Original Article

The mediating role of cognitive emotion regulation strategies in the relationship between early maladaptive schemas with psychological distress

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Abstract

Background: Psychological distress among prisoners has a higher percentage than among the general population. This study investigated cognitive emotion control techniques' mediating function in the interaction among maladaptive early schemas with psychological distress.

Methods: The male inmates of Chenaran Prison in Razavi Khorasan Province were the participants of this correlational and descriptive study in 2021. Out of which 350 people were selected as samples using the method of convenience sampling. Data were collected by the questionnaires of Young Schema Short Form, Psychological distress, and Cognitive Emotion Regulation. Software such as Amos 24, SPSS 25 and structural equation modeling were used to analyze the data.

Results: Path coefficient findings indicated that early maladaptive schemas have a positive and significant direct impact on cognitive emotion regulation strategies (γ= 0.58, P = 0.01) and psychological distress (γ= 0.37, P= 0.01). Also, the direct effect of cognitive emotion regulation strategies on psychological distress was positive and significant (β= 0.65, P= 0.001). Examining the standardized coefficients of indirect effects showed that by cognitive emotion control techniques, maladaptive early schemas used to have a beneficial and substantial impact on psychological distress (IF= 0.37, P = 0.001).

Conclusion: According to the findings, early maladaptive schemas can predict the level of psychological distress by influencing emotion regulation strategies. This research reveals the requirement to pay closer attention to the inmates' mental health through comprehensive planning to empower them and timely interventions.

Keywords: Depression; Disorder; Emotional Regulation; Emotions; Psychological Distress; Prisoners.

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Introduction

Mental disorder causes impairment in a person's function and can impair a person's ability in various areas, including thinking, feeling and behaving in everyday life. This disorder is influenced by biological, social and psychological factors (1). Psychological distress is a type of mild mental disorders that is used as an indicator of mental health. High levels of the psychological front indicate a disturbance in mental health and reflect mental illnesses including anxiety

and sadness (2). Depression, as a common mood disorder, has symptoms such as decreased mobility, indifference, low energy level, social withdrawal, disordered sleep and eating, negative and pessimistic view of the future, and suicide or attempted suicide (3). The World Health Organization (WHO) claims that depression has taken the second place among the 10 main causes of diseases, and its anticipated disease burden by 2030 will be the greatest in the entire planet (4). Uncertainty, powerlessness, and physiological arousal are all symptoms of anxiety, which is a pervasive, unpleasant, and nebulous emotion that impacts everyone (5). Another common physical and psychological response to life's experiences is stress. Stress symptoms include severe headaches, sleep problems, fatigue, lack of concentration, feeling hopeless, sexual and digestive problems, and increased heart rate (6).

According to the Institute for Crime & justice policy research (ICPR), more than 11.5 million people are in prisons all over the world and 189 thousand people in Iran (7). According to research, the incidence of mental problems in prisons is two- to three times higher than it is in populations at large (8). At least half of prisoners suffer from personality disorders and almost all of them experienced symptoms of stress. About 10 to 12 percent of prisoners suffer from mild to severe depression and between 42 and 65 percent suffer from treatable personality disorders (7, 8). Likewise, research indicates that 89 percent of prisoners have symptoms of depression, therefore being a prisoner is always associated with mental problems (9). Various factors are involved in causing the distress of prisoners, which can be attributed to the physical space of prisons, overpopulation, lack of health facilities, the existence of chronic diseases such as hepatitis and HIV, violence and aggression, social isolation, losing family relationships and feelings of loneliness, and restriction of freedom (10).

Based on the research, one of the dysfunctional mechanisms related to psychological distress is early, maladaptive mental models that contribute to personality problems, chronic depression, and anxiety disorders (11). According to Young, schemas are a person's deep beliefs about himself and the environment. The evolutionary root of maladaptive early schemas lies within painful childhood memories. Actually, they are the result of parents' conversations with the child, which have gradually taken root in the child's mind and are now systematically but dysfunctionally controlling the individual's life (12, 13). Maladaptive early schemas are thought to emerge in reaction to basic demands being unmet and collaborating with mood-related elements to ease psychological suffering (13). Schema has a significant impact on how one thinks, feels, behaves, and interacts with others. It can also have an impact on how one processes future experiences (14). Young thinks that all of the early maladaptive schemas are connected to one or more of the indicators of psychopathology (15). According to earlier research (16, 17), It is possible to say that early maladaptive schemas contribute significantly to psychological anguish, but the more crucial inquiry is just how the psychological suffering of people is impacted by these early maladaptive schemas. Reviewing the possible variables that play a mediation function in early maladaptive schemas associated with psychological suffering will be very useful. One of these variables that is discussed in this study is emotion regulation.

