The Relationship Between Childhood Trauma and Sense of Coherence Based on the Mediating Role of Emotional Schemas in Adolescents with Risky Behaviors

Solmaz. Dabiri[1], Hossein. Ebrahimi Moghaddam[1*], Narges. Babakhani [1]

[1] Department of Psychology, Ro.C., Islamic Azad University, Roudehen, Iran

* **Corresponding author email address**: ebrahimimoghaddam@iau.ac.ir

Article Info

ABSTRACT

Purpose: The present study aimed to examine the relationship between childhood trauma and sense of coherence based on the mediating role of emotional schemas in adolescents exhibiting risky behaviors.

Materials and Methods: This research employed a descriptive/analytical correlational design. The statistical population consisted of all adolescents with risky behaviors who had sought help from counseling centers affiliated with the Welfare Organization, psychological service centers, and neighborhood houses in Tehran during the 2024–2025 academic year. A total of 324 participants were selected using the minimum sample size calculation method for structural equation modeling and based on convenience sampling. Data were collected using the Childhood Trauma Questionnaire (Bernstein et al., 2003), the Sense of Coherence Scale (Antonovsky, 1987), the Iranian Youth Risk-Taking Scale (Zadeh Mohammadi et al., 2011), and the Emotional Schemas Questionnaire (Leahy, 2007). Descriptive and Spearman correlation analyses were performed using SPSS version 27, and path analysis was conducted using SmartPLS version 4.

Findings: The results indicated that childhood trauma had a significant and negative direct effect on emotional schemas ($\beta = -0.748$, $p < .001$). Additionally, childhood trauma had a significant and negative direct effect on sense of coherence ($\beta = -0.765$, $p < .001$). Furthermore, childhood trauma had a significant and negative indirect effect on sense of coherence through emotional schemas ($\beta = -0.119$, $p < .001$).

Conclusion: Therefore, psychological interventions following childhood trauma should prioritize the modification of emotional schemas and the enhancement of the sense of coherence in order to mitigate the negative impacts of such experiences and promote mental health.

Keywords: Childhood trauma, Sense of coherence, Emotional schemas, Adolescents, Risky behaviors

1. Introduction

Adolescence is a pivotal stage in human development characterized by rapid emotional, cognitive, and social

changes that shape future psychological adjustment and well-being. During this sensitive period, adolescents are particularly vulnerable to the psychological consequences of early adverse experiences. Among the most critical factors impacting adolescent development are adverse childhood experiences (ACEs), especially various forms of trauma such as emotional, physical, and sexual abuse, as well as neglect. Extensive research has shown that childhood trauma can significantly undermine psychological functioning and increase the likelihood of risky behaviors, emotional dysregulation, and long-term mental health problems (Akbarizadeh et al., 2024; Bernstein et al., 2003; Ebrahimi et al., 2014; Loveday et al., 2022; Webster, 2022).

Risky behaviors in adolescence—such as substance use, violence, and sexual risk-taking—are often viewed as maladaptive coping responses to early developmental adversities (Imannezhad et al., 2023; Zadeh et al., 2011). These behaviors are not merely manifestations of behavioral rebellion but can reflect deeper emotional difficulties and disruptions in key psychological structures developed in response to trauma. Among these structures, emotional schemas—defined as enduring cognitive-affective patterns individuals use to understand, manage, and evaluate their emotional experiences—play a pivotal mediating role (Khanzadeh et al., 2013; Leahy, 2007). Emotional schemas are particularly shaped by early relational experiences and can determine whether individuals process emotions adaptively or maladaptively (Oguz et al., 2019; Salgó et al., 2021).

The theory of emotional schemas provides a framework for understanding how early trauma can impair emotional processing capacities and lead to psychopathological outcomes. According to Leahy, emotional schemas encompass beliefs and strategies individuals hold about their emotional experiences, such as whether emotions are tolerable, shareable, or comprehensible (Leahy, 2007). In the presence of childhood trauma, these schemas can become distorted, leading to maladaptive responses such as rumination, self-blame, avoidance, and emotional suppression (Carbonell, 2021; Khanzadeh et al., 2013). This is supported by evidence indicating that childhood maltreatment is associated with the formation of early maladaptive schemas that increase vulnerability to emotional distress (Feyzioğlu et al., 2023; Nicol et al., 2021; Rada et al., 2025).

