The Mediating Role of Anxiety Tolerance and Cognitive Emotion Regulation Concerning Childhood Harms and the Occurrence of Symptoms of Avoidant Personality Disorder in Nurses

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Abstract

Background: This study evaluated the mediating role of anxiety tolerance and cognitive emotion regulation concerning childhood harms and the occurrence of symptoms of avoidant personality disorder in nurses at Shiraz University of Medical Sciences.

Methods: 291 nurses at Shiraz University of Medical Sciences participated in this descriptive-correlational cross-sectional study in 2020. They were selected by simple cluster sampling. The instruments used in the present study included the Childhood Injury Questionnaire, the Cognitive Emotion Regulation Questionnaire (CERQ), the Millon-3 Clinical Multi-Axis Questionnaire (MCMI-III), and the DTS Distress Tolerance Questionnaire. To analyze the statistical data, the Pearson correlation coefficient method was used by SPSS software version 16, and to determine the fit of the studied model, the structural equation model in AMOS-22 software was used to analyze the path of observable variables.

Results: The present study's findings showed that the childhood physical abuse in the final model indirectly affected nurses' APD through the adaptive/maladaptive styles of cognitive emotion regulation. Thus, with increased childhood physical abuse, the rate of adaptive cognitive emotion regulation styles of nurses decreased and the rate of maladaptive cognitive emotion regulation styles increased; as a result, their avoidant personality disorder increased.

Conclusion: The present study results showed that nurses who were abused or mistreated during childhood were more likely to display signs of APD in their adulthood.

Introduction

Personality disorders are one of the most important social and medical problems worldwide. The prevalence of personality disorders in the normal population has been reported as approximately 15%, which is a warning concern. One in ten persons in the community has a personality disorder regardless of socioeconomic status.[1]

Personality disorders are defined as having stable mental and behavioral experiences which are very flexible and inconsistent with cultural criteria.initiate in adolescence or early adulthood, do not change over time, and may cause unpleasantness and disrupt an individual's activities.[2] Avoidance personality disorder (APD) is one of the common types of personality disorders. People with ADP have a severe lifetime pattern of shyness. They are also very sensitive to rejection. ADPs can cause symptoms of psychiatric disorders and may bring out severe problems in individual social relationships and work. People with APD have poor self-esteem and self-confidence and fear being negatively judged by others. These feelings and emotions make APD patients isolated in social situations and avoid group activities and contact with others.[3] It is estimated that about 2.5 percent of the general population suffers from ADP, with similar prevalence among men and women. This disease generally begins in infancy and childhood and continues until adulthood. Like other personality disorders, APD is usually not diagnosed in people younger than 18 years of age.[3] The risk factors associated with this type of personality disorder are still not well-known, while it seems that childhood harms are one of the associated risk factors. Childhood harms include physical or psychological injuries, abuse or sexual mistreatment, or neglected behavior by the person responsible for the welfare and comfort of the child. This mistreatment also comprises physical abuse, sexual abuse, emotional abuse, and physical/emotional neglect that can occur alone or together with other factors.[4] The long-term consequences of these harms may lead to physical, cognitive, psychological, behavioral, and social consequences in adulthood.[5]

Hagman, Francis, Field, & Kar, in a study entitled "The relationship between childhood experiences and the symptoms of APD" on 411 people (99 men vs. 312 women) aged 18-65 years, concluded that symptoms of APD were positively associated with symptoms of depression and anxiety, childhood abuse, and childhood bullying. In contrast, a negative relationship was found between the incidence of APD and parental care.[6] Furthermore, Karr and Francis showed a relation between childhood harms and APD, and early maladaptive schemas play a mediating role between these two variables.[7]

Different factors may reduce the effect of childhood harms. Emotional cognitive regulation is one of the factors that seem to be affected by childhood harms, leading to symptoms of personality disorders. The general concept of emotional cognitive regulation is a set of separate external and internal processes of the individuals responsible for monitoring, evaluating, and correcting emotional reactions, especially intense and premature states, to meet personal goals.[8] According to the literature, difficulty regulating emotion is an important link between child abuse and personality disorder. Since people responsiblefor a child's life, such as family members and other close relatives, are often the perpetrators of child abuse and neglect themselves, the development of emotion-regulating skills is disrupted in child abuse victims.[9] A study on the relationship between emotion regulation and various types of child abuse and post-traumatic stress disorder in 912 female students showed that women with histories of sexual, physical, and emotional mistreatment displayed more significant emotion regulation problems than those without such experiences. Particularly, emotional abuse is the strongest predictor of emotional deregulation.[10]

