The Relationship between Child Abuse and Cognitive Distortions with Clinical Symptoms of Obsessive-Compulsive Disorder: The Mediating Role of Emotion Dysregulation

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Abstract

Introduction: The present study has aimed to investigate the relationship between child abuse and cognitive distortion with clinical symptoms of obsessive-compulsive disorder moderated with emotion dysregulation.

Method: This study made use of descriptive correlational research design. Structural equation modeling was used to explore the relationships between variables. The statistical population included all students of Urmia University in April 2019 (N=17000). The sample included 201 students who were selected by multi-stage cluster sampling. In this study, the Obsessive-Compulsive Inventory-Revised (OCI-R) (2002), the Child Abuse Scale (CAS) (1392), the Cognitive Distortions Scale (CDS) (1389) and Difficulty in Emotion Regulation Scale (DERS) (2004) were used to collect data. In order to analyze the data, descriptive and inferential statistics and used SPSS-21 and AMOS software were used.

Results: Pearson correlation coefficient and structural equations modeling showed that the structural model has a good fit with data. In this research, the direct effect of child abuse on emotion dysregulation (β=0/46, P=0/002), child abuse on clinical symptoms of Obsessive-Compulsive Disorder (OCD) (β=0/43, P=0/003), cognitive distortions on emotion dysregulation (β=0/57, P=0/001), and cognitive distortions on clinical symptoms of OCD (β=0/51, P=0/001) were approved. The bootstrap test results showed significant indirect effects of child abuse and cognitive distortion on clinical symptoms of OCD which operate via emotion dysregulation.

Conclusion: It seems that emotion dysregulation has a mediating role in the incidence of OCD. As a result, it is recommended to attend to OCD patient's emotion dysregulation problems and educate them on the adaptive skills of emotion regulation.

Keywords: Child Abuse, Cognition Disorders, Emotion Regulation, Obsessive-Compulsive Disorder

Introduction

The OCD is a serious mental illness [1], characterized by recurrent obsessions, compulsions, or both [2]. Obsessions are repetitive and intrusive thoughts, images, or urges that a person tries to ignore or neutralize by another thought or action. Compulsions are also repetitive thoughts or actions that are conducted in response to an obsession in order to reduce stress [3]. Obsessions have four main patterns: infection, forbidden or taboo thoughts, scrutiny, and symmetry. Compulsions not only include mostly observable behaviors (such as hand washing) but also include obscure mental rituals (such as counting) [4]. Actually, OCD has moved from anxiety disorders classification to the classification of disorders that emphasize repetitive behaviors and repetitive mental activity [5]. It is the fourth most common psychiatric illness [6]. The prevalence in Iran is estimated as high as 43.3% [7]. It can also disrupt the affected person's functioning in different aspects of life.
Numerous factors such as experiences of child abuse can be involved in the causality of this

mental disorder [8]. The World Health Organization (WHO) [9] defines child abuse as any form of physical abuse, emotional abuse, rape, child neglect, and child exploitation that can lead to overt or covert harm to health, growth, development, or child's sense of worth [10]. The phenomenon of child abuse can be divided into four types: neglect, physical abuse, sexual abuse, and emotional abuse [11]. Different studies have shown a relationship between the experience of child abuse and suffering from OCD in adulthood [12, 13]. According to Khosravani et al. [14], facing child abuse can lead to mental disorders such as OCD in adulthood.

Cognitive distortion is another variable that can contribute to the causality of OCD [15]. Cognitive distortions refer to internal narratives that indicate a biased interpretation of an event [16]. Beck (1976) defines cognitive distortions as unrealistic, inflexible, and extreme interpretations of information [17]. For the first time Beck et al. [18] identified and explained some important cognitive distortions, but then Burns [19] expanded their list and identified 10 common cognitive distortions, including mind-reading, catastrophizing, thinking all or nothing, emotional reasoning, labeling, mental filtering, overgeneralization, personalization, should statements, and disqualifying the positive. It seems that based on an individual's core beliefs and also in different situations, the frequency of cognitive distortions varies [20]. Different studies have demonstrated the relationship between cognitive distortions and OCD [21, 22]. A previous study found that Obsessive-Compulsive (OC) patients with higher levels of obsessive beliefs, mostly suffer from cognitive distortions [23]. Moore et al. [24] in another study found that catastrophizing which is one of the cognitive distortions, can lead to generating mental disorders such as OCD.