Parallel to the emotional schema framework, the salutogenic model proposed by Antonovsky introduced the concept of *sense of coherence (SOC)* as a core psychological construct that buffers stress and promotes resilience in the face of adversity (Antonovsky, 1993). SOC refers to a global orientation reflecting the extent to which one perceives life as comprehensible, manageable, and meaningful. Numerous studies suggest that individuals with a strong SOC are better equipped to handle emotional challenges and are less likely to engage in maladaptive behaviors (Mahammadzadeh et al., 2010; Moksnes, 2021; Urtubia-Herrera et al., 2024). Conversely, early trauma has been found to erode SOC, compromising one's capacity to derive coherence from life experiences and thereby increasing vulnerability to emotional dysregulation (Fan et al., 2024; Hajlou et al., 2020; Li & Ren, 2024).

Recent empirical studies have begun to examine the interplay between childhood trauma, emotional schemas, and SOC. Research suggests that emotional schemas may serve as a critical mediator in this triadic relationship, shaping how trauma is internalized and subsequently how individuals make sense of their experiences (You et al., 2024; Zheng et al., 2025). For instance, Lee et al. found that emotional rumination and negative schemas significantly mediated the link between childhood trauma and suicidal ideation among individuals with early psychosis (Lee et al., 2019). Similarly, Peeters et al. emphasized that schema therapy, which directly targets maladaptive emotional schemas, is effective in treating trauma-related disorders such as PTSD and anxiety, further affirming the centrality of these cognitive-emotional structures (Peeters et al., 2022).

In adolescent populations, the role of emotional schemas as mediators between trauma and well-being outcomes is particularly important given the identity-forming and emotionally volatile nature of this developmental stage (Branje, 2022). During adolescence, individuals are still forming internal working models of self and relationships, rendering them especially susceptible to the long-lasting imprints of childhood adversity. Disruptions in emotional regulation, cognitive coherence, and self-concept are all potential consequences of trauma-induced schema formation (Damavandian et al., 2021; Elahian et al., 2025). In this regard, exploring how emotional schemas mediate the relationship between early trauma and SOC offers a valuable contribution to developmental psychopathology and trauma-informed interventions.

Understanding this mediating role also has significant clinical implications. If emotional schemas are found to mediate the relationship between childhood trauma and SOC, therapeutic interventions can more effectively target these schemas to enhance coherence and reduce risky

behaviors in adolescents. For instance, schema-focused therapies have demonstrated considerable efficacy in reducing emotional dysregulation and improving adaptive functioning among individuals with borderline personality disorder and trauma histories (Arntz et al., 2022; Peeters et al., 2022). Moreover, interventions aimed at increasing SOC—such as mindfulness-based programs, self-compassion training, and resilience-enhancing therapies—have also shown promise in improving adolescent mental health and reducing the psychological toll of trauma (Beyrami et al., 2014; Carbonell, 2021; Narimani & Ghaffari, 2016).

In light of these findings, the present study aims to investigate the direct relationship between childhood trauma and SOC in adolescents with risky behaviors, while also examining the mediating role of emotional schemas in this relationship. The rationale stems from a growing body of literature indicating that SOC acts as a resilience factor in trauma-exposed individuals (Antonovsky, 1993; Mantas-Jiménez et al., 2024; Smrekar et al., 2020), and that emotional schemas may be critical in either strengthening or undermining this resilience (Leahy, 2007; Nicol et al., 2021). This study builds upon prior research by integrating these variables into a structural equation modeling framework to better understand the pathways through which trauma impacts psychological adaptation in adolescence.

This research is especially timely and relevant in the context of increasing awareness of adolescent mental health challenges and the impact of early adversity on long-term developmental outcomes. The global rise in trauma exposure, combined with mounting evidence of its intergenerational transmission and psychological consequences, underscores the need to develop early identification and intervention strategies targeting the mechanisms through which trauma undermines resilience (Akbarizadeh et al., 2024; Jerebine et al., 2024; Moksnes, 2021). Furthermore, by focusing on adolescents with risky behaviors—a population often overlooked or stigmatized—this study seeks to contribute to trauma-informed approaches that emphasize understanding over punishment, and healing over correction.

In conclusion, this research investigates a critical question in adolescent psychology: How does childhood trauma impair one's ability to construct a coherent and resilient psychological framework, and what role do emotional schemas play in this process?

2. Methods and Materials

2.1. Study Design and Participants

The present study is applied in terms of its objective and utilizes a descriptive correlational design through structural equation modeling (SEM). The statistical population included all adolescents with risky behaviors who, from late 2023 to mid-November 2024, sought services at counseling and psychological centers or were referred by the Tehran Welfare Organization. The sampling method was convenience sampling. Accordingly, participants were selected from cooperating centers located in districts 2, 3, 5, 6, 16, 18, 19, 20, and 22. The inclusion criteria were: (1) being aged 15 to 18 years, (2) having risky behavior as indicated by scoring one standard deviation above the mean on the Iranian Adolescent Risk-Taking Scale, (3) absence of severe physical or mental illness, (4) no substance or medication abuse, and (5) willingness to participate in the study. The exclusion criterion was failure to complete the questionnaires fully.

