Journal Website

Article history:
Received 04 March 2025
Revised 01 June 2025
Accepted 08 June 2025
Initial Published 04 November 2025
Final Publication 01 February 2026

International Journal of Education and Cognitive Sciences

Volume 7, Issue 1, pp 1-11

E-ISSN: 3041-8828

Investigating the Relationship Between Psychological Capital and Attachment Styles with Risky Behaviors: The Mediating Role of Self-Compassion in Students

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A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Bathaei, S. M., Davari, R., & Ebrahimi Moghaddam, H. (2026). Investigating the Relationship Between Psychological Capital and Attachment Styles with Risky Behaviors: The Mediating Role of Self-Compassion in Students. *International Journal of Education and Cognitive Sciences, 7*(1), 1-11.
https://doi.org/10.61838/kman.ijecs.210

A B S T R A C T

Purpose: The present study aimed to determine the relationship between risky behaviors based on psychological capital and attachment styles with the mediating role of self-compassion.

Methods and Materials: This study was applied in nature and employed a descriptive design in terms of data collection method (research design), and it used structural equation modeling (SEM) for data analysis. The statistical population consisted of all female students enrolled in lower secondary schools in Tehran during the 2023–2024 academic year. A total of 385 students were selected through multistage cluster random sampling. The instruments used in this study included the Risky Behavior Questionnaire by Zadehmohammadi et al. (2008), the Psychological Capital Questionnaire by Luthans et al. (2007), the Attachment Styles Questionnaire by Hazan and Shaver (1987), and the Self-Compassion Scale by Neff (2003). Data were analyzed using SPSS version 23 and LISREL version 8.8.

Findings: The results showed that psychological capital, secure attachment style, and self-compassion had a direct and significant negative effect on risky behaviors. Conversely, avoidant insecure attachment style and ambivalent insecure attachment style had a direct and significant positive effect on risky behaviors. The findings related to indirect effects indicated that the relationships between psychological capital and attachment styles with risky behaviors were significant through the mediating role of self-compassion ($P < .01$).

Conclusion: Given the study findings, it is essential to understand the elements that may influence adolescents' tendency toward risky behaviors in order to design effective intervention strategies that can prevent many of these behaviors.

Keywords: *Risky behaviors, psychological capital, attachment styles, self-compassion*

1. Introduction

Adolescence is universally recognized as a critical stage of human development, characterized by profound physical, cognitive, and emotional transformations. During this period, adolescents often seek autonomy, explore identity, and encounter increasingly complex social interactions, all of which can expose them to risk-taking behaviors. Risky behaviors—including unsafe sexual practices, substance abuse, aggression, and delinquency—are not only prevalent in this stage but also pose significant threats to physical and mental health (Tariq & Gupta, 2023; Wilkins, 2023). Understanding the psychosocial determinants of such behaviors is essential for early interventions, especially when these behaviors emerge in the context of fragile psychological structures such as poor self-regulation, insecure attachment, or low psychological capital.

Psychological capital (PsyCap), a construct rooted in positive psychology, comprises four key components: self-efficacy, hope, resilience, and optimism. It represents an individual's internal resource pool that facilitates coping with challenges and promotes goal attainment (Moradimoghadam & Delavarpour, 2023). Adolescents with high levels of psychological capital are generally better equipped to resist peer pressure, regulate emotions, and navigate stressors without resorting to maladaptive or high-risk coping mechanisms (Yang & Yang, 2022; Zeng & Wei, 2023). Research indicates that PsyCap inversely correlates with risk behaviors such as substance use, aggression, and sexual impulsivity (Barahoyi et al., 2023; Bi & Jin, 2021; Wang et al., 2021). Moreover, the buffering effect of psychological capital against perceived stress, particularly among vulnerable populations like students and trauma survivors, has been well-documented (Jia et al., 2021; Kumar et al., 2022).