Another factor associated with childhood harms and personality disorders is distress tolerance. Distress tolerance is defined as the capacity to experience and withstand negative psychological states.[11] Some definitions of distress tolerance have also specified that the persistence of these adverse events occurs where there is a way to evade discomfort. Theoretically, distress tolerance may be influenced by several self-regulatory processes, including attention, cognitive assessments, and emotional or physical stressors; For example, single differences in the experience of emotions - both in intensity and frequency -may affect the nature of distress tolerance. People with lower levels of distress tolerance may be exposed to maladaptive responses to anxiety and anxiety-inducing conditions. As a result, they may try to avoid negative emotions related to annoying situations.

In contrast, people with higher levels of distress tolerance may be more likely to respond to anxiety and anxiety-provoking conditions. At present, there is no comprehensive, integrated distress tolerance model. Several authors have described the latest possible structure models that attempt to integrate work on these constructs and other related constructs. These perspectives propose that distress tolerance can be hierarchical in nature—constituted of a hierarchical experiential (in) tolerance construct and a set of specific lower-order. The interpretation of these findings is that a higher-order factor, ''experiential avoidance'', may consist of some specific lower-order distress tolerance dimensions. Mertens, Yilmaz, and Labstel also indicated that factors, such as consistent regulatory responses, including problem-solving and linkage, mediate the relationship between the experience of emotionally abused childhood and the development of APD, and can act as protective factors against child abuse experience, and play a significant role in preventing APD.[12]

Nurses are the largest group in the healthcare community andthey may affect the productivity and progress of the organization more than any other group of hospital staff. In a good organization, the staff's physical and mental health is emphasized as equally as the production and productivity of the

organization by the organization management. On the other hand, employees' mental health determines increased labor productivity and provides more effective services by any organization. Today, human resources, as the organization's most valuable asset, face many problems. Given that nurses have frequent contact with the patients, it is important to address issues associated with the health of this group, as these harms can occur through cognitive emotion regulation, directly leading to symptoms of personality disorders. Therefore, the present study aimed to investigate the mediating role of distress tolerance and cognitive emotion regulation concerning childhood harms and the occurrence of APD symptoms in nurses in hospitals of Shiraz city in 2020.

Methods

This correlational and cross-sectional study recruited all nurses working in hospitals affiliated with Shiraz University of Medical Sciences in 2020.

The inclusion criteria were: having informed consent for participation, being over 18 years of age, never received any psychological treatment for emotional problems, not being treated with psychiatric drugs for relief of anxiety, stress, and depression, living under the supervision of parents from the beginning until now; having no specific chronic disease that may affect the level of satisfaction and physical/mental health, such as migraine headaches, severe back pain, diabetes, heart and kidney diseases and infertility, having a normal ordinary life since six months prior to research, and lack of special events or incidents considered the crisis in their life, such as loss of a loved one, incurable disease in family members and change of residence. Also, subjects who completed the questionnaires incompletely or took psychotropic drugs were excluded from the study.

G-power version 3.1.9.2 was used to calculate the sample size. The sample size was estimated at 291 using G-power with a statistical power of 95%, an effect size of 0.05, and a significance level of 5%. Multi-stage sampling was done by cluster and simple random sampling; so that, the selected nurses in each hospital were considered a cluster. First, hospitals and then nurses were selected by simple random sampling. Next, while giving the necessary explanations about the significance of research and attracting sincere cooperation, questionnaires were distributed among students. The response time was 15-30 minutes based on personal differences. The data collection process took a whole week.

It should be noted that this article is part of a P.h.D thesis in psychology at the Islamic Azad University, Arsanjan Branch. In order to comply with ethical considerations, first, the code of ethics (IR.IAU.A.REC.1399.001) was obtained from the ethics research committee of the Islamic Azad University, Arsanjan Branch.The questionnaires were answered anonymously and the respondents were assured that the data obtained from each person would remain confidential. The respondents were also justified that participation is entirely voluntary and they have the right to leave the research during the research period. In addition, the reasercher, who had relevant experience in counselling mentally injured people tried to gain the respondents' trust and answer their questions and eliminate their concerns when they were responding the instruments used in data collection.

