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Summary
Trauma and Obsessive-Compulsive Symptoms: The Role of Worldview Assumptions and Obsessive Beliefs

Cansu Alsancak-Akbulut
Ankara University

Elif Barışkın
TED University

Obsessive-Compulsive Disorder (OCD) consists of obsessions and compulsions that decrease the functionality of individuals and lead to significant stress in daily life. Obsessions are repetitive thoughts, images, or impulses that are involuntarily placed in the minds of people. Compulsions are repetitive behaviors and/or mental actions that occur as reactions to obsessions (American Psychiatric Association, 2013). The significant stresses faced by individuals might facilitate the emergence and persistence of OCD symptoms (Rachman, 1998). Childhood traumas were considered as one of the most predisposing factors for the development of OCD (Lochner et al., 2002). Therefore, the mechanisms explaining the relationship between childhood traumas and obsessive-compulsive symptoms would expand existing literature (Carpenter & Chung, 2011). In addition, gender might also be an important factor in examining these mechanisms. In light of these arguments, this study aimed to examine the mediating roles of worldview assumptions and severity of obsessive beliefs in the relationship between childhood traumas and the severity of obsessive-compulsive symptoms. In addition, gender differences in the frequency of childhood trauma, worldview assumptions, and severity of obsessive beliefs and compulsive symptoms were explored.

Childhood trauma was conceptualized as a form of maltreatment. Maltreatment was defined as behaviors that do not comply with norms, do not meet the child's needs, and/or causes physical or emotional harm to the child (Yurdakök, 2010). The mechanisms explaining the relations between childhood traumas and psychiatric disorders the later stages of life are complex and dynamic (Carpenter & Chung, 2011). Therefore, systematic studies on the relationship between childhood traumas and psychological disorders have been needed (Morgan & Fisher, 2007). Previous studies have shown that childhood traumas are associated with obsessive-compulsive symptoms (Briggs & Price, 2009; Grabe et al., 2008). In particular, childhood traumas might be related to both the development of obsessive-compulsive symptoms and the frequency and intensity of the symptoms (Demirci, 2016).

Misinterpretations of unwanted intrusive thoughts, images, or impulses are related to the emergence and persistence of OCD symptoms (Salkovskis, 1985). Cognitive models conceptualized these misinterpretations in the framework of inflated responsibility, overimportance of thought, need to control thoughts, overestimation of threat, intolerance of uncertainty, and perfectionism (Obsessive Compulsive Cognitions Working Group, OCCWG, 1997; 2003). Those obsessive beliefs were found to be more prevalent in individuals with OCD as compared to the nonclinical sample (Steketee, Frost, & Cohen, 1998).

Although obsessive beliefs might play role in the development and persistence of OCD symptoms (OCCWG, 1997, 2003), the presence of these obsessive beliefs might not be enough for the formation of intrusive thoughts and related obsessive-compulsive symptoms (Doron, Kyrios, Molding, Nedeljkovic, & Bhar, 2007). Doron and Kyrios (2005) argued that the development of OCD may be conceptualized in light of Janoff-Bulman's (1989) Worldview Assumptions Model. This model argued that individuals' tendency to develop psychopathology can be explained in terms of their worldview assumptions about their self and the world. Janoff-Bulman (1989, 1992) categorized these basic assumptions into three main categories, which are benevolence of the world, meaningfulness of the world, and self-worth. Previous studies showed that traumatic and stressful events might alter previously formed worldview assumptions (Janoff-Bulman, 2006; Janoff-Bulman & McPherson Frantz, 1997). Given that those who are exposed to childhood traumas have negative

Address for Correspondence: Res. Asst. Cansu Alsancak-Akbulut, Ankara University, Faculty of Languages History and Geography, Department of Psychology, Sıhhiye / Ankara
E-mail: cakbulut@ankara.edu.tr

assumptions about themselves, others, and the world (Webb & Otto Whitmer, 2001), worldview assumptions might have a mediating role in the relationship between childhood traumas and severity of obsessive-compulsive symptoms. Therefore, the effect of childhood traumas, which are one of the precursors of obsessive-compulsive symptoms, might explain the development of worldview assumptions and their relations with obsessive-compulsive symptoms.