As mentioned above, OCD is associated with child abuse and cognitive distortions, but this relationship is likely to be influenced by emotion dysregulation problems as mediating variables [25]. Emotion regulation refers to the processes of controlling, evaluating, and managing emotional experiences that can be conscious or unconscious [26]. There are different approaches to emotion regulation, one of them is the Gross approach. Gross [27] proposed an emotion regulation process model. In Gross's emotion regulation process model, emotions can be moderated in five different stages, including situation selection, situation modification, attentional deployment, cognitive reappraisal (cognitive change), and response modulation [27]. According to Gross and Thompson [28], each stage of the emotion production process has a potential regulatory goal, and emotion regulation skills can be applied to different parts of the process. In everyday life, people always use a systematic strategy to moderate either the type of their emotional experiences or the emotion evoking event [29], in which some people are totally able to regulate their emotions and some others have difficulty in carrying out this process. Emotion dysregulation, by itself, can cause the development of mental disorders [30]. People who are affected by OCD are among those who have difficulty in

regulating their emotions [31]. A previous study revealed that there is a relationship between OCD and emotion dysregulation [32]. Other studies on emotion regulation have revealed that there is a relationship between emotion dysregulation and child abuse [33]. According to John et al. [34], the experience of child abuse has a significant relationship with emotion dysregulation. Also, previous research revealed that there is a relationship between emotion dysregulation and cognitive distortions [35]. In a meta-analytic study, Lima et al. [36] concluded that there is a relationship between cognitive distortions and the expression and regulation of emotions. In another study, Oatley and Johnson-Laird [37] showed that cognitive approaches offer clear links between how emotions are thought about in everyday life and how they are investigated psychologically.

It should be noted that although a number of risk factors for the emergence of OCD have been identified in recent years, it is necessary to obtain a comprehensive view of the emergence and development of this disorder by using complex interactive models. Given the above, the present study is able to create new theoretical horizons in the explanations of etiology and pathology OCD. Also, determining the basic components of this disorder and how they interact with each other can provide constructive suggestions for its prevention and treatment. Therefore, in this study, besides identifying the factors, the weight of how these factors relate to each other has been investigated in the framework of an explanatory model. According to what was mentioned, this study aimed at investigating the mediating role of emotion dysregulation in the relationship between child abuse and cognitive distortions with clinical symptoms of OCD within an interactive model.

Method

This study adopted correlational research design. Structural Equation Modeling (SEM) was used for analyzing the relationship among the proposed model's variables. The statistical population included all students of Urmia University (N= 17,300) in the time interval between April to May of the academic year of 2019. Subjects were recruited by the multi-stage cluster sampling method. Among all faculties of the Urmia University, the faculties of literature and humanities, economics and management, engineering, science, agriculture, and veterinary medicine were randomly selected. At the next stage, one class of undergraduate students and one class of graduate students were randomly selected from each faculty. Given that Cloninger's formula for estimating the sample size [38] suggests that to study a structural model of each component, a minimum of five and a maximum of 15 subjects should be assigned to study. Since there were 25 components in the present study, approximately 10 subjects were considered for each component and the sample was considered to be 250 people at first. After removing the outliers and distorted questionnaires, the final sample reached approximately eight subjects per each component and 201 people. In the present study

among the 201 participants, 56.7% were female and 43.3% were male. Therefore, most of the participants in the present study were women. The results also showed that 41.25% of participants aged between 21-22 years and the lowest part of participants (9.44%) aged between 24-25 and over 25 years. In addition, 201 participants included 72.1% undergraduate and 27.9% graduate students. Therefore, most of the students in the present study were undergraduate students. Furthermore, among the 201 participants 90% were single and 10% were married. The inclusion and selection criterion included being a student, studying for a bachelor's or master's degree, and being chosen from selected faculties of cluster sampling. The criteria for exclusion of samples was the distortion of the questionnaires.

The tools used in this study were as follows:

Obsessive-Compulsive Inventory-Revised (OCI-R): Obsessive-Compulsive Inventory was developed in 2002 by Foa et al. This self-assessment questionnaire has 18 items that assess OCD symptoms. The revised version of the questionnaire incorporates six subscales including washing (5-17-17), checking (2-8-4), ordering (3-9-15), obsession (6-12-18), hoarding (1-7-13), and mental neutralization (4-10-16), each of which has three items equally. The items are scored on a 5-point scale from 0=never to 4=always. This questionnaire does not have a reverse scoring. The retest reliability of this questionnaire was reported by the constructors as 0.82 [39]. Foa et al. [39] reported the convergence validity of this questionnaire with the original version of the OCI questionnaire as 0.98 and its differential validity with the Hamilton Depression Scale as 0.58. The Persian version of this questionnaire was validated in Iran by Mohammadi et al. [40] on the student population. They had calculated internal consistency for the overall scale 0.85, the checking subscale 0.66, the ordering subscale 0.69, the obsession subscale 0.72, the washing subscale 0.69, the hoarding subscale 0.63, and the neutralization subscale 0.50. The Cronbach alpha recorded in the current study was 0.75, which indicates the desirability of the validity coefficient of the measurement tool.