There is no consensus regarding sample size in SEM (Schreiber, 2006), but many researchers recommend a minimum of 200 participants (Hoelter, 1983; Hu, 2008). In this study, the total sample size was initially 332 participants. However, five questionnaires were not returned and three were incomplete, resulting in 324 usable responses for data analysis. Data collection began on March 4, 2024, and continued until mid-November 2024, lasting approximately eight months.

Following a topic selection based on months of review, the researcher defined the problem aligned with existing gaps in the literature. A comprehensive review of related literature, journals, interviews, speeches, and other sources was conducted to gather theoretical evidence regarding variable relationships. Prior studies related to the present topic were also critically examined. Subsequently, standardized instruments were selected for data collection. After accessing the study setting and distributing the questionnaires to the target population, the researcher collected responses via close-ended questions. Upon verifying the accuracy of the collected data, analysis was conducted based on the study's objectives.

Following analysis, results were compiled into a final research report with practical and research-based recommendations. After proposal approval and coordination with the supervising professor, the researcher contacted relevant welfare centers, neighborhood houses, and counseling centers across Tehran to access adolescents with risky behaviors. Participants meeting the inclusion criteria

and expressing willingness to participate were invited. The researcher introduced themselves and explained the study briefly. Upon consent, the assessment tools and informed consent forms were distributed. It is noteworthy that in some centers, questionnaires were completed online, while in others, they were completed in paper-and-pencil format. Participants were informed that providing their names was optional, and all data would be analyzed anonymously. Only those who wished to be informed of their individual results could indicate their names.

Data collection for 324 participants lasted eight months. Questionnaires with missing or invalid responses were excluded, and only valid questionnaires were analyzed. To ensure ethical compliance, an informed consent form was prepared outlining the study's purpose. Participants read and signed the consent form before participating. Ethical considerations included: obtaining approval from the university and related research centers, securing written informed consent, respecting participants' rights to withdraw at any time, maintaining data confidentiality by omitting names, expressing gratitude to all institutions and participants and their families, offering results to relevant authorities upon request, and fully explaining the study to participants and their rights regarding participation. After collecting data, questionnaires were analyzed using appropriate statistical methods. Results were then prepared for statistical analysis.

2.2. Measures

Childhood Trauma Questionnaire (CTQ) – Bernstein et al. (2003): The CTQ was developed by Bernstein, Ahluvalia, Newcomb, Walker, Pogge, and colleagues (2003) to assess childhood abuse and trauma. It is a screening tool for detecting individuals with experiences of childhood abuse and neglect. Suitable for both adults and adolescents, the CTQ evaluates five types of childhood maltreatment: sexual abuse, physical abuse, emotional abuse, emotional neglect, and physical neglect. It includes 28 items—25 assessing core domains and 3 detecting response minimization. Items 5, 7, 13, 19, 28, 2, and 26 are reverse scored. Higher scores indicate greater trauma. Each subscale ranges from 5 to 25; total scores range from 25 to 125. Items 10, 16, and 22 assess denial, and a sum >12 suggests likely invalid responses. Bernstein et al. (2003) reported Cronbach's alpha coefficients of .87, .86, .95, .89, and .78 for the respective subscales. Concurrent validity with therapist trauma ratings ranged from .59 to .78. In Iran, Ebrahimi, Dezhkam, and

Sagha'ollah reported alpha coefficients between .81 and .98. In this study, Cronbach's alpha was reported at .76.

Sense of Coherence Scale (SOC-13) – Antonovsky (1993): The SOC-13 assesses perceived control over stress. It consists of 13 items rated on a 7-point Likert scale ranging from 1 to 7. Scores range from 13 to 91, with 13–26 indicating low coherence, 27–52 moderate, and above 52 high coherence. The three subscales are comprehensibility, manageability, and meaningfulness. Cronbach's alpha for the scale has ranged from .82 to .95. In Iran, Mohammadzadeh et al. (2010) normed the scale and reported alpha values of .75 and .78 for male and female students, respectively, and concurrent validity of .54 with the 45-item Psychological Hardiness Scale. Subscale-total correlations were .86, .81, and .76, indicating acceptable construct validity. In the current study, Cronbach's alpha was .74.