Evaluating, monitoring, and modulating emotional responses—especially strong and fleeting ones—involves both internal and external procedures that are part of emotion regulation (18). Gross and Thompson discovered that persons who have stressful dreams employ various emotion control techniques to alter their emotional experience (19). These techniques, according to Garnefski and Kraaij (20), are activities that demonstrate

how people deal with trying circumstances and terrible occurrences. The development of these techniques' flaws can have a substantial impact on the genesis and persistence of emotional illnesses. Positive as well as negative cognitive emotion regulation procedures are separated into two categories: acceptance, positive refocus, positive reappraisal, programming focus, insignificance, and self-blame, rumination, other-blame, and catastrophe (21). Negative cognitive emotion regulation procedures serve as a means of reducing negative emotions while increasing positive emotions, encouraging adaptive behavior, and reducing negative emotions (22). Numerous studies have looked at the relationship between emotional control techniques and psychological distress (23-25).

Since the prisoner community experiences a higher level of psychological distress than the general population (8). Identifying the factors involved in the psychological distress of prisoners seems necessary because it can help to manage and control of them. In addition, there is a study deficit in this area, according to a review of earlier studies on the connection between psychological trauma and cognitive emotion regulation techniques and early maladaptive schemas. In order to better understand how maladaptive early schemas and psychological discomfort in prisoners are related, the aim of the present study was to examine how cognitive emotion management techniques operate as mediators.

Methods

Utilizing structural equation modeling, the current study was descriptive-correlational. All male inmates at Chenaran Prison in Razavi Khorasan Province made up the study's statistical population in 2020. According to Klein (26), 350 subjects were chosen as the sample size for correlation studies. Convenience sampling was used to choose the participants.

The prerequisites for entry were all subjects with symptoms of psychological distress at the discretion of a psychiatrist, then patients' knowledge and insight about having an underlying problem and feeling the need for low medical intervention, and willingness of the people to participate in this investigation. The criteria for exclusion from the study were using of psychiatric and psychotropic drugs, history of hospitalization in psychiatric hospitals and use of psychological interventions.

In this study, after obtaining permission from the university, coordination was made with the prison management to conduct the research. Then, the objectives and steps of the research were explained to the participants; while ethical issues were being observed. Individuals were made aware of the study's confidentially and given the option to withdraw at any moment after providing written informed permission. The researchers administered the following paper-and-pencil surveys, which she then gathered once they were finished.

The Young Schema Questionnaire-Short Form (YSQ-SF): Jeffrey Young created this questionnaire (27). 75 items make up the YSQ-SF, which also includes 15 early maladaptive schemas from 5 different domains, such as rejection and disconnection, diminished performance and autonomy, diminished limitations, other-directedness, and over vigilance/inhibition. Each question is graded from completely incorrect to completely correct on a 6-point Likert scale. Every five questions in this questionnaire evaluate a different schema, and the average scores are calculated to determine the schemas' scores. According to Waller et al. (28), the reliability of the survey ranges from 0.94 to 0.96 on the broad level and from 0.62 to 0.93 on the subscales. Ghiasi et al. analyzed the Persian form of the questionnaire, and the reliability was calculated by the Cronbach's alpha coefficient of 0.94 as well as concurrent validity of 0.64. (29).

Depression, Anxiety and Stress Scale (DASS): Lavibond and Lavibond created this scale (30). The 42 items in DASS each have four possible responses on a Likert scale from 0 never to 3 always. This scale, which consists of three self-report scales to assess negative emotions, is used to gauge the severity of the primary signs of stress, anxiety, and depression. The test-retest validity for the sub-scales of stress, anxiety, and depression was reported as 0.81, 0.79, and 0.71, respectively, by Lovibond & Lovibond, who validated this scale. Moreover, correlation coefficients of 0.81 and 0.74 were used to calculate the validity of the anxiety and depression scales, respectively (30). Samani and Joukar looked into the reliability of the Persian form of this scale using Cronbach's alpha coefficient and found that the scores for depression, anxiety, and stress were, respectively, 0.81, 0.78, and 0.80 (31).