Child Abuse Scale (CAS): The standard child abuse questionnaire has been developed by Hossein Khani et al. [41]. This scale has 26 items and three subscales including emotional abuse (1-2-3-4-5-6-7-8-9-10), physical abuse (11-12-13-14-15-16-17 -18-19-20), and neglect (21-22-23-24-25-26). The items are scored on a 3-point Likert scale from 1=never to 3=forever. Questions 21-22-24-25-26 are also scored in reverse. In the research of Hossein Khani et al. [28], the reliability of this questionnaire was obtained from Cronbach's alpha method above 0.70. The Cronbach alpha recorded in the current study was 0.72, which indicates the desirability of the validity coefficient of the measurement tool.

Cognitive Distortion Scale (CDS): The cognitive distortion scale was developed by Abdullah Zadeh and Salar [42] with 20 questions, each of which were scored on a 5-point scale from 1=strongly agree to 5=strongly disagree. This scale measures the cognitive distortions based on Albert Ellis's theory, and every irrational thought

is measured by two items. Thus subscales are measured according to the following: all or none thinking (questions 1 and 2), overgeneralization (questions 3 and 4), filtering (questions 5 and 6), disqualifying the positive (questions 7 and 8), jumping to a conclusion (questions 9 and 10), magnification and minimization (questions 11 and 14), emotional reasoning (questions 12 and 13), should statements (questions 15 and 16), labeling (questions 17 and 18) and personalization (questions 19 and 20). Scoring is such that the higher the sum of the scores, the more positive thinking is indicated, although question one is scored in reverse. Cronbach's alpha coefficient obtained from the research of Abdullah Zadeh and Salar [42] was 0.80. The Cronbach alpha recorded in the current study was 0.70, which indicates the desirability of the validity coefficient of the measurement tool.

Difficulty in Emotion Regulation Scale (DERS): The Difficulty in Emotion Regulation Scale developed by Gratz and Roemer in 2004 is a 36-item self-report tool. This scale consists of six subscales, which are: non-acceptance of negative emotions (11-12-21-23-25-29), difficulties engaging in goal-directed behaviors (13-18-20-26-33), difficulties controlling impulsive behaviors (3-14-19-24-27-32), limited access to effective emotion regulation strategies (15-16-22-28-30-31-35-36), lack of emotional awareness (2-6-2) 8-10-17-34) and lack of emotional clarity (1-4-5-7-9) [43]. The items are scored on a 5-point Likert scale, and higher scores indicate more difficulties in regulating emotion. Questions 1-2-6-7-8-10-17-20-22-24-34 are also scored in reverse. Gratz and Roemer [44] showed excellent internal consistency (0.93), good retest reliability (0.88), and favorable convergent validity (p< 0.043, r = 0.26, n = 57). The psychometric properties of the Persian version of this scale have been studied and confirmed in clinical and non-clinical samples [45]. The Cronbach alpha recorded in the current study was 0.69, which indicates the desirability of the validity coefficient of the measurement tool.

After determining the population and statistical sample, a letter of introduction was issued to take a license for the implementation of questionnaires in the Urmia University and the letter was approved by the Dean of the Faculty of literature and humanities and the head of Security of Urmia University. Then, among the faculties of Urmia University, six faculties were randomly selected and all students of one graduate and one undergraduate class of each faculty fully participated in this study. After explaining the purpose of the research for the students and reassuring students about the confidentiality of information, questionnaires were handed out to all the students in the selected classes and after completion of questionnaires by students and removing the distorted questionnaires, Pearson correlation coefficient test and path analysis methods were used to analyze the data. Data were analyzed using SPSS-21 and AMOS software.

Concerning ethical standards, the participants were informed that their participation is voluntary and their identity and responses would remain confidential.

Results

The mean, standard deviation, and correlation coefficients between the research variables have been presented in Table 1.

Table 1 shows that the mean and standard deviation of OCD in the studied sample is 25.52 (11.91). Also, the mean and standard deviation of child abuse is 33.59 (7.36). There is a positive and significant relationship between OCD and child abuse (R = 0.39). In the studied sample, the mean and standard deviation of cognitive distortion is 53.34 (13.39). There is positive and significant relationship between OCD and cognitive distortion (R = 0.55), and between child abuse and cognitive distortions (R = 0.53). Also in the studied sample, the mean and standard deviation of emotion dysregulation was 93.76 (25.48). There are positive and significant relationships between OCD and emotion dysregulation (R = 0.59), between child abuse and emotion dysregulation (R = 0.46), and also between cognitive distortion and emotion dysregulation (R = 0.72).