Another line of research highlighted gender differences in the frequency of childhood traumas and obsessive-compulsive symptoms (Lensi, Cassano, Correddu, & Ravagli, 1996; Mathews et al., 2008). These studies indicated inconsistent results regarding gender differences in the prevalence of obsessive-compulsive symptoms. While some studies reported that the prevalence of obsessive-compulsive symptoms did not differ in terms of gender (e.g., Karl, Golding, Sorenson, & Burnam, 1988; Weissman et al., 1994), some other studies showed that OCD is observed more frequently in women (e.g., Degonda, Wyss, & Angst Nestadt and Samuels, 1994, Stein, Forde, Anderson, & Walker, 1997, Valleni-Basile et al., 1994). In terms of childhood trauma, several studies have shown that men experience more physical neglect, physical abuse, and emotional abuse; while women are exposed to more sexual abuse (Adjorlolo, Adu-Paku, Andoh-Arthur, Botchway, & Miyakado, 2015; Herrenkohl, Hong, Klika, Herrenkohl, & Russo, 2013; Mathews et al., 2008). There is a limited number of studies examining gender differences in worldview assumptions and obsessive beliefs (Ayoğlu, 2012; Ercan, 2015; Tüfekçi, 2011). Tüfekçi (2011) found that women, who had a traffic accident, have more negative worldview assumptions as compared to those of men (Tüfekçi, 2011). Furthermore, Ayoğlu (2012) stated that men are more likely to have stronger obsessive beliefs than women. Taken together, previous research on gender differences includes inconsistent results regarding obsessive-compulsive symptoms and childhood traumas. Also, there is a limited number of studies examining gender differences in obsessive beliefs and worldview assumptions. Therefore, gender differences in the frequency of childhood traumas, the severity of worldview assumptions, obsessive beliefs, and obsessive-compulsive symptom severity were explored in the current study.

The main aim of this study was to examine the relationship between childhood traumas and the severity of obsessive-compulsive symptoms among college students. In this regard, the mediating roles of worldview assumptions and severity of obsessive beliefs were examined in the relationship between the frequency of childhood traumas and severity of obsessive-compulsive symptoms. Research hypotheses were as follows: (1) The relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms was mediated by both worldview assumptions and severity of obsessive beliefs. (2) The relationship between the frequency of childhood traumas and severity of obsessive compulsive symptoms was mediated by worldview assumptions through the severity of obsessive beliefs. Additionally; the possible gender differences in the frequency of childhood traumas, the severity of obsessive-compulsive symptoms, obsessive beliefs, and worldview assumptions were explored.

Method

Participants

The sample consisted of college students in Turkey. Students were reached by an electronic server and they filled the questionnaires via electronic mail. Six hundred twenty-seven participants responded. Sixty-four students' data were removed from the data set (14 people were no longer a college student; 50 students have a psychiatric diagnosis). After excluding the outliers in the data set (N = 11), the final analyses were conducted by 562 participants (449 female). The age range of the participants was between 18 and 55 and the mean age was 21.54 years (SD = 3.60).

Materials

Demographic Information Form. This form included questions about socio-demographic information (age, gender, the living area, education level of father and mother, any psychiatric history, etc.).

Childhood Traumas Scale. This scale was developed by Bernstein and colleagues (1994) to assess the experiences of abuse and neglect in the first 20 years of individuals' lives. The scale consists of 28 items, which are evaluated on a 5-point scale (*1 = Never, 5 = Always*). There are five subscales, namely physical abuse, emotional abuse, sexual abuse, physical neglect, and emotional neglect, in addition to three items assessing denial of the trauma. In the present study, the total score of the scale was used. Higher numbers refer to the increased frequency of childhood trauma. The adaptation of the scale into the Turkish language was conducted by Şar, Öztürk, and İkikardeş (2012). The Cronbach alpha of the whole scale was found as .75 in the current study.

Worldview Assumptions Scale. This scale was developed by Janoff-Bulman (1989) to assess how traumatic experiences influence individuals' basic worldview assumptions. The scale includes 31 items, which are evaluated on a 6-point scale. The Turkish adaptation of the scale was conducted by Yılmaz (2008). The scale

has six subscales, namely benevolence, justice, luck, randomness, self-worth, and control assumptions. The total score of the scale, which has the Cronbach alpha of .84, was used in the present study.