Cognitive Emotion Regulation Questionnaire (CERQ): The CERQ was created by Garnefski et al. in 2001. (32). This multifaceted questionnaire is a self-report instrument created to assess people's cognitive responses to intimidating and high stress situations. CERQ has 36-item with 5 response options on a Likert scale from never 1 to always 5. It has 2 positive and negative strategies and 9 subscales. The score of each strategy can be in the range of 4 to 20, and the total score is from 36 to 180. Its dependability was reported by Garnefski and Kraaij using corresponding Cronbach's alpha coefficients of 0.91, 0.87, and 0.93 (21). Furthermore, the findings of Hassani's study (33) revealed that the nine sub-scales of the Persian version of the survey shared a great deal of similarity, with a Cronbach's alpha coefficient ranging from 0.76 to 0.92. Also, the value of retest correlation coefficients (0.51 to 0.77) indicated the stability of the scale.

In this study, the data's normality was verified utilizing the Kolmogorov-Smirnov test. The Pearson correlation coefficients as well as structural equation modeling (SEM) were then applied to look at the connections among the variables. For the goodness of fit index (GFI), adaptive fitness index (CFI), and softened fitness index (NFI), values between 1 and 3 for the ratio of chi-square to freedom degrees (2/df), values of 0.08 as well as Root Mean Square Error of Approximation (RMSEA), as well as values of 0.90 and more were taken into consideration in order to fit the proposed model. The data was analyzed using SPSS 25 and Amos 24 software.

Results

Analyzing the demographic characteristics of convicts revealed that 34 (or 9.7%) were younger than 30, 178 (or 50.9%) were between the ages of 30 and 40, 119 (or 34%) were between the ages of 41 and 50, and 19 (or 5.4%) were older than 50. 269 of the convicts (76.9%) were married, while 81 (23.1%) were not.

The mean, standard deviation, as well as correlation of the study's variables are shown in Table 1. The findings revealed that maladaptive early schemas and negative cognitive emotion regulation strategies have a substantial and beneficial interaction with dimensions of psychological distress ($P<0.01$), whereas positive emotion cognitive regulation strategies have a significant and adverse association with these dimensions ($P<0.01$).

The fundamental presumptions were looked into before performing the path analysis. Taking into account the Skewness of 2 (34) and the Kurtosis of 7 (35) while examining the normalcy of the variable distributions, it was determined that Univariate normality had been attained, and all the variables had acceptable levels of Skewness and Kurtosis (Table 1). The Kolmogorov-Smirnov test was applied to look into the distribution of standard residuals in order to verify the multivariate normality. The outcomes revealed a typical distribution of residues ($P\geq0.05$, df = 350, Z = 0.04).

Table 1. Mean, standard deviation, and the correlation coefficients of studied variables

Variables		Mean ± SD	Depression	Anxiety	Stress
Early maladaptive schemas	disconnection and Rejection	72.76 ± 16.28	0.58**	0.62**	0.60**
	Impaired autonomy and performance	54.35 ± 15.15	0.49**	0.54**	0.45**
	Other-directedness	28.60 ± 7.85	0.48**	0.55**	0.48**
	Over vigilance/ inhibition	31.40 ± 7.60	0.49**	0.53**	0.55**
	Impaired limits	29.61 ± 8.05	0.50**	0.53**	0.46**
Cognitive emotion regulation strategies	Negative strategies	51.35 ± 8.83	0.38**	0.38**	0.35**
	Positive strategies	68.08 ± 13.34	-0.41**	-0.41**	-0.36**
Psychological distress	Depression	36.84 ± 10.01	-		
	Anxiety	35.97 ± 9.53	0.84**	-	
	Stress	39.61 ± 9.41	0.82**	0.81**	-

** = Correlation coefficient, P<0.001.

This hypothesis was confirmed by looking at the model's predictor variables' lack of collinearity, where tolerance coefficients ranged from 0.40 to 0.88 as well as variance inflation from 1.14 to 12.50 (36). To test the validity of the assumption of error independence, Durbin-statistic Watson's was used (37). The route model used in this investigation had a coefficient of 1.82.

Prior to using the study model, it was first determined whether early maladaptive schemas directly contributed to psychological suffering in the absence of the mediator. The findings revealed that maladaptive early schemas had a significant and advantageous impact on psychological discomfort (β=0.75, P=0.002), and the amount of variance that can be described was also found%56 (R^2 = 0.56).