The following questionnaires were used to collect the required data along with demographic characteristics, including gender and age The Childhood Trauma Questionnaire-Short Form (CTQ-SF): Bremner et al. developed this scalein two different types, long and short forms, both prepared through self-reporting and semi-structured interviews. A short self-report form of this tool was applied in this study, constituted of 27 items, assessing four aspects of possible primary harms that typically occur before the age of 18. Of 27 items, 11 are concerned with general trauma sections, 5 items related to physical abuse, 5 items related to emotional abuse, and 6 items are related to sexual abuse. Each traumatic experience was scored as never, rarely, sometimes, often, or always. The short-form questions of the scale were compared with all the questions on the long-form. There was a high correlation between the components of this questionnaire's long and short forms.The obtained correlation coefficients were 0.91, 0.94, 0.97, and 0.97% for general, physical, emotional, and sexual harms, respectively. There was also high internal stability for each aspect of CTQ-SF (0.70-0.87). The questionnaire can describe and differentiate patients' suffering and primary harms. According to Cohen's kappa criterion, the correlation between post-traumatic stress syndrome and the above scale was 0.32-0.44. In the CTQ-SF, the correlation of each item with the general harm subgroup was 0.23-0.57, 0.37-0.63 for the physical abuse subgroup, 0.56 to 0.75 for the emotional subgroup, and 0.57-0.78 for the sexual abuse subgroup. Cronbach's alpha for subscales of general, physical, emotional, and sexual harms were 0.70, 0.75, 0.86, and 0.87, respectively, which shows a high level of internal stability.[13] The Cronbach's alpha was 0.87, which shows the questionnaire was reliable. Experts tested the questionnaire validity and found it validin people with clinical symptoms.[14] In the present study, the internal consistency coefficients using Cronbach's alpha for the subscale of general, physical, emotional, and sexual harms were computed at 0.78, 0.82, 0.71, and 0.66, respectively, and 0.74 for the whole scale.

2) Cognitive Emotion Regulation Questionnaire (CERQ): This tool was first developed by Garnefski et al.,

constituted of 36 items and 9 subscales, of which five subscales include acceptance (Questions 5, 6, 7, and 8), positive refocusing (questions 13, 14, 16, and 17), refocus on planning (questions 18, 19, 20, 21, and 22), positive marketing (questions 15, 23, and 24) putting into perspective (questions 25, 26, and 27), adaptive cognitive emotion regulation strategies, and four other subscales including self-blame (questions 1, 2, and 4), rumination (questions 3, 9, 10, 11, and 12), catastrophic (questions 29, 30, 31, and 32) and blaming others (questions 34, 35, and 36). CERQ evaluates maladaptive strategies of cognitive emotion regulation. The questions of this questionnaire are scored on a 5-point Likert scale ranging from "always=5" to "never=1". Finally, the scores were slightly discrete, and higher scores indicate more use of a specific cognitive strategy. The authors calculated the reliability of this questionnaire through Cronbach's alpha and the reliability coefficient was found as 0.91 for positive strategies, 0.87 for negative strategies, and 0.93 for the whole questionnaire. Structural validity and reliability of this scale in Iran have been confirmed using confirmatory factor analysis, and its reliability has been reported between 0.64 and 0.82 using Cronbach's alpha for each subscale.[15] In the present study, Cronbach's alpha internal consistency for the subscales of acceptance, positive refocus, adoption, positive marketing, refocus on planning, self-blame, other blaming, rumination, and catastrophe were 0.63, 0.78, 0, 0.85, 0.68, 0.63, 0.81, 0.89, 0.79, and 0.60, respectively. It was also reported as 0.78 for compatible and 0.73 for incompatible styles.

3) Millon Clinical Multiaxial Questionnaire 3 (MCMI-III): This questionnaire was developed by Millon based on his bio-psychosocial theory and clinical experiences and research. The revised form (version 3) consists of 175 short self-descriptive items with "yes" and "no" questions, which are suitable for individual and group performance. This list has 22 clinical scales in which only the APD scale was used in the present study. Sharifi et al.[16] showed very good diagnostic validity for all MCMI-III scales. They also found that MCMI-III scales have high positive, negative, and overall predictive power. The positive predictive power of scales was 0.92-0.98, the negative predictive power of scales was 0.93-0.99, and the total detection power of all scales ranged from 0.58

up to 0.83. Therefore, MCMI-III is a valid tool and can be used to diagnose personality disorders and clinical symptoms. In the present study, Cronbach's alpha internal consistency for the APD subscale was computed at 0.72.

