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The Structural Relationships of Emotional Neglect with Risky Behaviors in Prisoners Considering the Mediating Role of Emotion Regulation Strategies

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A B S T R A C T

This study aimed to investigate the structural relationships of emotional neglect with risky behaviors in prisoners, considering the mediating role of emotion regulation strategies. The research method is descriptive-correlational. The statistical population consists of all prisoners in the city of Shiraz. The research sample included 409 prisoners from Shiraz, selected through purposive sampling. Data were collected using the Childhood Trauma Questionnaire (Bernstein et al., 2003), the Cognitive Emotion Regulation Questionnaire (Garnefski et al., 2001), and the Youth Risk Behavior Scale (Snow et al., 2019). Structural equation modeling (SEM) was conducted using AMOS 24 and SPSS 27 to evaluate the proposed model. The correlation coefficient results indicated a negative relationship between emotional neglect and adaptive cognitive emotion regulation strategies with risky behaviors ($P \leq 0.05$). Additionally, there was a significant positive relationship between maladaptive cognitive emotion regulation strategies and risky behaviors ($P \leq 0.05$). The findings suggest an adequate fit of the proposed model with the data. The results of the structural model showed that 25% of the variance in adaptive cognitive emotion regulation strategies and 30% of the variance in maladaptive cognitive emotion regulation strategies were explained by emotional neglect. Furthermore, 44% of the variance in risky behaviors was explained by emotional neglect, adaptive, and maladaptive cognitive emotion regulation strategies. Based on these findings, early intervention and preventive measures are crucial in reducing the negative impact of emotional neglect. Specifically, focusing on interventions based on mentalization and emotion regulation can significantly improve emotional and relational problems arising from adverse early life experiences.

Keywords: *Emotional neglect, risky behaviors, cognitive emotion regulation strategies, prisoners.*

1. Introduction

Health behaviors are essential for maintaining well-being and preventing infectious and other diseases. To maintain health, individuals must engage in protective behaviors (e.g., health-promoting behaviors such as physical activity and medication adherence) and avoid risky behaviors (e.g., health-damaging behaviors such as smoking and excessive alcohol consumption) (1). The World Health Organization (WHO) states that mental health issues are up

to seven times more prevalent among prisoners compared to the general population. This increasing trend in mental disorders coincides with the rising prison population. Another exacerbating factor is substance abuse and risky behaviors in prison settings (2).

Risky behaviors are defined as actions that increase the risk of disease or injury, which can subsequently lead to disability, death, or social problems. The most common risky behaviors include violence, alcohol addiction, substance use disorders, risky sexual behaviors, self-harm, suicide, and eating disorders (3). Violence can manifest in various forms, such as child abuse or neglect, youth violence, intimate partner violence, sexual violence, elder abuse, self-harm, and collective violence. Violent behaviors are more prevalent among adolescents and young adults (3).

In the United States, up to 30% of people experience alcohol use disorder at some point in their lives, with the highest prevalence among adults aged 18 to 44, particularly among men (4). Additionally, substance use among adolescents and young adults is a common disorder that is associated with psychiatric illnesses, self-harm, and suicide (2). Smoking causes 8 million deaths annually worldwide, with 7 million among active smokers and 1.2 million among passive smokers (5).

Risky sexual behaviors and sexually transmitted infections (STIs) are more prevalent among adolescents. Surveillance data indicate that nearly 50% of all sexually transmitted infections occur in adolescents and young adults (6). Other factors contributing to risky sexual behaviors include mood disorders, substance use disorders, and adverse childhood experiences such as sexual abuse, sex trafficking, or maltreatment (7). Anorexia and bulimia nervosa both increase the risk of mortality in adolescents and young adults (4).

According to global data, the most recent update in 2018 reported a prison population rate of 284 per 100,000 people, which represents an average figure compared to global prison populations. Findings from the study by Gomez-Figueroa and Camino-Pruna (2022), titled Mental and Behavioral Disorders in the Prison Context, indicate a high prevalence of mental disorders among prisoners, with depression, anxiety, substance use, and psychotic disorders being predominant (2). The importance of mental health programs in prisons was observed through early diagnosis and personalized interventions.

Given the widespread nature of risky behaviors among adolescents and young adults, psychological education aimed at behavior modification and mental health improvement, particularly through preventive programs, is a crucial necessity. Additionally, research is required to identify the risk factors for risky behaviors in different groups, which underscores the need to first focus on causal models of risky behaviors and subsequently consider social prevention programs. A study by Kim-Spoon et al. (2021), titled Maltreatment and Brain Development: Effects of Abuse and Neglect on Longitudinal Neural Activation Pathways during Risk Processing and Cognitive Control, found that persistent maltreatment significantly affects fronto-parietal activation during cognitive control, with abuse (but not neglect) associated with more severe reductions in fronto-parietal activation. Conversely, neglect (but not abuse) was associated with slower growth in insular activation and posterior lateral anterior cingulate cortex activation (8).