Obsessive Beliefs Questionnaire. This scale was developed by OCCWG (2003) and used for assessing obsessive beliefs, which are influential in the emergence and maintenance of obsessions and compulsions. The scale consists of 44 items, which are rated on a 7-point scale. The higher scores reflect the increment in the severity of obsessional beliefs. The reliability and validity of the scale were established by Yorulmaz and Gençöz (2008). In the present study, the total score of the scale was used and the Cronbach alpha was found as .93.

Vancouver Obsessive-Compulsive Inventory. This scale was developed for assessing obsessions, compulsions, OCD-related personality features, and avoidance behaviors (Thordarson et al., 2004). The scale includes 55 items in a 5-point scale (*0 = Never, 4 = High*). Higher scores refer to the higher severity of obsessive-compulsive symptoms. The Turkish adaptation of the scale was made by İnözü and Yorulmaz (2013). In the current study, the total score of the scale was used and the Cronbach alpha of the total scale was .96.

Procedure

After obtaining ethical permission from the institutional board at Hacettepe University, the online questionnaire package was filled by the participants. The Informed Consent, including the information regarding voluntary and anonymous participation, was also included. The questionnaires were completed within approximately 25-30 minutes. The data was collected between December 2015 and April 2016.

Results

Pearson Correlation Analysis

All the correlations between variables were obtained by using Pearson Correlation Analysis. The frequency of childhood traumas had statistically significant correlations with worldview assumptions (r = -.29, p < .001), the severity of obsessive beliefs (r = .14, p < .01), and the severity of obsessive-compulsive symptoms (r = .18, p < .001). There was a negative correlation between the severity of worldview assumptions and obsessive-compulsive symptoms (r = -.12, p < .01). Also, the severity of obsessive beliefs and obsessive-compulsive symptoms were positively correlated (r = .58, p < .001).

Gender Differences in Childhood Traumas, Worldview Assumptions, Obsessive Beliefs, and Obsessive-Compulsive Symptom Severity

Independent samples t-test was performed separately to investigate the gender differences for childhood traumas, worldview assumptions, the severity of obsessive beliefs, and obsessive-compulsive symptoms. First, assumptions of parametric tests were checked (Field, 2009) by using the Kolmogorov-Smirnov test. Worldview assumptions and obsessive beliefs were found to be normally distributed, however, childhood traumas and obsessive-compulsive symptoms did not show normal distribution. All possible double scatter diagrams of these variables were examined and it was decided that they did not show any serious deviations from the normality. In addition, grounded on the central limit theorem, it was argued that when there are a high number of participants (more than 30), in a study, the sample tend to be normal regardless of the shape of the data (Field, 2009), and that parametric tests can be applied even if the normality assumption is not met (Elliott & Woodward, 2007; Field, 2009). The homogeneity of variance assumption of parametric tests was checked by the Levene F test. Results showed that the childhood trauma (p = .26), worldview assumptions (p = .22), severity of obsessive beliefs (p = .56) and obsessive-compulsive symptom severity (p = .39) met homogeneity of variance assumption. Thus, we decided that the assumptions for parametric tests were met. Independent samples t-test results showed that there were no gender differences in the total scores of childhood trauma (M_{female}= 34.52, SD = 9.03; M_{male}= 35.17, SD = 7.90), worldview assumptions (M_{female}= 111.18, SD = 16.72; M_{male}= 108.62, SD = 18.76), severity of obsessive beliefs (M_{female}= 160.71, SD = 36.07; M_{male}= 160.44, SD = 35.23), and severity of obsessive-compulsive symptoms (M_{female}= 116.94, SD = 6.75; M_{male}= 116.36, SD = 38.64) (respectively t (560) = -.70, p = .48; t (560) = 1.42, p = .16; t (560) = .07, p = .94; t (560) = .15, p = .88).

