Original Article

Predicting the severity of obsessive-compulsive syndrome based on perceived parenting style: The mediating role of obsessive beliefs

Naeeme Dorri Mashhadi[1]; *Milad Shirkhani[2]; Mahdieh Mahdavian[3]; Sousan Mahmoudi[3]

[1]Ph.D. student in psychology, Faculty of Educational Science and Psychology, Ferdowsi University of Mashhad, Mashhad, Iran.
[2]M.A. student in clinical psychology, Faculty of Educational Science and Psychology, Ferdowsi University of Mashhad, Mashhad, Iran.
[3]Bachelor of psychology, Faculty of Educational Science and Psychology, Ferdowsi University of Mashhad, Mashhad, Iran.

Abstract

Introduction: Obsessive-Compulsive Disorder (OCD) reduces the quality of life and is the fourth most common psychiatric disorder. Therefore, it is important to investigate the causes of the development and maintenance of this syndrome. The present study aimed to predict the severity of Obsessive-Compulsive Syndrome (OCS) based on perceived parenting style through the mediating role of obsessive beliefs.

Materials and Methods: The present study was descriptive-correlational and path analysis. Among the people who were referred to counseling centers in Mashhad, Iran for the treatment of OCD in 2020-2021, 200 cases were selected by the convenient sampling. Data were collected using the Yale-Brown, Obsessive Beliefs, and Young parenting style scales. Data were analyzed using Pearson correlation, multiple regression, and path analysis.

Results: The findings showed that there was a significant correlation ($P < 0.01$) between the Early Maladaptive Schemas (EMSs) of emotional deprivation, abandonment/instability, defectiveness/shame, and unrelenting standards, and obsessive beliefs with the severity of OCS. In addition, the results of Bootstrap indicate that the mediating role of obsessive beliefs was significant about the mentioned EMSs with the severity of OCS ($\chi 2/df = 1.93$, $P= 0.001$).

Conclusion: Based on the findings, early maladaptive schemas of emotional deprivation, abandonment/ instability, defectiveness/shame, and unrelenting standards can predict the severity of obsessive-compulsive syndrome through the mediating role of obsessive beliefs. Therefore, interventions based on parenting style education to reduce obsessive beliefs can be considered as prevention and treatment programs in obsessive-compulsive disorder patients.

Keywords: Early maladaptive schemas, Obsessive beliefs, Obsessive-compulsive disorder, Parenting

*Corresponding Author:
Department of Psychology, Faculty of Educational Science and Psychology, Ferdowsi University of Mashhad, Mashhad, Iran.
milad.shirkhani@mail.um.ac.ir

Introduction

Obsessive-Compulsive Disorder (OCD) is diagnosed with thoughts, impulses, and tendencies that unintentionally and repetitively disturb the person. Compulsive behaviors are performed in response to these thoughts. OCD is the fourth most prevalent psychiatric disorder with a %1.3- lifetime prevalence (1-3). The most comorbidities are major depressive (%15), social anxiety (%14), and generalized anxiety (%13) (4).

Various factors, including biological and psychological factors, are involved in forming OCD. There are abnormalities in the functioning of the brain's serotonergic and dopaminergic systems in biological origins. There is also an increase in the activity of the cortical-striatal-thalamic-cortical circuit, including the orbitofrontal cortex, caudate, and anterior cingulate gyrus (5-7).

In addition, psychologically, factors such as parenting, family dynamics, early life experiences (8), the formation of Early Maladaptive Schemas (EMSs) (9), and Obsessive Beliefs (OBs) (10) have been considered. EMSs are dysfunctional patterns that include cognitions, emotions, bodily sensations, childhood memories, and mental imagery. These schemas are formed due to traumatic childhood experiences, parenting and temperament, and the child's unmet needs during childhood and adolescence. They are activated in response to situations and direct their behavior (11,12). One of the most important areas for forming early maladaptive schemas is the parenting style (8,13). Recent studies have shown that in people with OCD, EMSs such as Enmeshment/undeveloped self (Em), Abandonment/Instability (Ab), Failure (Fa), Negativity/Pessimism, Vulnerability to Harm or Illness (VH), Emotional Deprivation (ED), Social Isolation/ Alienation (SI), Defectiveness/ Shame (DS), Approval-Seeking/ Recognition Seeking (AS), Insufficient Self-discipline (IS), Self-Sacrifice (SS), punitiveness have higher scores than the control group (14,15). Also, compared with normal people, people with schizophrenia and bipolar disorder had higher scores in all EMSs except Entitlement/Grandiosity (EG), IS, and Mistrust/Abuse (Ma) (16). In 2017, Basil et al. showed that the OCD symptoms severity was significantly associated with SI, Fa, SS, and the schematic mod of the blame parent. Also, SI and punishment, the schematic mod of the repressive parent, and behavioral avoidance coping styles predicted the OCD symptoms severity (17). EMSs of VH, ED, Emotional Inhibition, Unrelenting Standards (US), and Dependence/Incompetence (DI) can explain 50% of the symptoms of OCD (18). Another study found that DS and VH accounted for 38% of the variance in OC symptoms (19).