Due to the need to modify the model, the two modifications of correlating the path of variables and the path of errors were selected and correlated by using the proposed options of AMOS software. After applying the modifications, the model was retested. As shown in Table 2, the final model fits the data well (CMIN/DF = 3.28, GFI = 0.90, AGFI = 0.83, IFI = 0.92, TLI = 0.93, CFI= 0.94, PNFI = 0.65, RMSEA = 0.081). Standardized coefficients for studied variables is demonstrated in Figure 1. Results showed that child abuse predicted emotion dysregulation (β = 0.46). People who reported higher levels of cognitive distortions demonstrated more emotion dysregulation (β = 0.57). It is also shown that the emotion dysregulation predicts clinical symptoms of OCD (β = 0.59). Results showed that people who had experienced child abuse demonstrated more symptoms of OCD (β = 0.43), as well as people who reported higher levels of cognitive distortions demonstrated more symptoms of OCD (β = 0.51). It is also revealed that child abuse can predict the emersion of more cognitive distortions (β = 0.53).

Table 1. The Correlation Matrix, Mean and Standard Deviation of Research Variables

Variables	Mean	SD	1	2	3	4
OCD	25.52	11.91	1			
Washing	3.76	2.87	0.70**			
Checking	4.19	2.73	0.76**			
Ordering	5.93	2.59	0.68**			
Obsession	5.03	3.21	0.73**			
Hoarding	3.89	2.55	0.64**			
Mental neutralization	2.70	2.49	0.73**			
Child abuse	33.59	7.36	0.39**	1		
Emotional abuse	13.95	3.51	0.45**	0.89**		
Physical abuse	12.19	2.59	0.31**	0.89**		
Neglect	7.44	2.17	0.19**	0.74**		
Cognitive distortions	53.34	13.39	0.55**	0.51**	1	
All or none thinking	5.07	1.70	0.39**	0.37**	0.69**	
Overgeneralization	5.74	1.87	0.44**	0.36**	0.70**	
Filtering	4.85	1.87	0.47**	0.34**	0.63**	
Disqualifying the positive	4.96	1.93	0.37**	0.43**	0.74**	
Jumping to a conclusion	5.50	1.84	0.35**	0.32**	0.72**	
Magnification and minimization	5.55	1.91	0.26**	0.26**	0.60**	
Emotional reasoning	5.18	1.90	0.36**	0.39**	0.74**	
Should statements	6.48	1.91	0.43**	0.34**	0.66**	
Labeling	4.70	2.18	0.41**	0.46**	0.79**	
Personalization	5.27	1.97	0.42**	0.28**	0.71**	
Emotion dysregulation	93.76	25.48	0.59**	0.46**	0.72**	1
Non-acceptance of negative emotions	14.97	5.47	0.46**	0.40**	0.61**	0.83**
Difficulties engaging in goal-directed behaviors	14.55	4.83	0.53**	0.28**	0.50**	0.76**
Difficulties controlling impulsive behaviors	15.68	5.70	0.59**	0.41**	0.59**	0.87**
Lack of emotional awareness	16.01	4.64	0.14**	0.27**	0.41**	0.50**
Limited access to effective emotion regulation strategies	21.29	7.67	0.56**	0.36**	0.60**	0.87**
Lack of emotional clarity	11.22	4.59	0.36	0.44**	0.60**	0.72**