Exposure to traumatic events in childhood, including emotional neglect, is associated with various negative mental health outcomes (9). Studies have shown that traumatic childhood experiences can lead to conditions such as depression, bipolar disorder, psychotic experiences, and even full-blown psychosis (10). Experiencing childhood adversities such as abuse, neglect, or major life stressors can significantly impact social, emotional, cognitive, and physical development, while concurrent exposure to these factors increases the long-term risk of mental health problems (11).

Childhood emotional neglect, a subtype of childhood maltreatment (which includes physical, sexual, or emotional abuse and physical or emotional neglect), refers to the failure to meet a child's basic emotional needs, insensitivity to the child's distress, and neglect of their social and emotional development (12). Meta-analyses indicate that the global prevalence of neglect is significantly high, with an overall prevalence of nearly 18% (13). Emotional neglect, independently of other forms of maltreatment, occurs with a prevalence of 6.2% (14).

Alarmingly, numerous studies have shown that childhood emotional neglect is associated not only with psychological

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disorders such as depression, anxiety, and substance abuse (15, 16) but also with long-term social functioning issues, such as increased social anxiety, poor interpersonal interactions, and reduced relationship quality (17-19). Zhou et al. (2023) examined the relationship between childhood emotional neglect and depressive symptoms through functional prefrontal connectivity during rest in college students. Their findings indicated that compared to the control group, individuals with emotional neglect experiences used cognitive emotion regulation strategies of reappraisal less frequently and exhibited higher depressive symptoms. The functional connectivity between the right orbitofrontal gyrus and the right middle frontal gyrus was significantly correlated with the total score of reappraisal strategies and overall depression score in both groups (10).

Many researchers believe that individuals with risky behaviors have difficulties in cognitive-emotional regulation (20). Regulating emotional experiences through cognitive elements is a key aspect of the cognitive emotion regulation process, which is discussed in psychological literature under the concept of cognitive emotion regulation (21).

Cognitive-emotional regulation encompasses internal and external processes used to modulate emotions. It is defined as the ability to modify emotional antecedents and adjust physiological, mental, or behavioral components of an emotional response (22). This includes (1) awareness and understanding of emotions, (2) acceptance of emotions, (3) the ability to control impulsive behaviors and pursue desirable goals while experiencing negative emotions, and (4) the ability to use flexible strategies tailored to the situation to adjust emotional responses (23).

A review of previous studies indicates that limited research has simultaneously examined emotional neglect, cognitive-emotional regulation, and risky behaviors in prisoners, often focusing on one of these variables independently. Addressing this gap, the present study aims to explore these interrelationships to facilitate timely prevention and psychological interventions.

2. Methods and Materials

2.1. Study Design and Participants

This study is fundamental in terms of its objective and employs a descriptive-correlational research design using structural equation modeling (SEM), specifically structural regression equations (a combination of path analysis and factor analysis).

The statistical population of this study consists of all prisoners in Shiraz in the year 2023. A purposive sampling method was used. After obtaining the necessary approvals from the university and coordinating with the Shiraz prison authorities, Adel-Abad Prison was purposefully selected. Ethical considerations based on the Helsinki Declaration were strictly observed (the researcher introduced themselves to the participants, explained the study objectives, assured participants of the confidentiality of their personal information, respected their beliefs, culture, and religion, emphasized voluntary participation, maintained privacy, assured participants of the intervention's safety, and ensured accuracy and integrity in data collection and analysis).

The inclusion criteria were: prisoners aged 19 to 55, imprisonment for at least two months, a minimum education level of middle school, and no immediate medical conditions requiring urgent treatment. Exclusion criteria included psychiatric disorders, failure to answer five consecutive questions in the questionnaires, and unwillingness to participate. Based on these criteria, 409 prisoners were purposefully selected. Participants were asked to respond to all questionnaire items according to their characteristics without leaving any questions unanswered.

According to the Soper (2024) formula, with an effect size of 0.80, a statistical power of 0.80, three latent variables, and 24 observed variables (questionnaire components), the required sample size was estimated to be between 323 and 700 participants, considering a confidence level of 95% and a significance level of 0.05 (24).