According to the Obsessive-Compulsive Cognition Working Group (OCCWG), OBs are also necessary to form and maintain obsessions. Obsessive thoughts are interpreted as dangerous, unacceptable, or harmful by people suffering from obsessions (10,20,21). Three levels of OBs are introduced: a) responsibility/threat estimation (extreme responsibility in preventing harm or other negative consequences and overestimation of harm), b) perfectionism/certainty (meeting high standards or expectations with fear of making mistakes and inability to deal with ambiguous situations, c) important/control of thought (the idea that just having a thought implies that it is important, requires special attention, and must be controlled) (22,23). Berman and colleagues showed OBs lead to distortions in OC stimuli, causing persistence or exacerbation of OCD (24). One study found that OCD symptoms in all types except contamination were predicted by OBs (25). An investigation by Manus et al. in 2010 showed that belief in the importance/control of thoughts significantly predicts post-treatment symptoms (26). Another study found that reducing OBs during the first six weeks of treatment improved the symptoms of OCD over time (27). Few studies investigate the concurrent role of EMSs and OBs in OCD formation, persistence, and treatment. Wilhelm et al. found that changes in OBs in perfectionism/certainty, and DI EMSs, significantly improved treatment outcomes (28). The present study aimed to explore how EMSs and OBs relate to the severity of OCD symptoms since both play an important role in the development and persistence of the disorder, along with their predictive value for treatment outcomes.

Materials and Methods

Since the present study seeks to investigate the mediating role of OBs in the relationship between perceived parenting style and anxiety with the severity of OCD, the general design of the present study is descriptive-correlational

path analysis. The statistical population of this study included all Iranian adults aged 18 to 50 years who were referred to counseling centers in Mashhad city for the treatment of OCD in 2020-2021. Among them, based on the type of statistical method used and calculating 25% loss and effect size 0.15 and test power 0.95 through G-power software, 200 people were selected as a sample by a voluntary and available method.

Research instruments

 A) *Demographic Characteristics:* In this section, personal information was collected from individuals, such as their gender, age, level of education, marital status, history of physical and psychological problems, and methods of contacting them.

 B) *Yale-Brown Obsessive Scale:* This scale was developed in 1989 by Goodman et al. It is a 10-item clinical index based on severity, frequency, duration, and patient resistance to the treatment (29). The correlation coefficient of the Yale-Brown Scale with the Revised Obsessive-Compulsive Disorder questionnaire was 0.45, the Brown Beliefs Scale was 0.34, the Beck Depression Inventory was 0.46, the Zong Anxiety Scale was 0.38, and the Sheihan Disability Scale was 0.55 (30). The validity and reliability of the Persian version with Cronbach's alpha are 0.95, and the correlation coefficient for the two halves of the test is 0.89 (31).

 C) *Obsessive Beliefs Scale:* The Obsessive-Compulsive Cognition Working Group (OCCWG) developed this scale in 2001 to examine the pathogenesis dimensions in the area of cognition of patients with OCD. The scale consists of 44 items and is rated as a 7-point Likert scale from "strongly agree" to "strongly disagree". This scale of three components of thoughts includes responsibility/threat estimation, perfectionism/certainty, important/control of thought (32). According to OCCWG studies conducted in 2003 and 2005, this scale exhibited internal stability (Cronbach's alpha= 0.80) and reliability and confirmation of all three components of OBs (23,33). Validity and reliability of Persian version, Cronbach's alpha for the whole test is 0.92, for the subscale of responsibility/threat estimation is 0.85, for the subscale of perfectionism/certainty is 0.85 and for the subscale of important/control of thought was 0.82. Also, the reliability

coefficient of the test-retest method in a period of 5 to 14 days for the whole questionnaire is 0.82 and for the subscale of responsibility/threat estimation 0.87, for the subscale of perfectionism/certainty is 0.79 and for the subscale of important/control of thought was 0.82. In addition, the convergent validity of this questionnaire was 0.57. To evaluate the validity of the questionnaire by internal consistency method, exploratory factor analysis was used, and the existence of three factors mentioned for the questionnaire was confirmed (34).

