulnerable to develop OCD symptoms during adulthood, regardless the severity of these symptoms.

Furthermore, present findings suggest that a significant effect of child abuse on OCD severity is limited to sexual abuse. However, Mathews et al. (2008) found emotional abuse to be most consistently related to obsessive compulsive symptoms and Lochner et al. (2002) state that particularly emotional neglect is associated with OCD. No evidence of an association between sexual abuse and OCD symptoms was found in these studies. This difference could be explained by the fact that the sample of present study is of considerable bigger size than that of Lochner et al. (2002), and contrary to Mathews et al. (2008), used a clinical sample. It might be that sexual abuse is only associated with pathological levels of

OCD symptoms. This assumption is supported by the findings of Saunders et al. (1992) who, although in a community sample, demonstrated a significant association between lifetime and current OCD DSM-III diagnose and sexual trauma.

As expected, we found that depression, anxiety, number of current diagnoses, OCD cognitions and neuroticism fully accounted for the relationship between sexual trauma and OCD severity. The association between sexual trauma and OCD severity lost its significance when taking one of these factors into account, suggesting an absence of a direct relationship between sexual trauma and OCD severity. Previous research demonstrated the association between childhood trauma and OCD symptoms to be indirect as well (Briggs and Price 2009; Mathews et al. 2008).

When taking the mediating factors into account altogether, only depression turns out to have a significant association with OCD severity, accounting for approximately 21 percent of the total variance of OCD severity. Therefore it is concluded that the direct association between depression and OCD severity seems to account for the associations between the other factors (anxiety, number of current diagnoses, OCD cognitions and neuroticism) and OCD severity. That is, in contrast to the prior study of Briggs and Price (2009) in which anxiety has been indicated as most important predictor of OCD, present results demonstrate depression to be the most important mediator. This indirect effect could suggest an effect of sexual trauma on the severity of OCD through a more general vulnerability. That is, the experience of sexual trauma during childhood makes people more vulnerable to develop psychopathology during adulthood and it might be this pathology, number of current diagnoses, anxiety and most of all depression, which has a positive effect on the severity of OCD.

Controversy surrounding this conclusion is apparent. Depression, anxiety and number of current diagnoses refer all to psychological disorders and therefore there may be overlap between these constructs (Brady & Kendall, 1992). This cast doubt on the theoretical relevance of the assumption that sexual trauma is related to OCD severity through a more general vulnerability to develop psychopathology. Isn't it logical that the more severe OCD is experienced, the more anxiety and depressive symptoms are reported? Also the reverse might be true, in that psychopathology increases the severity of a comorbid disorder, like OCD. Moreover, comorbidity rate is high for OCD patients. In present sample the lifetime prevalence of depressive disorder, which include major depressive disorder (56.5 %) and dysthymia (5.5 %), is 62 percent (results not presented). Therefore, the conclusion that sexual trauma has an effect on the severity of OCD through other psychological disorders,

most convincing depression, makes little sense. It raises the question which mediating factor, leaving depression, anxiety and number of current diagnoses outside consideration is most important in the relationship between sexual trauma and OCD severity.

Neuroticism was the only personality facet that was significantly related to both sexual abuse and OCD severity in the present study. Extraversion and openness appeared to be negatively related to the severity of OCD, but lack an association with sexual abuse. Conscientiousness, which has been shown to be associated with OCD in previous literature (Mathews et al., 2008), didn't seem to be associated with OCD severity nor sexual abuse in the present sample. These results are in contrast to the only other published study of the mediating role of personality factors in the relationship between childhood trauma and OCD, which indicated conscientiousness as mediating factor and found no association between childhood abuse and neuroticism (Mathews et al., 2008). However, Mathews et al. (2008) used a community sample and this may explain the differences in the results. The fact that neuroticism was found to play a mediating role in the association between sexual abuse and OCD severity, might suggest that neuroticism is a general risk factor in the development of OCD. This is in accordance with the findings of Clark, Watson and Mineka (1998) who found that high levels of neuroticism are positively related to OCD, without the influence of child abuse in general.

In addition to personality facets, the present study examined the mediating role of OCD cognitions. The role of OCD cognitions seems to be of lesser importance than that of neuroticism, since OCD cognitions are no longer associated with OCD severity when taking neuroticism into account. This finding is in agreement with the results of Briggs and Price (2009), who found that the mediating role of OCD related beliefs was subordinate to that of other mediating factors, like anxiety and depression. A possible explanation for this subordinate effect might well be that OCD related cognitions could be an outcome of OCD, rather than the cause (Briggs & Price, 2009).