3) The anxiety tolerance scale (DTS 2005) measured distress tolerance. The Distress Tolerance Questionnaire (DTS) is an emotional distress self-assessment scale developed by Simmons & Gaher. This scale has 15 items and four subscales, including emotional distress tolerance, absorption by negative emotions, mental distress estimation, and regulation of anxiety relief efforts. The respondents can select "I agree", "It does not matter", "I disagree", and "I strongly disagree". For scoring, the answer "strongly agree" is scored 5, "agree", 4, "it does not matter", 3, "disagree" 2, and "strongly disagree" grade 1. High scores on this scale indicate high distress tolerance. Andami Khoshk (2013) revealed that Cronbach's alpha of the whole scale was 0.86; Alavi, Modares, Amin Yazdi and Saleh, and colleagues reported the reliability of this scale as 0.71. In the present study, Cronbach's alpha internal consistency coefficients were computed for tolerance, absorption, evaluation, and adjustment scales as 0.68, 0.71, 0.79, and 0.63, respectively, and 0.67 for the whole scale.

The statistical data described and analyzed using Pearson correlation coefficient through the SPSS 16.0. To determine the fit of the study model, AMOS-22 software was used to analyze the path of observable variables. Model goodness of fit was assessed by using chi-square mean square error of approximation (CMIN/df), good fit index (GFI), adjusted good fit index (AGFI), mean square error of approximation (RMSEA), Adaptive fit index (CFI), standardized fit index (NFI), and HOELTRE index. It should be noted that all calculations in this study were performed with a statistically significant level of $P<0.05$.

Results

Table 1 presents the mean, standard deviation, and amplitude of the observed subjects' scores on the research variables, such as childhood traumas, distress tolerance, cognitive emotion regulation, and APD. Accordingly, the mean and standard deviation of childhood physical abuse was equal to 7.19±3.87, childhood emotional abuse

Table 1: Mean, standard deviation, and range of scores of the studied variables

Variable		Mean	Standard deviation	Scope range	
				Maximum	Minimum
Childhood injuries	Physical abuse	7.1900	3.87521	25.00	0.00
	Emotional abuse	7.6633	4.00459	25.00	0.00
	Sexual abuse	7.0933	3.79640	25.00	0.00
Tolerance of distress	Total score	46.3933	11.65065	71.00	19.00
Excitement regulation	Adaptive styles of emotion regulation	60.9600	17.92249	100.00	20.00
	Inconsistent styles of emotion regulation	39.2333	12.58837	80.00	10.00
Personality disorder	Avoidant personality disorder	24.2800	3.71136	30.00	14.00

was 7.66±4.00, and childhood sexual abuse was equal to 7.09±3.79. The mean and standard deviation of distress tolerance scores (total score) was equal to 46.39±11.65. According to the findings, the mean and standard deviation of adaptive emotion regulation styles scores was equal to 17.92±60.96 and maladaptive emotion regulation styles was equal to 39.23±2.58. Finally, the mean and standard deviation of the APD score was equal to 20.90±3.30.

Figure 1 shows a model based on childhood harms, such as physical abuse, emotional abuse, and sexual abuse, with mediating variables, distress tolerance, and cognitive emotion regulation to explain nurses' personality disorders.

The final model implemented several times and adjustments and corrections in the paths were made based on the original research design, previous findings, and simple research models. The final model was developed and approved to explain APD, as shown in Figure 1. Also, Figure 2 shows that exogenous variables, such as physical abuse, sexual abuse, and childhood emotional abuse, can explain nurses' personality disorders through mediating variables. Thus, the greater rate of childhood harm was associated with students' greater APD.

Also, indirectly through the variables of adaptive/maladaptive styles of cognitive emotion regulation, childhood physical abuse in the final model affected nurses' APD. Thus, increased physical abuse in childhood decreased the rate of adaptive cognitive emotion regulation styles of nurses and increased the rate of maladaptive cognitive emotion regulation styles, leading to increased APD among these individuals.

The estimated indices in Table 2 also showed a good fit to final data model to explain the research-related

personality disorder. Chi-square (0.131) is statistically significant at a level less than 0.001. The CFI was equal to 1.00 and NFI was computed 1.00, and also the GFI was equal to 1.00, which were all in the desired range. The second root of the variance of RMSEA was equal to 0.00 and was considered acceptable. The HOELTRE indices were also in a relatively good condition.

Discussion

The main purpose of this study was to examine the relationship between childhood harms, distress tolerance, cognitive emotion regulation, and avoidant personality disorders. This study showed that childhood physical abuse inversely affected nurses' APD through adaptive/maladaptive styles of cognitive emotion regulation.