 D) *Young Parenting Style Questionnaire:* This scale was developed in 1994 to identify the evolutionary roots of EMSs. This scale contains 72 items, and the subject is asked to describe his/her parents separately based on how they treated him/her on a 6-point Likert scale. All questions given to each parent on a grade of 5 or 6 are identified; because it is assumed that scores of 5 or 6 can most likely be clinically considered the cutting point of the evolutionary roots of a particular schema (11). After factor analysis, the psychometric properties of this questionnaire showed Cronbach's alpha from 0.70 to 0.91. The re-test results also indicate the high reliability and acceptable structure of this tool (35). In Iran, Salavati et al. in 2010 translated the main form of this questionnaire and performed it on 60 students using the two halving methods. The validity coefficient was 0.69 for the mother form and 0.80 for the father form. Also, in 2013, Monajem et al. showed the psychometric properties of this scale after factor analysis as follows: Cronbach's alpha is 0.91. The re-test results also showed high validity, and the validity of the structure is acceptable (36).

  Research data were collected from all interested adults and volunteered to participate in the study. The inclusion criteria included having a minimum high school education, diagnosis of OCD, and willingness to participate in the study. The exclusion criteria included dissatisfaction with cooperation and incomplete questionnaires. All participants filled out the informed consent form. An average of 10 to 15 minutes was required to complete the questionnaires for this study. Descriptive statistical methods including mean, frequency, and standard deviation, lowest and highest scores, Pearson correlation were used to analyze the research data, and

path analysis was used. Data were analyzed using SPSS software version 26 and AMOS version 24. To maintain the principle of confidentiality, the information obtained from the questionnaires was collected without the subjects' names and addresses to preserve the subjects' identity. Gaining the trust and confidence of the subjects to participate in the research and being free to answer the questionnaires were among the other considerations that were tried to be observed in this study.

Results

Among 206 samples in this study, 77 were male (37.4%), and 129 were female (62.6%). The age mean and standard deviation were 26.07 and 6.98, respectively. Among these participants, 18.4% had a diploma, 43.2% had a post-diploma, 27.7% had a bachelor's degree, and 10.7% had a master's degree or higher. In addition, 155 (75.2%) were single, and 51 (24.8%) were married. The correlation coefficient matrix of the research variables is presented in Table 1.

Table 1. Correlation matrix of variables of EMs, OBs and OCD severity

Variables	Responsibility/ Threat Estimation	Perfectionism/ Certainty	Importance/Control of thoughts	OCD severity
1. Emotional deprivation	0.213**	0.16*	0.139*	0.288**
2. Abandonment/ Instability	0.298**	0.475**	0.398**	0.448**
3. Mistrust/ Abuse	0.215**	0.344**	0.30**	0.332**
4. Vulnerability to harm or illness	0.04	0.04	0.05	0.176**
5. Dependence/ Incompetence	0.336**	0.427**	0.351**	0.354**
6. Defectiveness/ Shame	0.323**	0.423**	0.384**	0.464**
7. Failure	0.262**	0.43**	0.322**	0.40**
8. Obedience	0.255**	0.393**	0.358**	0.323**
9. Self-sacrifice	0.06	0.023	0.075	0.02
10. Unrelenting standards	0.301**	0.437**	0.391**	0.36**
11. Entitlement/ Grandiosity	0.26**	0.368**	0.345**	0.322**
12. Insufficient self-discipline	0.046	0.118	0.053	0.106
13. Enmeshment/ Undeveloped self	0.137*	0.156*	0.212**	0.08
14. Negativity/ Pessimism	0.258**	0.377**	0.323**	0.327**
15. Emotional inhibition	0.055	0.20**	0.126	0.126
16. Punitiveness	0.269**	0.335**	0.347**	0.282**
17. Approval seeking/ Recognition seeking	0.14*	0.133	0.084	0.026