Emotional Schemas Scale – Leahy (ESS-P, 2007): This 37-item questionnaire evaluates how individuals deal with their emotions over the past month using a 5-point Likert scale from 0 (completely disagree) to 4 (completely agree), yielding total scores from 0 to 148. Leahy (2007) identified emotional schema components such as rumination (items 1, 17, 25, 26), emotional self-awareness (2, 4, 10), guilt (3, 11, 22), expression of emotions (5, 16), uncontrollability (6, 19, 33), need for approval (7, 12), comprehensibility (8, 32, 34), blame (9, 24), rationality (13, 21, 35, 36), simplistic views (14, 27), higher values (15, 18, 31), emotional acceptance (20, 29, 37), and consensus (23, 28, 30). Items 1, 4, 8, 12, 18, 20, 23, 25, 32, 34, and 37 are reverse scored. Leahy (2007) reported a Cronbach's alpha of .86 and split-half reliability of .70. In Iran, Khanzadeh et al. (2013) confirmed construct validity and reported test–retest reliability of .78 and internal consistency (Cronbach's alpha) of .81. In this study, alpha was .74.

Iranian Adolescent Risk-Taking Scale (IARS) – Zadeh Mohammadi et al. (2011): The IARS comprises 38 items rated on a 5-point Likert scale from 1 (completely disagree) to 5 (completely agree), with total scores ranging from 38 to 190. Higher scores reflect greater risk-taking. It assesses seven domains: reckless driving, violence, smoking, drug use, alcohol consumption, heterosexual interactions, and sexual behavior. The scale's psychometric properties have been confirmed in numerous studies. Zadeh Mohammadi et al. (2011) reported Cronbach's alpha values of .74 for reckless driving, .93 for smoking, .90 for drug use, .78 for violence, .89 for alcohol, .77 for opposite-sex friendship, and .87 for sexual behavior. Total scale reliability was .93.

Construct validity was confirmed via exploratory factor analysis. In this study, Cronbach's alpha was .73.

2.3. Data Analysis

Descriptive statistics and Spearman correlations were computed using SPSS version 27. Path analysis among variables was conducted using SmartPLS version 4. To assess normality, the Shapiro–Wilk test was applied. Given the test's significance for all variables, the data did not meet the assumption of normality. Accordingly, the Partial Least Squares (PLS) approach in SmartPLS was used. A significance level of .05 was considered. The bootstrap method was also employed to test the mediating effect within the model.

3. Findings and Results

Table 1 presents the descriptive statistics of the demographic variables of the study. Regarding gender, out of 324 adolescents, 168 (52%) were female and 156 (48%) were male. For the age variable, participants were divided into two age groups: 133 adolescents (41%) were aged 15–16, and 191 (59%) were aged 17–18. Regarding educational field, participants were categorized into three groups: mathematics-physics (113, 35%), humanities (117, 36%), and experimental sciences (94, 29%), with the latter showing the lowest frequency.

Table 1

Description of Demographic Variables

Variable	Group	Frequency	%	N	Mode
Gender	Female	168	52	324	1
	Male	156	48		
Age	15–16	133	41	324	2
	17–18	191	59		
Education	Mathematics-Physics	113	35	324	3
	Experimental Sciences	94	29		
	Humanities	117	36		

Table 2 provides the means and standard deviations of the primary study variables.

Table 2

Description of the Main Research Variables

Variable	N	Mean	SD	Skewness	Kurtosis	Shapiro-Wilk	P-value	Min	Max
Sexual abuse	324	13.040	3.979	-0.531	-0.288	0.924	< .001	5	19
Physical abuse	324	13.327	5.187	0.500	-0.941	0.919	< .001	6	24
Emotional abuse	324	13.904	5.039	-0.043	-0.793	0.954	< .001	5	23
Emotional neglect	324	15.179	5.019	-0.015	-0.893	0.962	< .001	6	24
Physical neglect	324	15.127	4.979	-0.620	-0.204	0.898	< .001	5	22
Understandable	324	15.728	4.351	-0.159	-0.989	0.926	< .001	9	25
Manageable	324	13.741	4.755	-0.381	-0.901	0.938	< .001	5	21
Meaningful	324	16.969	5.117	0.047	0.120	0.951	< .001	7	30
Rumination	324	6.580	3.359	0.388	-0.459	0.963	< .001	1	14
Emotional self-awareness	324	6.244	2.133	-0.134	-0.839	0.954	< .001	2	10
Guilt	324	7.475	2.768	0.210	-0.579	0.968	< .001	2	13
Expressing emotions	324	4.688	1.523	-0.187	-0.952	0.923	< .001	2	7
Uncontrollability	324	7.667	2.251	-0.273	-0.915	0.945	< .001	3	11
Seeking approval from others	324	3.238	2.327	0.076	-1.228	0.918	< .001	0	7
Understandability	324	7.898	2.825	-0.333	-0.712	0.942	< .001	2	12
Blame	324	4.355	2.058	0.114	-0.868	0.945	< .001	1	8
Trying to be rational	324	10.667	2.564	0.068	-0.079	0.973	< .001	4	16
Simplistic view of emotions	324	4.750	2.252	0.038	-1.103	0.915	< .001	1	8
Higher values	324	8.685	2.643	-0.929	0.582	0.913	< .001	1	12
Acceptance of emotions	324	6.938	2.373	-0.116	-0.715	0.955	< .001	2	11