2.2. Measures

2.2.1. Risk Behavior

The Youth Risk Behavior Survey is a tool that is revised and published biennially. The most recent version, YRBS (2019), was developed by Snow and psychometrically validated on a standard sample. It consists of 95 items, with 87 items covering risk behaviors such as smoking (7 items), substance abuse (26 items), unsafe sexual behaviors (17 items), physical inactivity (9 items), unhealthy nutrition (5 items), and injury-related behaviors (23 items), while 8 items

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assess mental health. The questionnaire is rated on a five-point Likert scale. The 2019 version includes components such as electronic vaping products, self-medication, video gaming, and sexually transmitted diseases (e.g., chlamydia and gonorrhea), which were not present in previous versions (Underwood et al., 2020). The psychometric properties of the YRBS were assessed by Zahmatkesh Rokhi et al. (2021), confirming a six-factor structure with a total of 25 items through confirmatory factor analysis. Cronbach's alpha for all domains was above 0.70, and the intra-cluster correlation coefficient was 0.73, indicating the reliability of the questionnaire (25). In this study, the subscales of unintentional injury and violence, smoking, sexual behavior, nutrition, and suicidal behaviors were administered. Cronbach's alpha for the total scale was 0.89, with subscale reliability scores as follows: unintentional injury and violence (0.84), smoking (0.74), sexual behavior (0.82), nutrition (0.80), and suicidal behaviors (0.86).

2.2.2. Cognitive Emotion Regulation

The CERQ was developed by Garnefski et al. (2001) in the Netherlands and is available in both English and Dutch versions. It is a self-report instrument consisting of 36 items across nine subscales, each containing three items. Five subscales measure adaptive emotion regulation strategies (acceptance, positive refocusing, refocus on planning, positive reappraisal, and putting into perspective), while four subscales measure maladaptive strategies (self-blame, rumination, catastrophizing, and blaming others). Each item is rated on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always), with higher scores indicating greater use of specific strategies. Garnefski et al. (2001) reported Cronbach's alpha coefficients for the subscales as follows: self-blame (0.81), acceptance (0.80), rumination (0.83), positive refocusing (0.81), refocus on planning (0.81), positive reappraisal (0.72), putting into perspective (0.79), catastrophizing (0.72), and blaming others (0.68). The validity of the questionnaire was confirmed through factor analysis (26-28). Hassani (2011), who validated the Persian version, reported reliability scores for the subscales as follows: self-blame (0.87), acceptance (0.80), rumination (0.85), positive refocusing (0.77), refocus on planning (0.81), positive reappraisal (0.85), putting into perspective (0.79), catastrophizing (0.82), and blaming others (0.85). The overall Cronbach's alpha was 0.92 (29). In the present study, Cronbach's alpha values were 0.89 for adaptive strategies and 0.84 for maladaptive strategies, with individual subscale values ranging from 0.78 to 0.87.

2.2.3. Childhood Trauma

The CTQ was designed by Bernstein et al. in 1994, with a revised 53-item version introduced in 1995 and the final 34-item version published in 1998. The short form, consisting of 25 items, is applicable to individuals aged 12 and above and covers five domains of maltreatment: physical abuse (items 2, 9, 10, 12, 13), sexual abuse (items 16, 22, 23, 24, 17), emotional abuse (items 4, 11, 19, 20, 21), physical neglect (items 1, 3, 5, 8, 15), and emotional neglect (items 6, 7, 14, 18, 25). Items are rated on a five-point Likert scale (1 = never to 5 = always), with subscale scores ranging from 5 to 25 and total scores from 25 to 125. Subscales were developed based on theoretical definitions, such as physical abuse involving intentional harm or injury to a child under 18, and emotional abuse characterized by persistent criticism, humiliation, or verbal aggression. Sexual abuse involves sexual activity between a child and an adult or coercion by an older child. Physical neglect refers to the failure to provide basic needs such as food, safety, education, and medical care, while emotional neglect refers to the lack of emotional support and responsiveness. The reliability of the CTQ has been reported to range from 0.79 to 0.94 using test-retest and Cronbach's alpha methods (30). Concurrent validity with clinician ratings of childhood trauma ranged from 0.59 to 0.78. Roy (2011) reported reliability values between 0.79 and 0.94 (31). In Iran, Ebrahimi et al. (2013) estimated Cronbach's alpha for the short form to range between 0.81 and 0.98 (32). In this study, only the physical and emotional neglect subscales were administered to prisoners.

2.3. Data Analysis

In this study, data analysis was conducted using structural equation modeling (SEM) to examine the relationships between emotional neglect, cognitive emotion regulation strategies, and risky behaviors in prisoners. Descriptive statistics, including mean, standard deviation, skewness, and kurtosis, were calculated to assess the distribution and normality of the data. The assumptions of multicollinearity

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and linearity were checked using tolerance and variance inflation factor (VIF) values, as well as scatterplots. Outliers were identified and removed using box-and-whisker plots. The fit of the proposed model was evaluated using fit indices such as chi-square (χ^2), goodness-of-fit index (GFI), comparative fit index (CFI), incremental fit index (IFI), normed fit index (NFI), Tucker-Lewis index (NNFI), adjusted goodness-of-fit index (AGFI), and root mean square error of approximation (RMSEA). Bootstrapping with 2000 resamples was used to assess the significance of indirect effects, and a confidence level of 95% was applied to establish the reliability of the findings. All statistical analyses were performed using SPSS 27 and AMOS 24 software.