$**P< 0.01$, $*P< 0.05$

As Table 1 shows, there is a positive and significant correlation between perceived parenting styles and obsessive beliefs with the severity of obsessive-compulsive symptoms ($P< 0.01$). Likewise, there is also a positive and significant correlation between OBs and perceived parenting styles ($P< 0.01$). Before analyzing the data, the assumptions of structural equations were first evaluated. The normality of the univariate distribution was examined through the values of skewness and elongation and the assumption of multiple alignments of the variables using the tolerance statistic and the variance inflation factor. One of the variables is not outside the 2% limit. The distance of Mahalanobis to study the normal distribution of multivariate also indicated the normality of the data distribution (Table 2). Therefore, structural equation modeling was used. Figure 1 shows the final model, and Table 3 shows the fit indices of the final model in the sample.

Table 2. Descriptive indicators and structural equation modeling assumptions about EMSs, OBs, and OCD severity

| Variables	Mean	Standard deviation	Skewness	Kurtosis	Tolerance rate	Inflation variance factor	Durbin-Watson
Emotional deprivation	40.48	14.58	-0.54	-0.88	0.52	1.88	1.43
Abandonment/ Instability	13.64	6.06	1.21	1.03	0.42	2.34	
Mistrust/ Abuse	10.11	3.04	1.28	0.27	0.42	2.33	
Vulnerability to harm or illness	29.44	9.61	-0.43	-0.45	0.47	2.08	
Dependence/ Incompetence	18.20	7.89	0.47	-0.49	0.28	2.57	
Defectiveness/ Shame	18.09	10.23	1.12	0.19	0.21	2.58	
Failure	15.47	7.94	1.42	1.79	0.24	2.05	
Obedience	19.68	10.85	1.03	0.24	0.17	2.68	
Self-sacrifice	18.43	5.19	-0.17	-1.13	0.69	1.43	
Unrelenting standards	46.12	14.06	0.059	-0.63	0.31	2.19	
Entitlement/ Grandiosity	21.52	6.96	0.44	0.36	0.35	2.83	
Insufficient self-discipline	18.98	5.82	0.31	-0.75	0.53	1.88	
Enmeshment/ Undeveloped self	23.22	7.65	0.11	-0.65	0.60	1.65	
Negativity/ Pessimism	24.40	9.21	0.39	-0.51	0.31	2.13	
Emotional inhibition	31	7.29	-0.04	0.06	0.58	2.71	
Punitiveness	22.42	10.28	0.81	-0.19	0.29	2.43	
Approval seeking/ Recognition seeking	27.87	9.41	0.21	-0.73	0.46	2.14	
Responsibility/ Threat Estimation	70.09	17.99	0.09	-0.32	0.42	2.36	
Perfectionism/ Certainty	77.80	16.78	0.09	-0.54	0.34	2.92	
Importance/ Control of thoughts	48.06	14.96	0.46	-0.39	0.42	2.35	
OCD severity	18.04	6.20	0.66	-0.73	Criterion variable	Criterion variable	Criterion variable
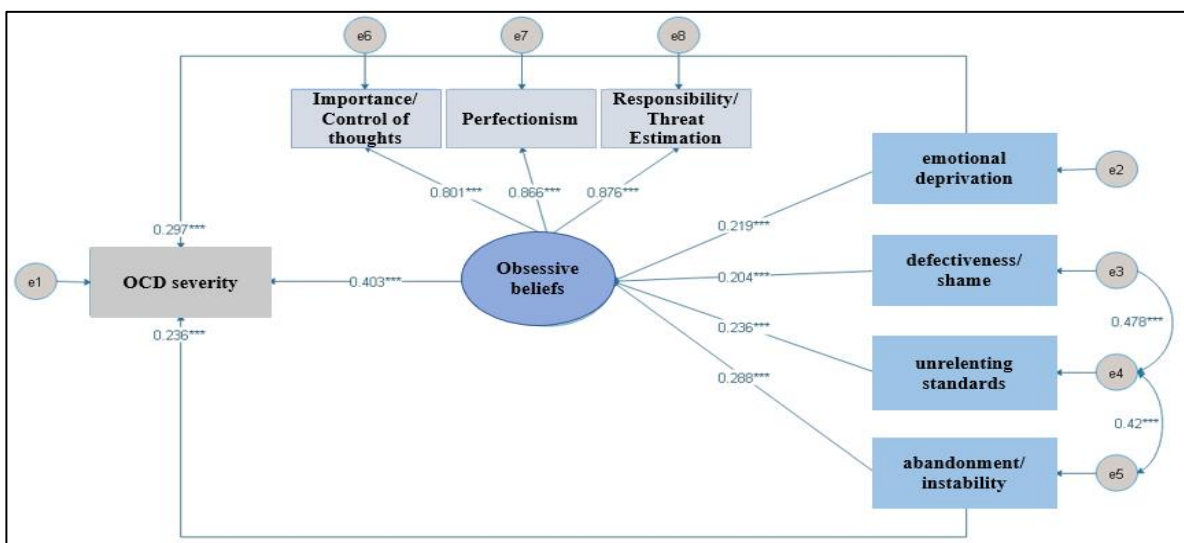
Figure 1. The final model (all paths are significant at the level of less than 0.001).