**P<0.01 *P<0.05

Table 2: Comparison of Fitness Indicators of the Proposed and Modified Model

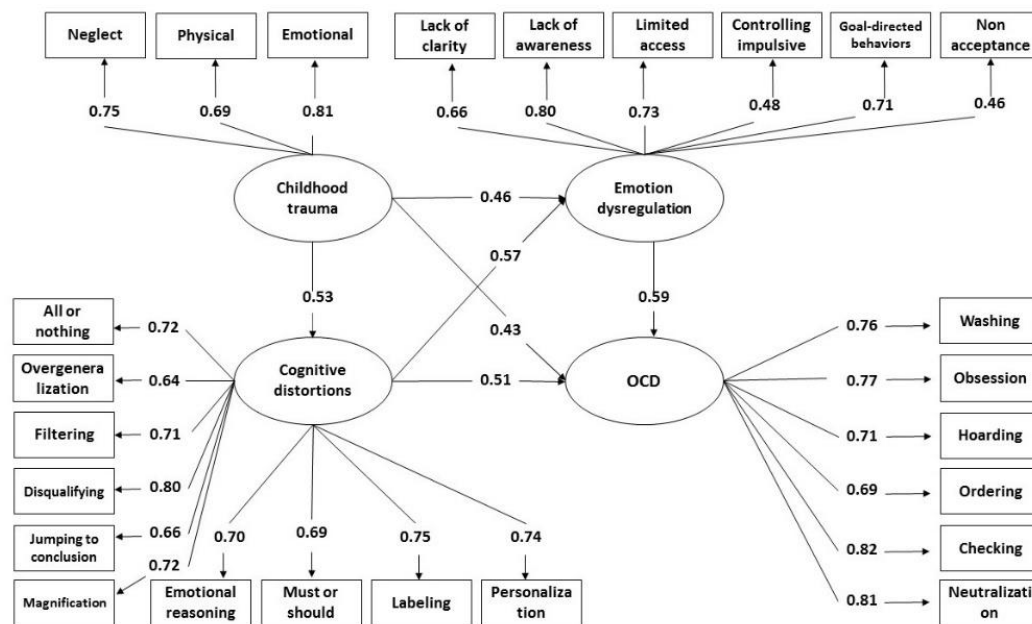| Goodness fit indexes	CMIN/DF	GFI	AGFI	IFI	TLI	CFI	PNFI	RMSEA
Acceptable values	1-5	>0.90	0.80	>0.90	>0.90	>0.90	>0.50	>0.08
Initial proposed model	2.89	0.87	0.81	0.89	0.88	0.89	0.59	0.075
Fit status	Fit	Lack of fit	Fit	Lack of fit	Lack of fit	Lack of fit	Fit	Lack of fit
Final modified model	3.28	0.90	0.83	0.92	0.93	0.94	0.65	0.081
Fit status	Fit	Fit	Fit	Fit	Fit	Fit	Fit	Fit

Figure 1. Final model of research variables

For the purpose of analyzing the indirect effects of child abuse and cognitive distortion on clinical symptoms of OCD which operate via emotion dysregulation, the bootstrap test of AMOS software was used. The results showed that the lower and upper limits of indirect effects of child abuse on clinical symptoms of OCD which operate via emotion dysregulation are 0.009 and 0.122, and the lower and upper limits of indirect effects of cognitive distortion on clinical symptoms of OCD which operate via emotion dysregulation are 0.018 and 0.135 with the confidence interval of 0.95. So the results showed that the lower and upper limits of indirect effects are not zero, indicating the significance of these indirect effects.

Discussion

This study explored the mediating role of emotion dysregulation in the association between child abuse and cognitive distortions with symptoms of OCD. After determining the instruments and evaluating their validity and reliability, the study elaborated on the data collection procedure, model fitting, and the structural relationships among the variables. The research hypotheses were confirmed as a result of the analysis.

According to the obtained results, there is a relationship between OCD and child abuse. The results of this study were in line with the findings of previous studies [12, 13, 14]. Some studies have shown that there is a relationship between the experience of child abuse and the onset of symptoms of OCD in adulthood [12].

Studies have shown that experiences of childhood abuse are powerful predictors of serious behavioral and psychosocial consequences, including OCD [13]. Thus, it can be suggested that exposure to child abuse has a positive and direct relationship with the incidence of OCD in adulthood. Adulthood is inevitably affected by experiences of child abuse, which are detrimental to mental health. These events lead to the formation of maladaptive schemas with which the person is constantly involved in adulthood. The schemas show accurate

representations of the childhood environment. These schemas activation can impress a person's cognition and behavior and increase the likelihood of developing psychological disorders like OCD [46]. Object relationship theorists also assume that the child's mind is formed through early experiences with caregivers and becomes more complex as child grows. In psychodynamic theories, object relationships are fundamental structures that play a key role in explaining health, various pathological patterns, and even personality structures. In summarizing the definitions, object relationships can be the individual representations of oneself and others and the emotions associated with these representations [47]. Whereas these representations can fix a set of predetermined expectations about the feedback and behavior of others, the existence of representations which represent consistent objects in the past is effective in forming a sense of security and protection against the threat and can lead to mental health. On the other hand, the disturbances of object relationships shake the foundations of personal security and lead to increased vulnerability to mental disorders such as OCD [48].

The results of the present study showed that there is a positive and significant relationship between OCD and cognitive distortions. This result is consistent with the findings of several studies [21-23]. Yazdi Ravandi et al. [21] obtained that the cognitive performance of people with OCD is much worse than healthy people [49].

In fact, cognitive distortions are negative thinking biases that make people vulnerable to mental disorders [50]. Beck's (1976) cognitive model of emotional disorders also well illustrates that dysfunctional cognitions and cognitive distortions lead to mental disorders [17]. Glatley and Beck [22] have shown that catastrophizing plays an undeniable role in the persistence of psychiatric disorders like specific phobia and OCD. Julien et al. [51] have also shown that the main themes of cognitive errors in OCD are risk vulnerability, catastrophizing, and must or should statements. Since inflexible and extreme thoughts are

some of the main risk factors for OCD and at the same time some of the main causes of cognitive distortions, it can be said that cognitive distortions have a positive and direct relationship with OCD.