General agreement	324	7.444	2.838	0.083	-1.230	0.931	< .001	3	12
Childhood trauma	324	70.577	21.426	-0.220	-0.697	0.945	< .001	27	112
Emotional schemas	324	86.630	18.763	0.199	-0.123	0.989	< .001	24	141
Sense of coherence	324	46.438	11.045	-0.011	-0.229	0.987	0.006	21	76

Table 3 presents the correlation coefficients between the primary research variables based on Spearman's correlation.

Table 3

Spearman's Correlation Matrix

Variable	1	2	3
1. Childhood trauma	—		
2. Emotional schemas	-0.625 ***	—	
3. Sense of coherence	-0.883 ***	0.647 ***	—

*p < .05, **p < .01, ***p < .001

According to Table 3, the childhood trauma variable had a significant and negative correlation with both emotional schemas ($r = -0.625$, $p < .001$) and sense of coherence ($r = -0.883$, $p < .001$). Moreover, emotional schemas were positively and significantly correlated with sense of coherence ($r = 0.647$, $p < .001$). Path coefficients among the study variables and the significance levels between them are reported in Table 4. The number of bootstrap samples in this model was set to 5,000.
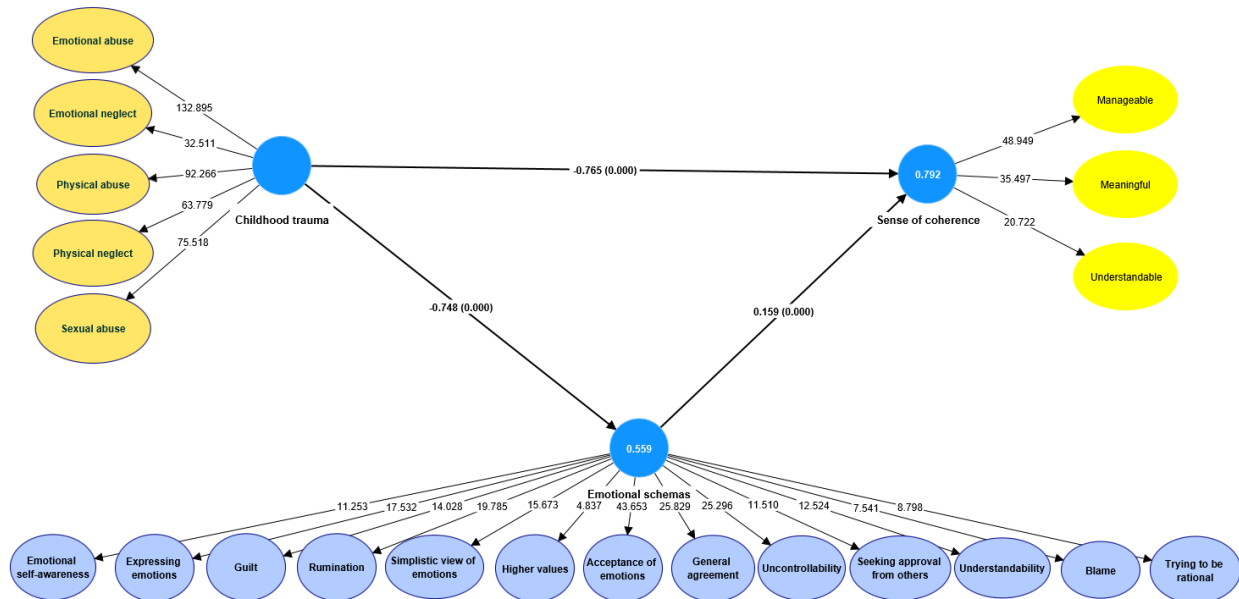
Table 4