The demographic findings indicate that 43.8% (179 participants) had an education level below a high school diploma, 44.7% (183 participants) had a high school diploma, 2.9% (12 participants) held an associate degree, and 8.6% (35 participants) had a bachelor's degree or higher. Additionally, 21.5% of the study sample were aged 18 to 28 years, 45.7% (187 participants) were between 29 and 39 years old, 27.9% (114 participants) were between 40 and 50 years old, and 4.9% (20 participants) were 51 years or older. Among the participants, 30.6% (125 participants) were single, 63.3% (259 participants) were married, and 6.1% (25 participants) were divorced. The mean age of participants was 41.75 years (SD = 7.12), with a minimum age of 18 and a maximum of 55 years.

3. Findings and Results

Table 1

Distribution of Mean, Standard Deviation, Skewness, and Kurtosis of Research Variables

Variable	M	SD	Skewness	SE	Kurtosis	SE
Unintentional injury and violence	34.61	7.24	-0.649	0.145	0.944	0.213
Smoking	20.10	5.54	-0.525	0.145	-0.257	0.213
Sexual behavior	27.86	7.23	-0.038	0.145	-0.338	0.213
Nutrition	30.82	6.90	-0.616	0.145	0.243	0.213
Suicide	17.32	4.27	-0.119	0.145	-0.599	0.213
Risky behaviors	130.71	19.14	-0.741	0.145	-0.847	0.213
Acceptance	5.38	1.98	0.414	0.145	-0.188	0.213
Positive refocusing	5.79	1.78	0.132	0.145	-0.243	0.213
Planning refocus	5.89	1.77	0.200	0.145	-0.383	0.213
Positive reappraisal	5.75	1.91	0.168	0.145	-0.340	0.213
Perspective-taking	5.73	1.79	0.239	0.145	-0.442	0.213
Adaptive strategies	28.38	7.66	0.356	0.145	0.178	0.213
Rumination	6.29	1.85	-0.106	0.145	-0.326	0.213
Self-blame	6.13	1.79	-0.100	0.145	-0.487	0.213
Catastrophizing	6.23	1.87	-0.178	0.145	-0.423	0.213
Blaming others	6.26	1.88	-0.191	0.145	-0.443	0.213
Maladaptive strategies	24.91	7.14	0.341	0.145	0.203	0.213
Physical neglect	8.26	2.66	0.241	0.145	0.428	0.213
Emotional neglect	10.19	2.98	0.109	0.145	0.485	0.231
Total neglect score	18.45	4.36	0.366	0.145	0.138	0.213

As shown in Table 1, the mean (and standard deviation), skewness, and kurtosis of the study variables are presented. The mean total score for risky behaviors is 130.71 (SD = 19.14), adaptive cognitive emotion regulation strategies 28.38 (SD = 7.66), maladaptive cognitive emotion regulation strategies 24.91 (SD = 7.14), and emotional neglect 18.45 (SD = 4.36).

Normality of the data is one of the key assumptions in structural equation modeling. Skewness and kurtosis statistics are commonly used to determine normality. According to Kline (2023), data are considered normal if the absolute value of skewness is less than 3 and kurtosis is less than 10. In this study, skewness and kurtosis values were within acceptable limits, indicating normal distribution.

To assess linearity, scatter plots were used. The assumption of linearity was confirmed for exogenous-mediator, exogenous-endogenous, and mediator-endogenous variables. Outliers were detected using box-and-whisker plots, and 9 outliers were identified and removed from the final analysis.

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To examine multicollinearity, tolerance and variance inflation factor (VIF) statistics were calculated. The tolerance values were not less than 0.1, and the VIF values were not greater than 5, indicating no multicollinearity among the predictor variables.

Another assumption in regression analysis is the independence of errors (i.e., the difference between actual and predicted values should not be correlated). The Durbin-Watson statistic for all predictor and mediator variables was approximately 2 (ranging from 1.92 to 1.97), confirming the absence of autocorrelation among residuals.