The fitness indices of the initial model then revealed that now the study design has a particularly favourable fit, as illustrated by Table 2. Root mean square error of approximation (RMSEA) values of 0.08 and less as well as values between 1 and 3 for the ratio of chi-square to freedom degree (χ^2/df = 3.13). Also, the model fit is demonstrated by the goodness of fit index (GFI = 0.94), comparative goodness of fit index (CFI = 0.97), and index smoothed goodness-of-fit (NFI = 0.95) with values greater than 0.90.

The suggested correction indices have a correlation with the errors of the early maladaptive schemas, and by establishing these correlations, the model fit will be improved (38). As a consequence, the model was adjusted, and Table 2 also contains the results of the improved model's fitting. The outcomes demonstrated that the updated model's excellent fit indices have a perfect match.

Figure 1 depicts the psychological distress prediction model based on cognitive emotion regulation techniques and early maladaptive schemas.

Table 3 displays the direct coefficient by bootstrap outcome.

Table 2. Goodness indicators of the fit of the structural models

	χ^2	df	χ^2/df	GFI	CFI	NFI	RMSEA	P
Initial model	100.14	32	3.13	0.94	0.97	0.95	0.08	0.0001
Modified model	88.23	31	2.85	0.97	0.95	0.96	0.07	0.0001

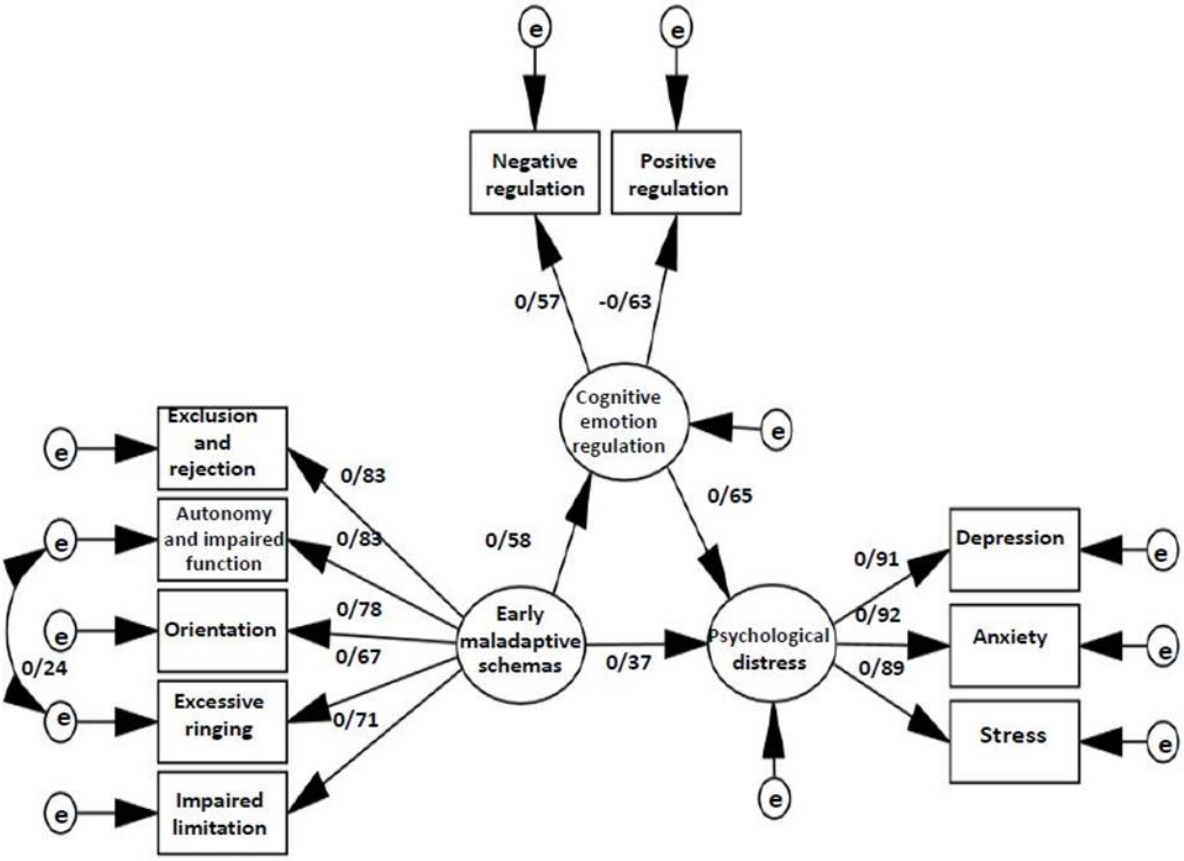

Figure 1. The predicting model of psychological distress based on early maladaptive schemas and cognitive emotion regulation strategies

The path coefficients revealed that early maladaptive schemas have a beneficial and significant direct impact on cognitive emotion regulation techniques (γ= 0.58, P = 0.001) and psychological discomfort (γ= 0.37, P = 0.002). The direct effect of cognitive emotion regulation strategies on psychological distress was also positive and significant (β = 0.65, P = 0.001).