Indirect and Direct Effects

Pathway	Estimate	STDEV	t-value	p	Lower Bound	Upper Bound
Childhood trauma → Emotional schemas	-0.748	0.027	27.564	p < .001	-0.799	-0.693
Childhood trauma → Sense of coherence	-0.765	0.040	19.110	p < .001	-0.844	-0.686
Emotional schemas → Sense of coherence	0.159	0.045	3.500	p < .001	0.070	0.247
Childhood trauma → Emotional schemas → Sense of coherence (indirect effect)	-0.119	0.034	3.507	p < .001	-0.185	-0.053
Childhood trauma → Sense of coherence (total effect)	-0.884	0.011	77.534	p < .001	-0.905	-0.861
Acceptance of emotions ← Emotional schemas	0.817	0.019	43.653	p < .001	0.777	0.850
Blame ← Emotional schemas	0.414	0.055	7.541	p < .001	0.300	0.517
Emotional abuse ← Childhood trauma	0.939	0.007	132.895	p < .001	0.924	0.951
Emotional neglect ← Childhood trauma	0.826	0.025	32.511	p < .001	0.773	0.871
Emotional self-awareness ← Emotional schemas	0.490	0.044	11.253	p < .001	0.401	0.569
Expressing emotions ← Emotional schemas	0.615	0.035	17.532	p < .001	0.543	0.680
General agreement ← Emotional schemas	0.687	0.027	25.829	p < .001	0.631	0.735
Guilt ← Emotional schemas	0.594	0.042	14.028	p < .001	0.505	0.670
Higher values ← Emotional schemas	0.322	0.067	4.837	p < .001	0.184	0.447
Manageable ← Sense of coherence	0.792	0.016	48.949	p < .001	0.759	0.822
Meaningful ← Sense of coherence	0.803	0.023	35.497	p < .001	0.754	0.843
Physical abuse ← Childhood trauma	0.873	0.009	92.266	p < .001	0.853	0.890
Physical neglect ← Childhood trauma	0.879	0.014	63.779	p < .001	0.850	0.904
Rumination ← Emotional schemas	0.693	0.035	19.785	p < .001	0.620	0.756
Seeking approval from others ← Emotional schemas	0.537	0.047	11.510	p < .001	0.438	0.624
Sexual abuse ← Childhood trauma	0.912	0.012	75.518	p < .001	0.886	0.933
Simplistic view of emotions ← Emotional schemas	0.614	0.039	15.673	p < .001	0.530	0.682
Trying to be rational ← Emotional schemas	0.481	0.055	8.798	p < .001	0.367	0.581
Uncontrollability ← Emotional schemas	0.706	0.028	25.296	p < .001	0.648	0.756
Understandability ← Emotional schemas	0.556	0.044	12.524	p < .001	0.466	0.636
Understandable ← Sense of coherence	0.726	0.035	20.722	p < .001	0.648	0.786

Figure 1

Statistical Diagram

Based on the results in Table 4 and Figure 1, the variable Childhood Trauma had a significant and negative direct effect on Emotional Schemas (β = -0.748, p < .001), leading to a decrease in emotional schemas. Likewise, Childhood Trauma had a significant and negative direct effect on Sense of Coherence (β = -0.765, p < .001), resulting in a reduced sense of coherence.

Additionally, Emotional Schemas had a significant and positive direct effect on Sense of Coherence (β = 0.159, p < .001), contributing to its increase. It was also found that Emotional Schemas had a positive direct effect on Self-Compassion (β = 0.503, p < .001), causing this variable to increase.

Furthermore, the indirect effects were examined in Table 4. The results indicated that Childhood Trauma had a significant and negative indirect effect on Sense of Coherence through Emotional Schemas (β = -0.119, p < .001).

The researcher applied the Sobel test to evaluate the statistical significance of the mediating variable. According to the test, if the Z-score exceeds 1.96, the mediation effect is considered significant at the 95% confidence level. The Sobel Z-score for Emotional Schemas as a mediator between Childhood Trauma and Sense of Coherence was -3.504. Based on these results, it can be concluded that the mediation effect is statistically significant.

Likewise, the relationship between all subcomponents and their respective main constructs was statistically significant. The reliability and validity of the research variables were assessed and are presented in Table 5.

Table 5

Reliability and Validity of the Model

Variables	Cronbach's Alpha	Composite Reliability	AVE
Sense of coherence	0.711	0.771	0.50
Childhood trauma	0.794	0.836	0.56
Emotional schemas	0.894	0.731	0.57

As shown in Table 5, the reliability and validity of the model were confirmed. The Cronbach's alpha values for all variables exceeded the threshold of 0.70, indicating acceptable internal consistency. The composite reliability

(CR) values were also greater than 0.70, further supporting construct reliability. Regarding convergent validity, the Average Variance Extracted (AVE) for all variables was above 0.50, indicating that each construct explains more than

half of the variance of its indicators. Thus, it can be concluded that the model demonstrates adequate reliability and convergent validity. The model fit indices are reported in Table 6.