Table 2

Correlation Matrix of Study Variables

Variable	Unintentional Injury and Violence	Smoking	Sexual Behavior	Nutrition	Suicide	Risky Behaviors
Acceptance	-0.37**	-0.31**	-0.33**	-0.21**	-0.083	-0.32**
Positive Refocusing	-0.34**	-0.21**	-0.31**	-0.12**	-0.010	-0.36**
Planning Refocus	-0.28**	-0.19**	-0.30**	-0.089**	-0.014	-0.34**
Positive Reappraisal	-0.34**	-0.28**	-0.36**	-0.17**	-0.083	-0.35**
Perspective-Taking	-0.27**	-0.19**	-0.28**	-0.058**	-0.013	-0.33**
Adaptive Strategies	-0.36**	-0.37**	-0.33**	-0.39**	-0.24**	-0.31**
Rumination	0.32**	0.29**	0.29**	0.19**	0.079	0.28**
Self-Blame	0.31**	0.27**	0.31**	0.12**	0.042	0.25**
Catastrophizing	0.27**	0.20**	0.29**	0.058	0.013	0.31**
Blaming Others	0.19**	0.11**	0.20**	0.23**	0.21**	0.29**
Maladaptive Strategies	0.23**	0.27**	0.21**	0.24**	0.22**	0.33**
Physical Neglect	0.28**	0.24**	0.21**	0.21**	0.34**	0.32**
Emotional Neglect	0.31**	0.27**	0.24**	0.24**	0.37**	0.30**
Total Neglect Score	0.26**	0.26**	0.22**	0.23**	0.33**	0.29**

*p<0.05, **p<0.01

The correlation matrix (Table 2) presents the relationships between study variables at significance levels of $P < 0.001$ and $P < 0.05$. Most correlations were significant.

Findings revealed a significant negative correlation between adaptive cognitive emotion regulation strategies and risky behaviors ($P < 0.001$, $r = -0.31$). Conversely, there was a significant positive correlation between maladaptive cognitive emotion regulation strategies and risky behaviors ($P < 0.001$, $r = 0.33$), and between emotional neglect and risky behaviors ($P < 0.001$, $r = 0.29$).

In other words, individuals who scored higher on adaptive cognitive emotion regulation strategies exhibited fewer risky behaviors. Additionally, individuals with higher scores on maladaptive cognitive emotion regulation strategies and emotional neglect reported higher levels of risky behaviors.

Table 3

Model Fit Indices for the Proposed and Final Confirmed Model

Category	Fit Index	Value	Acceptable Fit Criteria
Absolute Fit Indices	Chi-square goodness-of-fit test (χ^2)	378.364	Greater than 5% significance
	Goodness-of-fit index (GFI)	0.89	≥ 0.90
	Adjusted goodness-of-fit index (AGFI)	0.90	≥ 0.90
Incremental Fit Indices	Non-normed fit index (NNFI)	0.92	≥ 0.90
	Normed fit index (NFI)	0.92	≥ 0.90
	Comparative fit index (CFI)	0.92	≥ 0.90
	Relative fit index (RFI)	0.91	≥ 0.90
	Incremental fit index (IFI)	0.92	0-1
Parsimonious Fit Indices	Parsimonious normed fit index (PNFI)	0.21	≥ 0.50
	Root mean square error of approximation (RMSEA)	0.08	≤ 0.10
	Normed chi-square (CMIN/DF)	2.369	Between 1 and 3