This study were supported by the results of Hageman et al. in Australia,[6] Carr and Francis in Australia,[17] Bierer et al.,[18] and Pourshahryar et al. in Tehran.[19] Childhood harms co-occur with APD. Consistent with the present study's findings, Kuo and colleagues[20] showed that there was a relationship between childhood trauma and cognitive emotion regulation. Alink and colleagues[21] also showed that the parent-child relationship influenced emotion regulation skills during the early years of childhood.

Parents are the first social factor in learning emotional regulation skills in children, and parents influence the child's emotional regulation abilities through the child-parent interaction by expressing emotion and responding to the child's emotions.[22] It can be seen as an individual's ability to convey an emotion or design tolerance mechanisms for emotion management.[23]

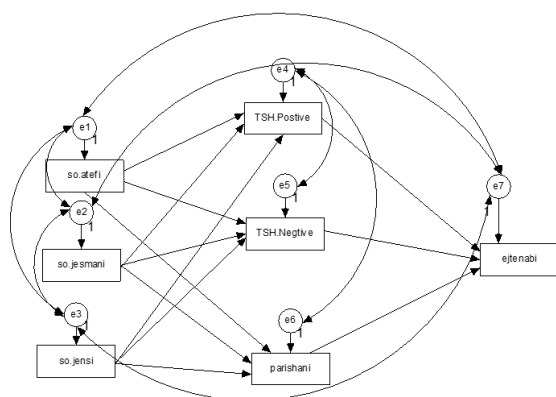According to the literature, the mediating role of

Figure 1: The path diagram to explain nurses' personality disorder
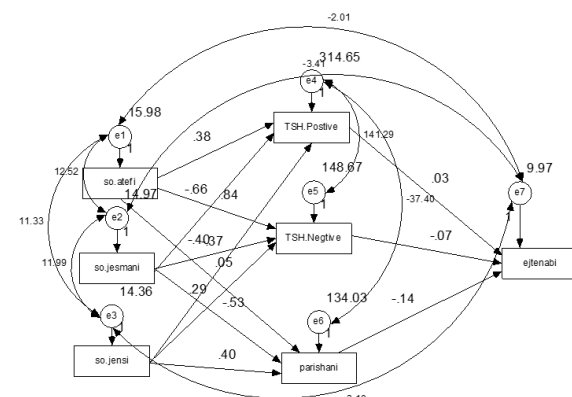

Figure 2: Path diagram of the model based on childhood trauma to personality disorder, mediated by distress tolerance and cognitive emotion regulation.

Table 2: The goodness of fit of the final model to explain personality disorder

Statistical Indice	CMIN/df	GFI	AGFI	RMSEA	NFI	CFI	HOELTRE	
							0.01	0.05
Scope domain	<3	>0.9	>0.9	<0.08	>0.9	>0.9	>200	>200
Calculated value	0/131	1/00	0/996	0.001	1/00	1/00	11115	8752

cognitive emotion regulation in the relationship between childhood trauma and APD is explainedthrough Childhood trauma negative cognitions about self and others, and conditional relationships between stimuli related to emotional damage and APD. Therefore, children who have suffered during their childhood usually have to endure a lot of emotional and physical pain, which prevents them from feeling safe, making them vulnerable to symptoms of APDs, and these children are less likely to develop coping skills to deal with negative cognitions or emotions.[24] In another explanation of this relationship, it can be said that structural and functional growth at the neural level also may lead to the growth of executive processes required for emotional regulation, including inhibitory control during adulthood. Adults acquire a way to deal with complex social situations as they develop neurocognitive development. The interaction between cognitive-neural processes and social pressures caused by different types of abuse may lead to a lower person's ability to control emotions.[24]

Limitations
The self-reporting nature of the applied questionnaires and lack of use of structured psychological interviews were some of the limitations of the present study. Participants were encouraged to complete the questionnaire accurately but the research findings should be cautiously interpreted due to the use of self-report tools. Also, to obtain accurate information about sexual abuse, it is crucial to establish stronger communication and conduct consecutive interviews, which was impossible due to the conditions of the researcher and subjects and lack of time.

Conclusion

The present study results showed that nurses who were abused during childhood were more likely to display signs of APD in their adulthood. Also, cognitive emotion regulation and distress tolerance strategies act as mediators in the relationship between childhood trauma and APD. Therefore, teaching cognitive emotion regulation strategies and anxiety tolerance will effectively improve nurses' APD and prevent physical illnesses with mental origin and personality disorders.

Acknowledgment

Conflicts of interest*:* None declared.

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