The findings of the bootstrap approach used to estimate the coefficients of indirect and overall impacts are shown in table 4. The indirect impact of maladaptive early schemas upon psychological distress only with mediating role of cognitive emotion regulation techniques is beneficial and noteworthy, according to research into the standardized coefficients of indirect effects (IF = 0.38, P = 0.001). R2 = 0.63 represents the percentage of psychological discomfort that can be explained by early maladaptive schemas as well as cognitive emotion regulation techniques. This suggests that early maladaptive schemas and cognitive emotion control techniques can account for 63% of changes in psychological discomfort.

Variance accounted for (VAF) was employed to take into consideration the importance of the direct influence of early maladaptive schemas on psychological discomfort without the existence of the mediator variable in addition to the relevance of its indirect effect with the mediator present.

Table 3. The path coefficient of direct effect in the research model

Path	B	SE	Beta	C.R	P-value
Early maladaptive schemas → Cognitive emotion regulation	0.48	0.09	0.58	5.52	0.001
Early maladaptive schemas → Psychological distress	0.67	0.21	0.37	3.14	0.002
Cognitive emotion regulation → Psychological distress	1.41	0.40	0.65	3.52	0.001

Table 4. The path coefficient of indirect and total effects in the research model

	Path	Beta	SE	t	P-value	(0.95% CI) Lower bound	(0.95% CI) Upper bound
Indirect	Early maladaptive schemas → Cognitive emotion regulation →Psychological distress	0.38	0.21	3.24	0.001	0.21	1.03
Total	Early maladaptive schemas → Psychological distress	0.75	0.10	13.5	0.001	0.68	0.81
	Cognitive emotion regulation →Psychological distress	0.65	0.80	1.76	0.001	0.45	1.24

This index was equal to VAF=0.50, indicating that the association among early maladaptive schemas as well as psychological distress was partially mediated by cognitive regulation of emotion.

Discussion

The goal of the current study was to investigate how cognitive emotion control techniques can mediate the association among early maladaptive schemas and psychological suffering. The findings showed that the suggested corrective conceptual model fits the data well. The outcomes also demonstrated that psychological suffering is positively and significantly impacted by early maladaptive beliefs. Early maladaptive schemas were positively and strongly correlated with psychological discomfort in all five domains: self-management & dysfunction, other directedness, impaired restraint, and over vigilance. This outcome is in line with those of Ghasemi and Elahi (11), Nematullah and Azad-Yekta (39), Shorey et al. (40), and Bishop et al (41). According to Yang's argument, early maladaptive schemas are established throughout life, influence how later experiences are processed, and have a significant impact on how an individual thinks, feels, behaves, and interacts with others (14). Individuals with cutting and rejection schemas always have expectations based on meeting their fundamental needs for security, stability, love, and empathy, as well as for sharing sentiments, acceptance, and respect in a predictable manner (12, 13). Accordingly, it can be found that the predominant and common emotion that results from the thoughts and expectations of people in the field of cutting and rejection is fear, worry and over vigilance. The expectations of people with self-governing and dysfunctional schema are that they have difficulty acting or managing themselves and their lives independently, are worried about getting hurt, and have low self-confidence. Usually, the families that firmly supported the child and discouraged them from being independent and taking risks are where the schemas in this area were created (13, 17) People with disrupted schemas, are unable to control and limit themselves. If they feel a desire or need or get emotional, they act very quickly without thinking and act impulsively. People with other directedness schemas seek to satisfy the needs of others. They do this to gain approval, to maintain an emotional relationship, or to seek revenge. Such people were not free in childhood to follow their natural inclinations. Also, people with schemas in the field of inhibition are constantly sensitive to the danger of over vigilance, so they suffer a lot of anxiety and take a series of special measures to reduce their anxiety. For this reason, inhibition of impulses and emotions is usually seen in abundance in these people (6, 13). So, it seems that prisoners with early maladaptive schemas are more likely to experience psychological distress due to the stressful environment in which they live, as well as the lack of control and management of emotions and negative thoughts.