Table 3. Fitness indicators of the final model

Fit indices	χ^2	df	χ^2/df	RMSEA	GFI	AGFI	IFI	TLI	CFI	NFI
Acceptable fit			$3\geq$	≤0.08	≥0.9	≥0.9	≥0.9	≥0.9	≥0.9	≥0.9
Model estimation value	27.12^{**}	14	1.93	0.06	0.96	0.92	0.98	0.95	0.97	0.95

Table 3 shows that the fit indices of the final model include the chi-square square index (χ^2= 27.27), the relative chi-square square index (χ^2/df= 1.93), and the Fit-Goodness Index (GFI= 0.96), Adaptive Fit Goodness Index (AGFI= 0.92), Comparative Fit Index (CFI= 0.97), Increase Fit Index (IFI= 0.98), Tucker-Lewis Fit Index (TLI= 0.95) and the Root Mean Square Error of Approximation (RMSEA= 0.06) indicates the optimal fit of the final model. Therefore, the model in Figure 1 has a good fit. To determine whether OBs are involved in the relationship between perceived parenting styles and OCD, the Bootstrap method with 2000 sampling was used to determine the indirect effects. Tables 4 and 5 present the direct and mediating effects of each model path.

Table 4. Parameters for measuring the direct relationships of EMSs, OBs, and OCD severity

Paths	Non-standard estimate	Standard estimate	Standard error	t-statistics	P
Emotional deprivation to obsessive beliefs	0.18	0.219	0.051	3.50	0.001
Abandonment/ instability to obsessive beliefs	0.57	0.288	0.159	3.58	0.001
Defectiveness/ shame to obsessive beliefs	0.239	0.204	0.097	2.45	0.001
Unrelenting standards to obsessive beliefs	0.201	0.236	0.061	3.30	0.001
Obsessive beliefs to OCD severity	0.208	0.403	0.038	5.53	0.001
Emotional deprivation to OCD severity	0.18	0.297	0.039	4.64	0.001
Defectiveness/ shame to OCD severity	0.10	0.236	0.024	4.19	0.001

As shown in Table 4, the standard coefficient of the paths is significant. To estimate and determine the significance of the indirect path, Bootstrap was used in Amos software. The results are presented in Table 5.

Table 5. Bootstrap results for testing indirect relationships of EMSs, OBs, and OCD severity

Paths		Estimate	Standard Error	Lower	Upper	P
Emotional deprivation → Obsessive beliefs → OCD severity	→ →	0.088	0.041	0.022	0.184	0.001
Abandonment/ Instability → Obsessive beliefs → OCD severity	→ →	0.116	0.052	0.034	0.237	0.001
Defectiveness/ Shame → Obsessive beliefs → OCD severity	→ →	0.082	0.045	0.008	0.184	0.02
Unrelenting standards → Obsessive beliefs → OCD severity	→ →	0.095	0.039	0.034	0.192	0.001

As shown in Table 5, the path of "ED to OCD severity" is mediated by OBs (β= 0.08; $P<$ 0.001), and the lower limit of the confidence interval is 0.022, and the upper limit is 0.184. This mediator relationship is significant because zero is outside these confidence intervals. The path of "Ab to OCD severity" is mediated by OBs (β= 0.116; $P<$ 0.001), and the lower limit of the confidence interval is 0.034, and the upper limit is 0.237. This mediator relationship is significant because zero is outside these confidence intervals. Finally, the path of "DS to OCD severity" is mediated by OBs (β= 0.0282; $P<$ 0.05), and

the lower limit of the confidence interval is 0.008, and the upper limit is 0.184. This mediator relationship is significant because zero is outside these confidence intervals. The path of "US to OCD severity" is mediated by OBs (β= 0.095; *P*< 0.001), and the lower limit of the confidence interval is 0.034, and the upper limit is 0.192. This mediator relationship is significant because zero is outside these confidence intervals.