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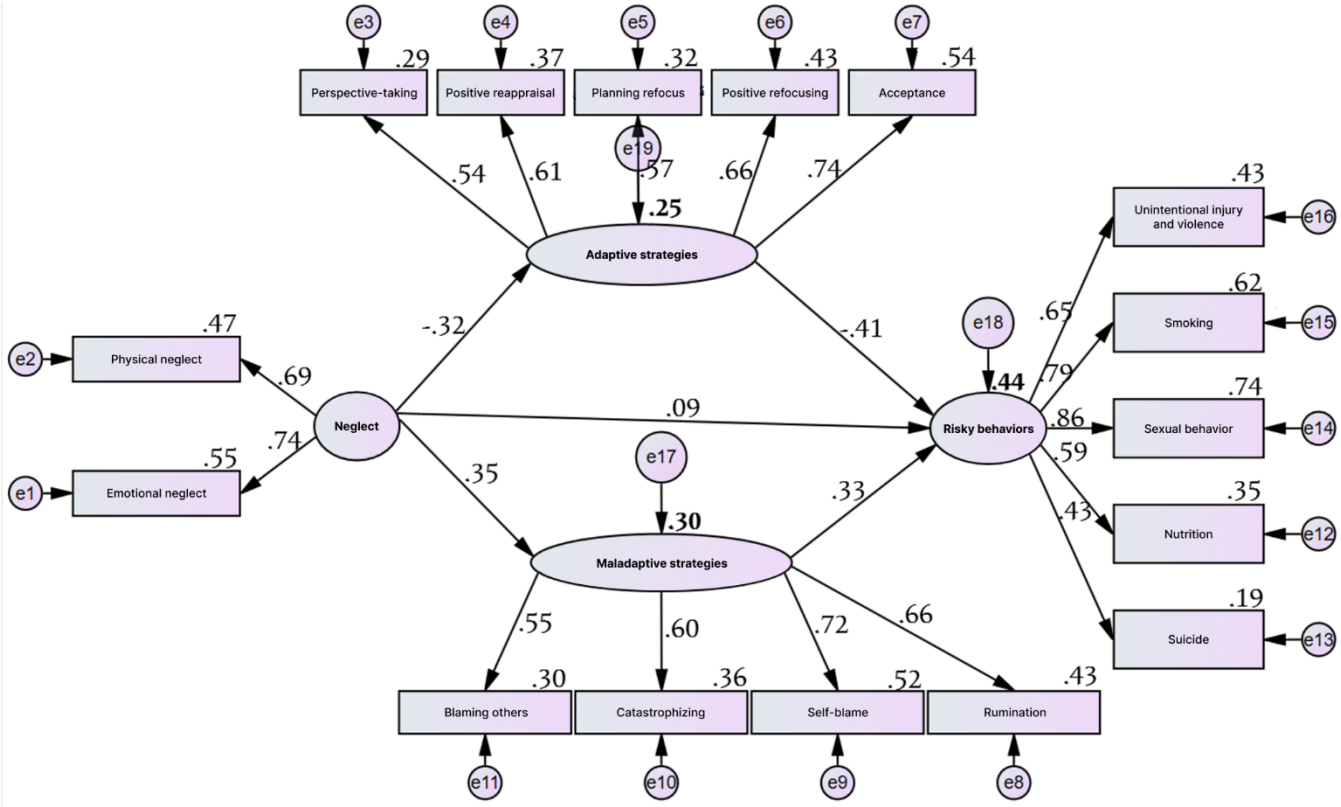
As shown in Table 3, the fit indices resulting from the evaluation of the proposed model are presented. The chi-square (χ^2) value was significant. Other fit indices, such as the chi-square to degrees of freedom ratio (χ^2/df) with a value of 2.369, incremental fit index (IFI) with a value of 0.92, comparative fit index (CFI) with a value of 0.92, goodness-of-fit index (GFI) with a value of 0.89, Tucker-Lewis index (NNFI) with a value of 0.92, adjusted goodness-of-fit index (AGFI) with a value of 0.90, normed fit index (NFI) with a value of 0.92, and root mean square error of approximation (RMSEA) with a value of 0.08, indicate an acceptable fit of the proposed model to the data. The results also indicate that 25% of the variance in adaptive cognitive emotion regulation strategies and 30% of the variance in maladaptive cognitive emotion regulation strategies are explained by emotional neglect. Additionally, 44% of the variance in risky behaviors is explained by the variables of emotional neglect, adaptive, and maladaptive cognitive emotion regulation strategies (Figure 1).

Figure 1

The Proposed and Final Fitted Model of the Study Variables



The results shown in Figure 1 indicate the standardized regression weights of endogenous, mediator, and exogenous variables. The standardized direct effect of emotional neglect on risky behaviors ($\beta = 0.09$, $P \geq 0.235$) was not significant. However, the direct path from emotional neglect to adaptive cognitive emotion regulation strategies ($\beta = -0.321$, $P \leq 0.001$) and from emotional neglect to maladaptive cognitive emotion regulation strategies ($\beta = 0.352$, $P \leq 0.001$) were significant. Moreover, the direct standardized coefficients of adaptive cognitive emotion regulation strategies to risky behaviors ($\beta = -0.413$, $P \leq 0.001$) and maladaptive cognitive emotion regulation strategies to risky behaviors ($\beta = 0.334$, $P \leq 0.001$) were significant.

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Table 4

Bootstrapping Results for the Indirect Relationship of Study Variables

Pathway	Indirect Effect	Bias	SE	Lower Bound	Upper Bound	P
Emotional neglect → Adaptive cognitive emotion regulation strategies → Risky behaviors	-0.131	0.003	0.021	-0.142	-0.122	0.004
Emotional neglect → Maladaptive cognitive emotion regulation strategies → Risky behaviors	0.115	0.004	0.023	0.103	0.127	0.05

As shown in Table 4, the lower confidence interval is -0.142 and the upper confidence interval is -0.122 (neither includes zero). The confidence level is 0.95, and the number of bootstrap resamples is 2000. Based on this finding, emotional neglect has an indirect negative effect on risky behaviors through adaptive cognitive emotion regulation strategies. Additionally, the lower confidence interval is 0.103, and the upper confidence interval is 0.127 (neither includes zero). The confidence level is 0.95, and the number of bootstrap resamples is 2000. These findings indicate that emotional neglect has an indirect positive effect on risky behaviors through maladaptive cognitive emotion regulation strategies.