This study showed that there is a relationship between emotion dysregulation and o OCD, which is consistent with the findings of previous studies [31, 32]. Yap et al. [31] found that the emotion dysregulation has a positive and significant relationship with the symptoms of OCD and emotion dysregulation can predict the severity of OCD. Non-acceptance, suppression and avoidance of emotional responses lead to repetition, intrusiveness as well as disturbing thoughts, emotions and expectations [7]. Stern et al. [52] speculated that a motivation to avoid emotions might underlie OCD. It means compulsions may be used to reduce emotional distress engendered by an intrusive thought. Consistent with this rationale, obsessive-compulsive symptoms had unique associations with difficulties in controlling behavior while experiencing negative emotions.

Indeed, emotion regulation indicates people's efforts to influence the experience and expression of behavioral or physical processes of emotions [53]. According to previous studies, there is a strong association between emotion dysregulation and psychological symptoms, including symptoms of OCD [30]. In general, emotion dysregulation problems lead to psychological symptoms and expose a person to mental disorders. Previous studies have shown that there is a relationship between OCD and emotion dysregulation [45]. Numerous studies have also examined the mediating role of emotion dysregulation in the development of OCD [25]. Children who are repeatedly terrorized by actual or threatened violence, and sexually molested, harshly criticized, or completely ignored by those they depend on, develop enduring perceptions of self as worthless, unlovable, or negligible and deficits in emotional competence (i.e., awareness and regulation). Children in these environments typically do not receive appropriate emotional coaching and support from attachment figures. Consequently, they learn to rely on avoidance to cope with the intense negative feelings generated by abuse and neglect. These coping strategies can include suppression, numbing, and dissociation. Deficits in emotion awareness and regulation, in turn, have a profound negative impact on mental health and can lead to incidence of Obsessive-Compulsive Disorder [54, 55]. While in this study, the structural relationship between child abuse and cognitive distortions with OCD, with the mediating role of emotion dysregulation was investigated, it can be concluded that emotion dysregulation can be a mediating factor between child abuse and cognitive distortions with clinical symptoms of OCD.

Conclusion

The results of this research showed that the structural model is the most appropriate technique of approaching this study's data. In this research, the direct effect of child abuse on emotion dysregulation (β=0/46, P=0/002), child abuse on clinical symptoms of OCD (β=0/43, P=0/003), cognitive distortions on emotion dysregulation (β=0/57,

P=0/001), and cognitive distortions on clinical symptoms of OCD (β=0/51, P=0/001) were approved. The bootstrap test results for indirect effects of child abuse and cognitive distortion on clinical symptoms of OCD which operate via emotion dysregulation showed that the lower and upper limits of indirect effects are not zero, indicating the significance of these indirect effects. So altogether the proposed model was approved. Two important limitations of this research were studying non-clinical individuals as the population of the study and using self-report scales as measurement tools of the study. So it is recommended to study clinical populations and use different kinds of measurement tools like observations and interviews in future studies. According to the results and the mediating role of emotion dysregulation in the development of clinical symptoms of OCD, it is recommended to psychologists and health professionals to educate people who are at risk of obsessive-compulsive disorder adaptive emotion regulation skills and help them prevent and reduce the development of OCD symptoms.

Conflict of Interest

The authors declare no conflicts of interest.

Ethical Approval

In this study, ethical standards including obtaining informed consent, guaranteeing privacy and confidentiality were fully observed. Despite emphasizing the completion of all questions, the participants were free to leave the research at any time and not provide personal information other than age. Also, they were assured that the information would remain confidential, and this was fully applied. The ethical approval code of this research is IR.UMSU.REC.1398.140.

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References

1. Sewell MT, Wignall ND, and R. BC, Obsessive-Compulsive Disorder, in Principle-Based Stepped Care and Brief Psychotherapy for Integrated Care Settings, Maragakis A and O.D. W, Editors. 2018, Springer: Cham.
2. Association, A.P., Diagnostic and statistical manual of mental disorders. 2013, New York: Arlington.
3. Gavero, G., Anxiety Disorders, Obsessive-Compulsive and Related Disorders, Trauma- and Stressor-Related Disorders, in Problem-based Behavioral Science and Psychiatry, Alicata D, et al., Editors. 2016, Springer: Cham.
4. Murphy TK, Stewart SE, and O. D, Obsessive Compulsive Disorder, in The Medical Basis of Psychiatry, Fatemi S. and C. P., Editors. 2016, Springer: New York.
5. Gonçalves, Ó.F., et al., Cognitive and emotional impairments in obsessive–compulsive disorder: evidence from functional brain alterations. Porto Biomedical Journal, 2016. **1**(3): p. 92-105.
6. Sadock, B.J. and V.A. Sadock, Kaplan and Sadock's synopsis of

psychiatry: Behavioral sciences/clinical psychiatry. 2011: Lippincott Williams & Wilkins.