Table 6

Assessment of Model Fit Statistics

Model Type	SRMR	NFI
Saturated model	0.075	0.752
Estimated model	0.075	0.752

Table 7

Predictive Relevance (Q²) Using the Blindfolding Technique

Variable	Q^2 (= 1 - SSE/SSO)
Emotional schemas	0.189
Sense of coherence	0.466

Model fit was evaluated using multiple indices. The Standardized Root Mean Square Residual (SRMR) was 0.075 for both the saturated and estimated models, which is below the acceptable threshold of 0.08, indicating a good fit. The Normed Fit Index (NFI) was 0.752, reflecting moderate model fit. Predictive relevance was assessed using the blindfolding procedure, where Q^2 values above zero indicate that the model has predictive accuracy. The Q^2 values for *emotional schemas* and *sense of coherence* were 0.189 and 0.466, respectively, confirming the model's predictive capability. In addition, the coefficient of determination (R^2) for endogenous variables was assessed and is shown in Table 8.

Table 8

Coefficient of Determination of the Model

Variables	R-square	R-square Adjusted
Emotional schemas	0.559	0.558
Sense of coherence	0.792	0.790

As illustrated in Table 8, the model demonstrates substantial explanatory power. The *emotional schemas* variable accounted for 55.8% of its variance, while the *sense of coherence* variable accounted for 79% of its variance. These results indicate that the model effectively explains and predicts the variation in the dependent variables.

4.   Discussion and Conclusion

The present study examined the direct and indirect relationships between childhood trauma, emotional schemas, and sense of coherence (SOC) among adolescents with risky behaviors. The results demonstrated that childhood trauma has a significant and negative direct effect on emotional schemas and SOC. Additionally, emotional schemas had a significant and positive effect on SOC. Most notably, emotional schemas were found to significantly mediate the relationship between childhood trauma and SOC. These findings provide empirical support for the hypothesis that early adverse experiences negatively impact adolescents' psychological resilience and coherence, primarily through their effect on maladaptive emotional schemas.

The direct negative impact of childhood trauma on SOC aligns with Antonovsky's salutogenic theory, which posits that SOC is a global orientation shaped by life experiences that foster a sense of predictability, manageability, and meaningfulness in one's life (Antonovsky, 1993). Consistent with prior research, the current study reinforces that trauma undermines the foundational elements of coherence, leaving adolescents less equipped to understand and respond to life stressors in a structured and meaningful way (Fan et al., 2024; Li & Ren, 2024; Mahammadzadeh et al., 2010). This finding mirrors the results of Hajlou et al., who found that individuals with a history of trauma demonstrated lower levels of coherence, which in turn predicted poor emotional coping (Hajlou et al., 2020). Similarly, Moksnes emphasized

that SOC plays a pivotal role in buffering psychological distress among adolescents, particularly those exposed to adversity (Moksnes, 2021).

The significant negative effect of childhood trauma on emotional schemas aligns with schema theory, which proposes that maladaptive schemas develop as a result of unmet emotional needs and early life adversities (Leahy, 2007; Nicol et al., 2021). In the current study, adolescents with higher trauma scores displayed more negative and rigid emotional schemas, supporting the view that traumatic experiences become internalized as dysfunctional emotional and cognitive patterns. This is supported by Bernstein et al., who argued that childhood trauma is a key antecedent to the development of cognitive-emotional distortions that persist into adolescence and adulthood (Bernstein et al., 2003). Moreover, studies by Feyzioğlu et al. and Rada et al. have similarly found that early maltreatment significantly predicts the formation of maladaptive schemas, particularly in domains related to self-blame, emotional inhibition, and distrust (Feyzioğlu et al., 2023; Rada et al., 2025).

The positive direct relationship between emotional schemas and SOC revealed in this study highlights the complex and dynamic interplay between emotional processing and resilience. Specifically, adolescents who were able to construct more adaptive emotional schemas—despite their history of trauma—were also more likely to report higher levels of SOC. This suggests that even in the presence of trauma, the way emotions are processed, understood, and expressed can serve as a protective mechanism. This finding is consistent with the work of Khanzadeh et al., who demonstrated that emotional schemas significantly predict adaptive emotional functioning, including higher coherence and lower emotional distress (Khanzadeh et al., 2013). Urtubia-Herrera et al. also emphasized that emotional intelligence and related schemas function as health assets that enhance coherence and mental well-being (Urtubia-Herrera et al., 2024).