In this research, the findings demonstrated that the early maladaptive schemas had a positive and substantial impact on cognitive emotion regulation strategies. This result

was consistent with the findings of Safari-Mousavi et al. (23), and Domaradzka and Fajkowsta (42). Given that the deepest cognitive structures are schemas; when maladaptive schemas are evoked in prisoners, they usually experience high levels of emotions such as intense anger, anxiety, sadness, or guilt feel (43). Prisoners with inconsistent self-discipline schemes have difficulty controlling their emotions and impulses, find it difficult to control their moods and emotions, and instead of rational action, are influenced by emotions (44). Therefore, it is possible that prisoners with inconsistent self-discipline schemes feel empty in living and life becomes meaningless for them and they cannot find the proper meaning for it. This causes them to have a weak motivation to progress and do purposeful work, and on the other hand, due to the lack of meaning in life, it is difficult for them to regulate moods and emotions. Subsequently, it creates a lack of motivation and a feeling of emptiness and meaninglessness in life, and this vicious cycle is repeated in various situations.

The results of this research demonstrated that cognitive emotion techniques had a beneficial and significant direct impact on psychological discomfort. This outcome supported the findings of Safari-Mousavi et al. (23), Solg and Yaseminnejad (24), and Schafer et al. (25). Effective techniques have a smaller impact on cognitive emotion regulation than poor ones, according to Aldao and Nolen- Hoeksema the explanation of connection among cognitive emotion regulation strategies as well as depression, stress, and anxiety (45). The findings of the present study also supported this finding. For example, rumination is much more strongly associated with psychopathology; while the effective strategies may have less related to the symptoms of psychopathology, because their adaptability may be more context-dependent. Therefore, Rumination, catastrophic perception, as well as blaming are examples of poor cognitive styles that make convicts more prone to emotional issues than other prisoners. Therefore, Gross and Thompson discovered that emotional regulation skills are linked to physiological, social, and physical healthcare outcomes (18).

Overall, the study's findings showed that cognitive emotion regulation methods mediate an indirect link among early maladaptive schemas as well as psychological discomfort. In fact, with the increase in the scores of prisoners in the initial maladaptive schemas, the negative strategies of the cognitive regulation of their emotions have increased and, in this way, their psychological distress has increased. This result is in accordance with the findings of Mazloum and Niknam (46), Emami- Ezzat et al. (47), and Anmuth (48). It can be said that the emotional processing of a prisoner is exposed to cognitive influences, so that a person's complex behaviors are affected by the mutual interactions of his cognitive and emotional processing, and neurobiological theories about the interactions between cognition and emotion will not be complete without considering the underlying mechanisms. Young believed that early maladaptive schemas cause distortion of the information about the relationships between individuals and the environment, activate negative spontaneous thoughts in his, and ultimately cause abnormal cognitive attitudes and processes (13, 41). These structures protect the prisoner from the intense and helpless emotions using self-sustaining processes that mainly arise from the stimulation and initiation of a psychopath. In this way, prisoners make themselves resistant to change and maintain the negative content of their psychiatrists, and as a result, they go through a variety of negative emotion management techniques. In this way, the prisoner experiences psychological anguish due to bad emotional regulation mechanisms that render them helpless and confused. It can therefore be stated that maladaptive early schemas in prisoners with psychological distress were

a result of negative experiences including rejection, deprivation, embarrassment, initial impairment, and stressful events, which are the heart of psychological discomfort.

Among the limitations of this study, we may emphasize that when using self-report instruments and doing research on convicts, it is important to exercise caution when extrapolating the findings to other populations. It is advised that comparable studies be carried out in many societies, and that the impact of additional factors including attachment styles and metacognitive views on psychological suffering should also be researched.

Conclusion

The outcome of this research is in line with the notion that cognitive emotion regulation techniques regulate the structural links between early maladaptive schemas as well as psychological discomfort. Therefore, the use of interventions to adjust the initial maladaptive schemas and cognitive regulation strategies of maladaptive emotions can be effective in the process of treating psychological distress in prisoners.

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Authors' contribution

In this research: Study conception and design: RGH and MGM; data collection: RGH; analysis and interpretation of results: MJ; draft manuscript preparation: RGH, MGM, and MJ; All authors approved the final version of the manuscript.

Ethical considerations

In this research, the ethical standards include obtaining the consent of the subjects to participate in the test, the principle of respect and confidentiality, the idea of maintaining the privacy of research participants' information, the freedom and discretion to participate or withdraw from the research.

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Conflicts of interest

The authors of the article have no conflict of interest.

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