4. Discussion and Conclusion

This study aimed to investigate the structural relationships between emotional neglect and risky behaviors among prisoners, considering the mediating role of emotion regulation strategies. The results from structural equation modeling indicated that emotional neglect does not have a direct positive effect on prisoners' risky behaviors. These findings are inconsistent with other studies (8, 10, 33). In fact, the results suggest that emotional neglect alone cannot lead to risky behaviors; rather, it contributes to risky behaviors through the influence of other variables. In interpreting these findings, it can be stated that emotional neglect alone does not predict risky behaviors but interacts with other facilitating variables to create the conditions for engaging in such behaviors. For instance, when a child is born into an invalidating environment where their independence is not supported, or their needs are ignored, it creates a foundation for negative affect. Low mood, combined with weak skills, can push the individual toward negative emotional regulation strategies. Consequently, behaviors such as smoking, reckless driving, binge eating, substance use, and risky sexual behaviors are often employed as accessible strategies to improve emotional regulation. Initially, the individual attempts to regulate their emotions through substance use; however, over time, substance use and other risky behaviors become a problem themselves. Lacking the necessary skills to manage substance use or risky behaviors, the individual experiences negative emotions after engaging in these behaviors, leading to a recurring cycle that needs regulation.

In other words, risky behaviors are a form of externalizing behaviors influenced by biological, emotional, familial, and social factors, and they can be explained through a multidimensional model. Thus, emotional neglect during childhood and adolescence becomes a static state when it cannot be moderated by other factors such as internal resources, self-esteem, competence, and self-efficacy. To alter this state, individuals require energy, skills, and time. However, since recalling these memories induces sadness, individuals often resort to risky behaviors to escape their negative emotions (10). Furthermore, a study by Bozzini et al. (2021) asked adolescents and adults to estimate the possible consequences of several risky behaviors, such as alcohol consumption, reckless driving, marijuana use, truancy, and unsafe sexual behaviors, as well as their vulnerability to these consequences. Both groups assessed themselves as similarly vulnerable to potential negative consequences (34). One possible explanation for this discrepancy may be adolescents' failure to utilize prior information or logical decision-making processes. This suggests that access to information and the ability to accurately assess risk do not necessarily guarantee its application in real-life situations. Individuals, despite having prior experiences with the consequences of risky behaviors (such as incarceration), may struggle to apply these lessons in future similar situations. However, in safe and ordinary

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conditions, they can discuss the risks and consequences of these behaviors as effectively as adults.

The study results also demonstrated that adaptive cognitive emotion regulation strategies have a significant direct negative effect on risky behaviors, while maladaptive cognitive emotion regulation strategies have a significant direct positive effect. These findings are consistent with previous research (8, 10, 33). In explaining these findings, it can be stated that emotion regulation refers to an individual's ability to understand and accept their emotions and use appropriate management strategies for unpleasant emotions. A lack of such abilities contributes to difficulty in emotion regulation. Emotion regulation plays a crucial role in individuals' adaptation to stressful life events (27). Negative emotions are inevitable in life, and thus, there is significant potential for difficulties in emotion regulation. As a result, inaccurate cognitive-emotional appraisals of stressful conditions due to a lack of information, misinterpretation, and irrational beliefs lead individuals to adopt maladaptive coping strategies. Ineffective coping strategies and self-handicapping in cognitive, emotional, and behavioral dimensions not only increase the use of maladaptive strategies but also hinder mental health and exacerbate risky behaviors.

From this perspective, inadequate emotional and social development, difficulty in organizing behavior and emotions, and the presence of negative emotions contribute to the dominance of emotions over logical reasoning. As a result, individuals in various stressful situations make decisions based solely on emotional impulses and environmental factors rather than considering logical solutions. According to Gross (2015), the use of negative and ineffective emotion regulation strategies, along with an inability to regulate emotions properly, is a significant factor contributing to the development of mental disorders and risky behaviors such as substance use and suicide (35). Furthermore, low levels of positive emotion regulation strategies, inefficiency in emotional control, and the inability to effectively cope with emotions play a fundamental role in the emergence of externalizing problems such as aggression, self-harm, and suicide attempts. When individuals face stressful situations, poor leadership and management of emotions increase the likelihood of engaging in risky behaviors. In contrast, effective control and management of emotions in stressful situations can reduce the risk of engaging in such behaviors (36).