7. Khosravi, S. and A. Naseri, Obsessive-Compulsive prevalence investigation in Jahrom city. Journal of Jahrom University of Medical Sciences, 2017. **15**(3): p. 1-8.

8. Miller, M.L. and R.L. Brock, The effect of trauma on the severity of obsessive-compulsive spectrum symptoms: A meta-analysis. Journal of anxiety disorders, 2017. **47**: p. 29-44.

9. Organization, W.H. Child maltreatment: Key facts. 2010; Available from: http://www.who.int/mediacentre/factsheets/fs150/en/index.html

10. Sperlich, M. and J. Seng, Survivor mom's companion: a population-level program for pregnant women who are survivors of childhood maltreatment: the need for a public health approach to addressing unresolved maternal trauma, in Motherhood in the Face of Trauma. 2018, Springer. p. 197-211.

11. Services, U.S.D.o.H.H. Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. 2017; Available from: http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment.

12. Kroska, E.B., et al., Effects of traumatic experiences on obsessive-compulsive and internalizing symptoms: The role of avoidance and mindfulness. Journal of affective disorders, 2018. **225**: p. 326-336.

13. Rukiye, A. and L.G. Erbay, Relationship between childhood trauma and suicide probability in obsessive-compulsive disorder. Psychiatry research, 2018. **261**: p. 132-136.

14. Khosravani, V., et al., The relation of childhood trauma to suicide ideation in patients suffering from obsessive-compulsive disorder with lifetime suicide attempts. Psychiatry research, 2017. **255**: p. 139-145.

15. Benzina, N., et al., Cognitive dysfunction in obsessive-compulsive disorder. Current psychiatry reports, 2016. **18**(9): p. 80.

16. Strohmeier, C.W., et al., Assessment of the relationship between self-reported cognitive distortions and adult ADHD, anxiety, depression, and hopelessness. Psychiatry research, 2016. **238**: p. 153-158.

17. Pittard, C.M. and P. Pössel, Cognitive Distortions, in Encyclopedia of Personality and Individual Differences, S.T. Zeigler-Hill V., Editor. 2016, Springer, Cham. p. 1-3.

18. Beck, A.T., Cognitive therapy of depression. 1979: Guilford press.

19. Burns, D.D. and A.T. Beck, Feeling good: The new mood therapy. 1999.

20. Clark, D.A., et al., Scientific foundations of cognitive theory and therapy of depression. 2000, Springer.

21. Gellatly, R. and A.T. Beck, Catastrophic thinking: A transdiagnostic process across psychiatric disorders. Cognitive Therapy and Research, 2016. **40**(4): p. 441-452.

22. Yazdi-Ravandi, S., et al., Cognitive process in patients with obsessive-compulsive disorder: A cross-sectional analytic study. Basic and Clinical Neuroscience, 2018. **9**(6): p. 448.

23. Şahin, H., et al., The Relationship Between Obsessive Belief Level and Cognitive Flexibility in Patients with Obsessive Compulsive Disorder. Archives of Neuropsychiatry, 2018. **55**(4): p. 376.

24. Moore, E., et al., Assessing catastrophic thinking associated with debilitating mental health conditions. Disability and rehabilitation, 2018. **40**(3): p. 317-322.

25. Fayaz, M., Investigating the Relationships between Behavioral Brain System Activity and Obsessive-Compulsive Symptoms in Non-Clinical Population with the Mediating Role of Cognitive Emotion Regulation Strategies. 2018, Kharazmi University: Tehran.

26. Kok, R., Emotion Regulation, in Encyclopedia of Personality and Individual Differences, Zeigler-Hill V. and S. T, Editors. 2017, Springer: Cham.

27. Gross, J.J., Emotion regulation in adulthood: Timing is everything. Current directions in psychological science, 2001. **10**(6): p. 214-219.

28. Gross, J. and R. Thompson, Emotion regulation: Conceptual foundations In: Gross JJ, editor. Handbook of emotion regulation. 2007, New York: The Guilford Press.

29. Diamond, L.M. and L.G. Aspinwall, Emotion regulation across the life span: An integrative perspective emphasizing self-regulation, positive affect, and dyadic processes. Motivation and Emotion, 2003. **27**(2): p. 125-156.