Crucially, the mediating role of emotional schemas in the relationship between childhood trauma and SOC underscores their central position in adolescent psychological adaptation. This finding extends prior research by providing empirical support for the notion that emotional schemas serve as a cognitive-affective mechanism through which trauma affects long-term psychological coherence. Similar conclusions were drawn by You et al., who demonstrated that dysfunctional emotional schemas mediated the relationship between childhood maltreatment and depressive symptoms through

non-suicidal self-injury (You et al., 2024). Likewise, Lee et al. found that rumination and emotional rigidity were significant mediators in the trauma-psychopathology link among youth with early psychosis (Lee et al., 2019). These findings collectively suggest that targeting emotional schemas may be key to interrupting the negative sequelae of childhood trauma.

In light of these results, schema-focused therapeutic approaches gain strong empirical backing. Schema therapy, as demonstrated in studies by Arntz et al. and Peeters et al., has proven effective in addressing the deep-rooted emotional and cognitive distortions formed during adverse childhood experiences (Arntz et al., 2022; Peeters et al., 2022). These therapies, particularly when tailored to adolescents, can help reframe maladaptive schemas and enhance emotional processing capabilities, thereby indirectly strengthening SOC. Moreover, psychological interventions that promote emotional awareness and self-compassion—such as dialectical behavior therapy and mindfulness-based programs—have also shown efficacy in reshaping emotional schemas and building resilience (Carbonell, 2021; Damavandian et al., 2021).

The present study's findings also reinforce the need to adopt a trauma-informed framework in adolescent mental health services. Adolescents engaging in risky behaviors should not be approached merely as behaviorally disordered but rather as individuals responding to deep psychological wounds that compromise their emotional and cognitive resources (Imannezhad et al., 2023; Mirzaalian Dastjerdi, 2022). In this context, SOC serves not only as an outcome variable but also as a potential therapeutic goal. Enhancing SOC through interventions that focus on emotional literacy, relational security, and meaning-making can provide a buffer against the long-term effects of trauma (Mantas-Jiménez et al., 2024; Narimani & Ghaffari, 2016).

This study also has implications for prevention. As Loveday et al. highlighted in their systematic review, early screening for ACEs can identify at-risk children and provide timely interventions to prevent the entrenchment of maladaptive schemas (Loveday et al., 2022). Initiatives aimed at strengthening emotional schemas in children—particularly in school-based programs and primary care settings—could serve as early interventions that promote SOC and reduce risk-taking behaviors in adolescence. Furthermore, given the cultural variation in how trauma and emotions are understood and expressed, interventions should be culturally sensitive and contextually adapted (Elahian et al., 2025; Oguz et al., 2019).

The findings are also in line with identity development models that emphasize the integration of past experiences into a coherent self-concept during adolescence (Branje, 2022). Adolescents struggling with unresolved trauma and disorganized emotional schemas may face significant barriers in forming a stable identity, resulting in fragmented coherence and increased psychological vulnerability. This reinforces the role of psychological resilience as a developmental construct and the importance of psychosocial support during adolescence.

Despite the significance of the findings, this study is not without limitations. First, the cross-sectional design prevents any causal inferences regarding the directionality of relationships among variables. Longitudinal studies are required to examine how emotional schemas and SOC evolve over time in trauma-exposed adolescents. Second, reliance on self-report questionnaires may introduce social desirability and recall bias, especially when reporting traumatic events or emotional processes. Third, the sample was limited to adolescents in counseling centers and may not be representative of the general adolescent population, thus limiting the generalizability of the results. Finally, cultural factors specific to the Iranian context may influence how trauma, emotional schemas, and coherence are experienced and reported, necessitating caution when extending findings to other populations.

Future research should adopt longitudinal and mixed-methods approaches to better capture the developmental trajectories of emotional schemas and SOC over time. Experimental studies testing the efficacy of specific schema-based or SOC-enhancing interventions among trauma-exposed adolescents would provide stronger causal evidence. It is also recommended that future research include diverse cultural and socio-economic samples to explore the universality or cultural specificity of the observed relationships. Moreover, integrating physiological and neurobiological markers could offer a more comprehensive understanding of how trauma affects emotional and cognitive regulation. Including parental or caregiver variables could also shed light on intergenerational patterns of trauma and resilience.

Mental health practitioners working with adolescents should consider screening for childhood trauma and evaluating emotional schemas as part of comprehensive assessments. Interventions should aim to enhance emotional literacy, self-awareness, and adaptive schema restructuring. School counselors and educators should be trained in trauma-informed approaches and integrate socio-emotional learning programs that foster SOC. Public health policies should prioritize early intervention and prevention programs that address the long-term impact of ACEs, with particular attention to marginalized and at-risk youth. Additionally, creating safe, supportive environments in schools, families, and communities can significantly buffer the harmful effects of trauma and promote resilience and psychological coherence among adolescents.

Authors' Contributions

All authors significantly contributed to this study.

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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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the study and participated in the research with informed consent.

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