In explaining these findings, it can be stated that individuals who engage in risky behaviors often experience intense negative emotions that hinder rational thinking and decision-making for problem resolution. The absence of constructive coping mechanisms prolongs exposure to stress-inducing stimuli or exacerbates stress through factors such as blame, rumination, and aggression. Ultimately, individuals may feel helpless and hopeless, perceiving their lives as meaningless. To escape these negative emotions, individuals may seek temporary relief through behaviors such as substance use, sensation-seeking, self-harm, and violence. Previous studies have emphasized that exposure to violence or trauma can increase feelings of hopelessness, depression, impulsivity, risk-taking, and engagement in risky behaviors (37). Therefore, the use of maladaptive strategies predisposes individuals to anxiety, leading them to respond to stressful events with distress and agitation, ultimately making them more vulnerable to risky behaviors as a means of escaping negative emotions.

The results of structural equation modeling indicated that emotional neglect has an indirect effect on risky behaviors through adaptive and maladaptive cognitive emotion regulation strategies. These findings are consistent with previous studies (8, 10, 33). In interpreting these findings, it can be asserted that when considering the problems associated with a "bad childhood," the common perception often revolves around children who have suffered physical harm—beatings, malnutrition, sexual abuse—or psychological humiliation, such as being yelled at, scolded, ridiculed, or mentally tormented. However, it is challenging to consider that other forms of harm may exist, which are more prevalent in many ways yet equally damaging. This form of harm, known as emotional neglect, lacks physical violence, scolding, or shouting. At first glance, everything may appear normal. However, such situations can represent a specific type of trauma where the child's emotional needs are ignored. Emotionally neglected children are not shouted at, physically harmed, locked up at home, or ridiculed; instead, they are subtly overlooked. Their parents rarely smile at them, never have enough time to look at their latest drawing or read their written stories, and fail to remember the name of their stuffed animals. No one notices when they

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are sad. There is always something more important than spending time with them—perhaps another sibling, work commitments, or social engagements (38).

On the other hand, family cohesion and the level of parental warmth and affection have consistently been associated with positive outcomes for children. Family cohesion enhances children's adaptability, reduces aggression, improves social behavior, decreases externalizing problems, and lowers their risk-taking behaviors (Sharma & Joshi, 2016). In contrast, individuals who experience emotional neglect are more likely to engage in self-harming behaviors. Self-harm serves various motives and goals, which can be linked to lifestyle and cultural contexts. A common motivation for self-harm among adolescents is the desire to escape a psychologically difficult situation. Depression and hopelessness are considered explicit reasons associated with the wish to die. This hypothesis suggests that emotional neglect is associated with risky behaviors both directly and through negative and maladaptive emotion regulation strategies. It indicates that neglected individuals make every effort to avoid acknowledging the idea that their parents may be emotionally unavailable or fundamentally harmful. They remain attached to and dependent on those who, to an external observer, may appear irresponsible and neglectful. The child attempts to deny the idea that the very individuals who brought them into the world have caused harm, especially when these parents are socially acceptable and professionally successful. The child believes that their neglect must be due to a fundamental flaw within themselves—whether failing to meet expectations or feeling inherently unworthy. This belief becomes the only conceivable explanation for the emotional void they experience. Adults emerging from such complex childhoods often remain confused and struggle to adapt to life challenges during adolescence, leading them to engage in risky behaviors to alleviate emotional pain (39).

This study has several limitations, including its focus solely on prisoners aged 19 to 55 in Shiraz, which limits the generalizability of the findings to other regions. Another limitation is the lack of comparison between executive function, emotional neglect, emotion regulation, and risky behaviors in prisoners versus the general population, which could provide better insights for understanding the psychopathology of risky behaviors. Additionally, the correlational design of this study does not allow for establishing causal relationships between the predictor variables and the criterion variable. Furthermore, the use of self-report questionnaires may introduce response biases, which is a common limitation in quantitative research.

Based on the findings of this study, it is recommended that prison authorities, psychological service centers, and counseling centers utilize these results to develop appropriate interventions for individuals exhibiting risky behaviors that have led to incarceration. Given the effectiveness of educational approaches, it is also suggested to conduct training workshops for individuals with criminal behaviors to enhance their psychological well-being and mental health, thereby facilitating their rehabilitation process.

Authors' Contributions

S. E. M. contributed to the conceptualization and design of the study, data collection, and initial manuscript drafting. S. K. M. performed statistical analyses, interpreted the results, and contributed to the writing and revision of the manuscript. Both authors reviewed and approved the final version of the manuscript for submission.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study placed a high emphasis on ethical considerations. Informed consent obtained from all participants, ensuring they are fully aware of the nature of the study and their role in it. Confidentiality strictly maintained, with data anonymized to protect individual privacy. The study adhered to the ethical guidelines for research with human subjects as outlined in the Declaration of Helsinki. Ethical considerations included obtaining informed consent, ensuring confidentiality and anonymity, and avoiding any harm to participants.

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