30. Aldao, A., S. Nolen-Hoeksema, and S. Schweizer, Emotion-regulation strategies across psychopathology: A meta-analytic review. Clinical psychology review, 2010. **30**(2): p. 217-237.

31. Yap, K., et al., Emotion regulation difficulties in obsessive-compulsive disorder. Journal of Clinical Psychology, 2018. **74**(4): p. 695-709.

32. Khosravani, V., et al., Difficulties in emotion regulation and symptom dimensions in patients with obsessive-compulsive disorder. Current psychology, 2018: p. 1-11.

33. Huh, H.J., et al., The relationship between childhood trauma and the severity of adulthood depression and anxiety symptoms in a clinical sample: The mediating role of cognitive emotion regulation strategies. Journal of affective disorders, 2017. **213**: p. 44-50.

34. John, S.G., J.M. Cisler, and B.A. Sigel, Emotion regulation mediates the relationship between a history of child abuse and current PTSD/depression severity in adolescent females. Journal of family violence, 2017. **32**(6): p. 565-575.

35. Marceau, E.M., P.J. Kelly, and N. Solowij, The relationship between executive functions and emotion regulation in females attending therapeutic community treatment for substance use disorder. Drug and alcohol dependence, 2018. **182**: p. 58-66.

36. Lima, I.M., A.D. Peckham, and S.L. Johnson, Cognitive deficits in bipolar disorders: Implications for emotion. Clinical psychology review, 2018. **59**: p. 126-136.

37. Oatley, K. and P.N. Johnson-Laird, Cognitive approaches to emotions. Trends in cognitive sciences, 2014. **18**(3): p. 134-140.

38. Hooman, H.A., Statistical inference in behavioral research. Tehran: Samt publication, 2019.

39. Foa, E.B., et al., The Obsessive-Compulsive Inventory: development and validation of a short version. Psychological assessment, 2002. **14**(4): p. 485.

40. Mohammadi A, Zamani R, and F. L, Validating the Persian version of the obsessive-compulsive revised questionnaire in the student population. Psychological Research, 2008. **11(2)**: p. 66-78.

41. Hosseinkhani, Z., et al., Design of the child abuse questionnaire in Iran. Journal of School of Public Health and Institute of Public Health Research, 2014. **11**(3): p. 29-38.

42. Abdollahzade H and M. Salar, Design and validating of cognitive distortions Questionnaire. 2010, Azmoon Yar Puya Institute: Tehran: Iran.

43. Gratz, K.L., et al., An experimental investigation of emotion dysregulation in borderline personality disorder. Journal of abnormal psychology, 2006. **115**(4): p. 850.

44. Gratz, K.L. and L. Roemer, Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. Journal of psychopathology and behavioral assessment, 2004. **26**(1): p. 41-54.

45. Besharat, M., Investigating the psychometric properties of the Emotion Regulation Difficulty Scale., in Research project report. 2007, Tehran University: Iran.

46. Young, J.E., J.S. Klosko, and M.E. Weishaar, Schema therapy: A practitioner's guide. 2006: Guilford Press.

47. Handelzalts, J.E., S. Fisher, and R. Naot, Object relations and real life relationships: A cross method assessment. Scandinavian journal of psychology, 2014. **55**(2): p. 160-167.

48. Cicchetti, D.E. and D.J. Cohen, Developmental psychopathology, Vol. 1: Theory and methods. 1995: John Wiley & Sons.

49. Hekmati, I., Comparison of executive functions in subclinical obsessive-compulsive disorder without depressive symptoms. International Journal of Behavioral Science, 2012. **6**(1): p. 39-47.

50. Dozois, D.J. and A.T. Beck, Cognitive schemas, beliefs and assumptions, in Risk factors in depression. 2008, Elsevier. p. 119-143.

51. Julien, D., K.P. O'Connor, and F. Aardema, Intrusive thoughts, obsessions, and appraisals in obsessive–compulsive disorder: A critical review. Clinical Psychology Review, 2007. **27**(3): p. 366-383.

52. Stern, M.R., et al., An initial examination of emotion regulation and obsessive compulsive symptoms. Journal of Obsessive-Compulsive and Related Disorders, 2014. **3**(2): p. 109-114.

53. Fox, H., K. Hong, and R. Sinha, Difficulties in emotion regulation and impulse control in recently abstinent alcoholics compared with social drinkers. Addictive behaviors, 2008. **33**(2): p. 388-394.

54. Ghamarigivi, H., The investigation of the cognitive inhibition and recognition dificit in patients with obsessive-compulsive disorder. International Journal of Behavioral Sciences, 2013. **6**(4): p. 315-321.

55. Paivio, S.C. and L.E. Angus, Narrative processes in emotion-focused therapy for trauma. 2017: American Psychological Association.