The Mediating Role of Worldview Assumptions and Obsessive Beliefs in the Relationship between Childhood Traumas and the Severity of Obsessive-Compulsive Symptoms

The serial mediating roles of worldview assumptions and the severity of obsessive beliefs in the relationship between the frequency of childhood traumatic experiences and the severity of obsessive-compulsive symptoms were examined using the PROCESS macro model (Model 6) proposed by Hayes (2013). This analytic strategy lets us examine whether the relationship between the frequency of childhood traumas and obsessive-compulsive symptom severity was mediated by worldview assumptions via obsessive beliefs.

Results showed that the frequency of childhood traumas predicted worldview assumptions (β = -.56, t

(560) = -7.06, p <.001), the severity of obsessive beliefs (β = .70, t (559), p < .001), and the severity of obsessive-compulsive symptoms (β = .75, t (560) = 4.30, p < .001). When we enter both worldview assumptions and obsessive beliefs as mediating variables into the analysis, the association between childhood traumas and the severity of obsessive-compulsive symptoms became insignificant, β = .25, t (558) = 1.63, p = .10. The significance of this effect was tested using bootstrapping. In this method, the significance of the mediation effect is verified when there is no "0" in the confidence interval (Preacher and Hayes, 2008). Thus, the relationship between the frequency of childhood trauma and the severity of obsessive-compulsive symptoms is uniquely and separately mediated by both worldview assumptions (estimate = 0.16, *SE* = .05, 95% CI [.07, .26]) and the severity of obsessive beliefs (estimate = 0.42, *SE* = .11, 95% CI [.19, .65]). In addition, the indirect effect of childhood traumas on the severity of obsessive-compulsive symptoms through worldview assumptions and the severity of obsessive beliefs in a sequence was significant, (estimate = -0.07, *SE* = .04, 95% CI [-14, -00]). Lastly, the total indirect effect including all the mediations (worldview assumptions and the severity of obsessive beliefs), is significant (estimate = 0.51, *SE* = .12, 95% CI [.28, .75]).

Discussion

The main aim of this study was to examine the mechanisms explaining the relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms. In particular, the mediating roles of worldview assumptions and obsessive beliefs in the relationship between childhood traumas and the severity of obsessive-compulsive symptoms were examined. Interrelations between the mediating variables were also investigated within the proposed relations. In other words, we sought to test how worldview assumptions and obsessive beliefs relate to each other in the relationship between childhood traumas and obsessive-compulsive symptoms. In the present study, two different theories (multidimensional worldview model and obsessive beliefs) of the cognitive model have been tested, so, the proposed model has an integrative approach. In addition, gender differences in the frequency of childhood traumatic experiences, worldview assumptions, obsessive beliefs, and the severity of obsessive-compulsive symptoms were also explored.

The findings revealed that worldview assumptions have a mediating role in the relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms. This finding was consistent with studies showing that obsessive-compulsive symptoms are correlated with both the frequency of traumas exposed in childhood (Carpenter & Chung, 2011; Mathews et al., 2008; Speckens et al., 2007) and worldview assumptions (Doron et al., 2007). Guided by the cognitive approach, it may be speculated that the unwanted intrusive thoughts, which are developed in relation to childhood traumas, might reflect the features of obsessive beliefs (Çelikel & Beşiroğlu, 2008). The security assumptions of individuals about themselves and the world have been developed from the first years of life (Bowlby, 1969) and can be altered upon experiencing adverse events (Janoff-Bulman, 1989; 1992). Childhood traumatic experiences might be related to inflated beliefs about safety and controllability (Briere, 1996; Browne & Winkelman, 2007). Worldview assumptions might include beliefs about negativity, injustice, and uncontrollability in the world, as well as beliefs about worthlessness and vulnerability of individuals (Janoff-Bulman, 1989). These negative worldview assumptions might reflect the features of obsessive-compulsive symptoms (Briggs & Price, 2009), although they might be functional and useful for the individuals during periods of trauma. Therefore, the negative worldview assumptions might explain the relationship between childhood traumas and the severity of obsessive-compulsive symptoms.