To summarize, the results show that even without the influence of pathology related constructs, which include depression, anxiety and number of current diagnoses, the association between sexual abuse and OCD severity is still indirect, mainly through neuroticism. This supports the absence of a direct association even more.

Since child abuse is found to play an important role in the development of a broad range of mental disorders (Hovens, 2009; Browne & Finkelhor, 1986; Kessler et al., 1997), the absence of a strong and direct relationship between child abuse and OCD severity is quit revealing and raises the issue of etiology. It could be that the developmental pathway of

OCD differs from that of other psychological disorders, which do have a relationship with child abuse. For instance, depression is strongly related to dysfunctional environmental stress, and it is proposed that stress and trauma are among the most striking unique contributions to the etiology of mood disorders (Barlow & Durand, 2005; Sadock & Sadock, 2007). Although there is some evidence that stressful life events precede the onset of OCD symptoms as well (Sadock & Sadock, 2007), other theories indicate that OCD is mainly a biological disease, accompanied by hyperactivity in certain subcortical and cortical regions and neurotransmission abnormalities (Stanford School of Medicine, 2012). Because of these biological determinants, life events might be proposed to have a more limited role in the onset and timing of OCD, although this conclusion is quit premature and the need for caution should be stressed.

A number of limitations of present study should be noted. A first limitation is the correlational and cross-sectional nature of the data, hence we do not know if the shown association between sexual abuse and OCD severity is a causal relation. Furthermore, the results are based on retrospective reports of past abuse. One of the problems with retrospective acquired data is that it brings the possibility of reserve causation with it: the present of depressive and anxiety symptoms could lead patients to perceive and report more childhood trauma in retrospection via mood-congruent recall (Wiersma et al., 2009). However, Scott et al. (2010) have found a significant association between child maltreatment and mood, anxiety and substance use disorders in a community sample in which the child maltreatment is prospectively ascertained by a child protection agency history. This implies that it is indeed child maltreatment that is associated with subsequent poor mental health outcomes, rather than just the memories of maltreatment. A third limitation is the fact that child abuse is assessed a year after the baseline measurement, in which the other measurements took place. Subject who did not participate in the follow-up measurement might differ in the amount of trauma that has been experienced during childhood, introducing a selection bias. However, participants were subjected to a biographical interview at baseline in which they had been asked about the incidence and severity of childhood abuse as well. Subjects who didn't participate in the follow-up measurement didn't differ in their abuse score from subjects who did participate, making a selection bias less likely. Further, 16.3 percent of the total participants (30 participants) reported at least no absence of sexual abuse. Despite the big size of the total sample, the number of individuals who has been sexual victimized during childhood is relatively small, which could reduce the power. The absence of a control group is an additional limitation.

Perhaps the inclusion of a control group would reveal a difference in prevalence rate of childhood trauma between the control and the patient group.

Despite these limitations, our findings are innovative in multiple ways. It is the first research on the subject of the association between OCD and childhood trauma conducted in a clinical population. Moreover, it has focused on the severity of OCD, rather than just the presence of the diagnose. This revealed a more complete and accurate picture of the association between childhood trauma and OCD. Furthermore, the study has methodical strengths. Due to the grand scale characteristics of the NOCDA study, the sample which has been used is large and representative. Besides, multiple demographic and clinical data were available.

To summarize, the findings of the present study provide further evidence for the limited association between child abuse and OCD. One of the issues that emerge from this finding is the effectiveness of focusing on childhood trauma during treatment. Cognitive behavioral therapy, sometimes in conjunction with pharmacotherapy, is assumed to be the most effective treatment for OCD (Rachman, 2004). It is not recommended in relevant literature to focus on childhood trauma during treatment of OCD and based on present findings this absence of focus seems to be correct. Since there is no evidence of a relationship between childhood abuse and OCD severity, there is no reason to expect that the severity of OCD would decrease when treating the childhood trauma. It should be noted however, that it is premature to base clinical implication on current findings. Although this study has gone some way towards enhancing our understanding of the relationship between childhood abuse and OCD severity, more research has to be done to replicate our findings. Moreover, it is recommended to further investigate the implications for clinical practice in a crossover study, in which OCD patients are randomly assigned to different treatments; one treatment focusing on the childhood trauma, while in the other treatment condition focusing on the trauma is omitted. This would make it possible to evaluate the effectiveness of focusing on childhood trauma during treatment of OCD.

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