Discussion

This study aimed to determine the mediating role of OBs in the relationship between perceived parenting style and the severity of OCD. As the results show, this model has a good fit. In this study, the relationship between ED, Ab, DS, and US EMSs with OBs; EMSs of ED, Ab, DS, and US EMSs with the severity of OCS; and OBs were significant with the intensity of OCS. In addition, EMSs of ED, Ab, DS, and US and OBs were able to predict OCS severity directly. Also, the results of Bootstrap showed that the indirect effect of the EMSs of ED, Ab, DS, and US EMSs on the severity of OCS was significant through the mediating role of OBs.

Shariatzadeh in a study on 52 people found that EMSs of VH, ED, EI, US, and DI are associated with 50% of OCD symptoms (18). This finding is consistent with the present study results that ED and US are significant predictors of the severity of OCD symptoms. Moreover, this study is consistent with Yousefi et al. study on 151 individuals with OCD, anxiety disorder, and the control group. DS and VH explained 38% of the variance of symptoms (19).

Basile et al. studied 34 OCD cases to examine EMSs, schematic mods, and coping styles. They found that the severity of the OCD symptoms was significantly related to the EMSs of SI, Fa, SS, and punishment, and the schematic mod of the blame parent. Also, EMSs of SI and punishment, blaming parents, and coping behavioral avoidance styles predicted the severity of OCD symptoms (17), which is inconsistent with the present findings. The discrepancy in results is likely due to the difference in sample sizes in two studies and the different questionnaires used in measuring incompatible EMSs.

Also, the direct effect of OBs on the severity of OCS in a study of 60 people with OCD showed that OBs lead to the continuation or exacerbation of OCS (24). Furthermore, a study by Helberg et al. in 2019 on 42 people with OCD showed that OBs predict all types of OCD symptoms except contamination (25).

Also, Manus et al. reported that OBs in the importance/control of thoughts were a significant predictor of the severity of symptoms after treatment (26).

Wilhelm et al. studied the mechanism of change in the treatment of 36 OCD patients. They examined the effects of OBs and EMSs simultaneously. Although the purpose of this study is not the same as Wilhelm's, since the research idea was derived from it, it is worth mentioning that this study showed that changes in OBs of perfectionism and DI EMSs significantly improved treatment outcomes (28). Furthermore, the present study results showed that EMSs of ED, Ab, DS, and the US on OBs are significant.

An important finding of the current research indicated that OBs moderate the relationship between perceived parenting style and the degree of OCS.

Both prevention and treatment of attention can benefit from this finding. This finding suggests that EMSs can worsen symptoms of OCD and that a comprehensive therapeutic approach is needed to simultaneously tackle symptoms, beliefs, and schemas. In treating the resistant OCD cases, this finding can be beneficial.

Since OCD develops in families and the formation of EMSs is related to early life experiences and meeting the child's basic needs, it appears that effective parenting education prevents the development of EMSs and, consequently, OBs in children.

The present study has some limitations. The study was limited by the epidemy of the COVID-19 virus and the absence of most activities that forced researchers to conduct electronic and in-person questionnaires, so people without Internet access were omitted. The use of self-reporting tools is another limitation as such tools raise concerns about the accuracy and honesty of responses.

While the present study highlights the significant relationship between EMSs and OBs and an interactive role between the two variables in predicting the severity of OCS, further research is needed to uncover more underlying factors.

Conclusion

The present study predicts the severity of obsessive-compulsive syndrome by showing the mediating role of obsessive beliefs in the effect of early maladaptive schemas resulting from parenting style. Therefore, it would be considered a prevention and treatment program if interventions were aimed at reducing obsessive beliefs in individuals since prevention programs are based on parenting styles to reduce obsessive beliefs.

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