The findings also showed that the severity of obsessive beliefs plays a mediating role in the relationship between the frequency of childhood traumatic experiences and the severity of obsessive-compulsive symptoms. This finding suggests that the frequency of childhood trauma is related to the severity of obsessive-compulsive symptoms through an increment in the severity of obsessive beliefs. This finding is consistent with the results of a number of previous studies (Briggs & Price, 2009, Salkovskis, Shafran, Rachman, & Freeston, 1999, Tolin, Woods, & Abromowitz, 2003). Childhood trauma is related to negative perceptions of individuals about themselves, others, the environment, and the future (Briere, 1996). Some of these misinterpretations related to childhood trauma (e.g., the sense of responsibility for the occurrence of the trauma, the presence of perilous perceptions of the re-emergence of the trauma) might be similar to the content of obsessive beliefs. For example, Berman and colleagues (2013) found that childhood traumatic experiences are frequently associated with OCD, and specifically thought-action fusion. In this regard, it can be stated that the relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms can be explained through the severity of obsessive beliefs.

Another finding of this study was that the relationship between childhood traumas and the severity of

obsessive-compulsive symptoms was mediated by negative worldview assumptions through obsessive beliefs. Consistent with the results, Doron and colleagues (2007) found that some sub-dimensions of worldview assumptions (benevolence, justice, control, and self-worth assumptions) and obsessive beliefs are related. Negative assumptions about the world include the beliefs that the world is unpredictable, unjust, full of threats, and uncontrollable (Janoff-Bulman, 1989). These negative assumptions are similar to some of the obsessive beliefs, which consist of overimportance of thoughts, the need to control thoughts, overestimation of threat, and intolerance for uncertainty. In this respect, it might be argued that the worldview assumptions are related to obsessive beliefs (Doron et al., 2007). Furthermore, individuals, who have more negative worldview assumptions, might seek to compensate for these negative assumptions through engaging in obsessive beliefs (Doron et al., 2007). In conclusion, negative worldview assumptions and the severity of obsessive beliefs might explain the relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms.

This study examined whether there were gender differences in the severity of obsessive-compulsive symptoms, obsessive beliefs, childhood traumas, and worldview assumptions. Findings revealed that the frequency of childhood traumas, the severity of worldview assumptions, obsessive beliefs, and obsessive-compulsive symptoms did not differ between females and males. One should be cautious while interpreting these results. Possible gender differences in the subdimensions of worldview assumptions and OCD symptoms may not have been detected in the current study. All the variables were measured by total scores of questionnaires. Also, the unequal size of male and female participants jeopardizes generalization of the results.

The findings of the current study include some implications for clinical practices. One of the findings of this study was that there is a significant relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms. As indicated by Dinn and colleagues (1999), childhood traumas might play a role in the emergence and persistence of OCD symptoms. Therefore, examining childhood traumatic experiences, determining the feelings related to these experiences, understanding unmet psychological needs, and cognitively restructuring the inflated beliefs might increase the effectiveness of therapeutic interventions. In addition, negative worldview assumptions and obsessive beliefs might be challenged during psychotherapy sessions together with OCD patients.

There are several limitations to this study. First, since this study included a nonclinical sample, the scores for the frequency of childhood trauma and obsessive-compulsive symptom severity were positively skewed. Thus, the values of these variables did not meet the normality assumption of parametric tests. Grounded on the central limit theorem, we decided to conduct parametric tests, since this study included a high number of participants. Nevertheless, the findings should be evaluated considering this limitation. Second, since the sample included only college students, the findings cannot be generalized to the general population and clinical samples. Third, the data of the study was obtained by self-reports. More comprehensive evaluations might be possible in studies including longitudinal designs or/and structured experimental setups. Forth, it is not possible to make generalizations in terms of gender-related findings, since the number of male participants in the study is lower than that of female participants. Finally, analyses were conducted by calculating the total scores of childhood traumas, worldview assumptions, obsessive beliefs, and obsessive-compulsive symptoms. Future studies should include sub-dimensions of these variables and examine the relationships in more detail.

In conclusion, the findings of this study showed that both worldview assumptions and obsessive beliefs have mediating roles in the relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms. Furthermore, this study revealed that the relationship between the frequency of childhood traumas and the severity of obsessive-compulsive symptoms was mediated by worldview assumptions through obsessive beliefs. Given that there is a limited number of studies examining the relations between worldview assumptions and OCD, the findings of this study will contribute to the existing literature. Future studies should examine the relations of childhood traumas, worldview assumptions, and obsessive beliefs in the development of OCD symptoms in more detailed models.