In parallel, attachment theory offers another influential framework for understanding adolescent behavioral outcomes. Rooted in early caregiver-infant dynamics, attachment styles—whether secure or insecure (avoidant or ambivalent)—form internal working models that shape interpersonal expectations, emotional regulation, and self-worth across the lifespan (Gonsalves & Hallett, 2021). Adolescents with secure attachment are more likely to exhibit healthy peer relationships, emotional balance, and prosocial behavior, while those with insecure attachment styles often display maladaptive coping strategies, emotional dysregulation, and vulnerability to risky behaviors (Craig et al., 2021; Saladino et al., 2024). Empirical findings suggest a strong link between attachment insecurity and engagement in unsafe sexual behavior, substance misuse, and violence (Chokan Sonbol et al., 2023; Kim & Miller, 2020; Mohammadzadeh et al., 2020).

A growing body of evidence highlights the mediating role of *self-compassion* in mitigating the impact of psychological and relational vulnerabilities on maladaptive behavior. Self-compassion—defined by Neff as an attitude of kindness toward oneself in moments of suffering or failure—encompasses self-kindness, common humanity, and mindfulness, and stands in contrast to self-judgment, isolation, and over-identification (Neff, 2023). Adolescents with higher self-compassion demonstrate greater emotional regulation, lower levels of shame and anxiety, and reduced engagement in risky behaviors (Chwyl et al., 2021; Gonçalves et al., 2024; Motale et al., 2024). In fact, self-compassion has been shown to mediate the relationship between insecure attachment and internalizing and externalizing symptoms, including risky sexual conduct, aggression, and substance use (Huang & Hou, 2023; Kıran & Cengiz, 2021; Salimi et al., 2023).

The interplay between psychological capital, attachment style, and self-compassion provides a comprehensive model for understanding risky behaviors in adolescents. Psychological capital equips adolescents with cognitive and emotional tools to manage adversity, but without a secure relational base (i.e., secure attachment), its effectiveness may be undermined (Cannon & Rucker, 2022; Moladoost et al., 2022). Similarly, the presence of self-compassion can enhance the functionality of psychological capital by fostering self-regulation and adaptive coping (Dabiri, 2022; Wisener & Khoury, 2022). Studies suggest that self-compassion acts as a psychological cushion that reduces the harmful impact of adverse internal representations formed through insecure attachments (Cadely et al., 2020; Seyed Khorasani et al., 2023). Adolescents who are taught to relate to themselves with understanding and kindness are less likely to resort to harmful behavior patterns as a way to manage distress or assert control.

The ecological and psychosocial context of Iranian adolescents adds another dimension to the relevance of this study. Iranian youth face complex sociocultural dynamics—such as evolving family structures, shifting norms regarding gender and autonomy, and increasing exposure to digital influences—that challenge traditional protective mechanisms like parental control or religious doctrine. In this context, internal protective resources like psychological

E-ISSN: 3041-8828

capital and self-compassion become even more critical (Noroozi & Janjani, 2023; Porzoor & Hajipour, 2023). Moreover, emerging research from Iran indicates a high prevalence of insecure attachment styles in adolescents and their association with emotional dysregulation and risky behaviors (Poursaeid Esfahani et al., 2021; Sefidrood & Hobbi, 2023). These findings align with global literature and underscore the need for localized investigations into these mechanisms within Iranian youth populations.

The current study builds upon these theoretical foundations and empirical insights to explore how psychological capital and attachment styles are related to risky behaviors in adolescent girls, and how self-compassion may mediate these relationships. Previous research supports the notion that higher levels of psychological capital are associated with lower rates of addictive behavior, poor academic engagement, and emotional impulsivity (Moradimoghadam & Delavarpour, 2023; Saket et al., 2023; Sepahvand et al., 2023). At the same time, interventions targeting attachment security and self-compassion have shown promise in reducing behavioral problems in adolescents from at-risk and orphaned backgrounds (Olson et al., 2023; Sharei et al., 2025). In sum, the integration of these three constructs—psychological capital, attachment styles, and self-compassion—offers a robust framework for preventive mental health interventions during adolescence.

Therefore, this study seeks to answer the following central question: How do psychological capital and attachment styles predict adolescents' tendency toward risky behaviors, and to what extent is this relationship mediated by self-compassion?

2. Methods and Materials

2.1. Study Design and Participants

This study is applied in terms of its objective and descriptive-correlational in terms of data collection. The statistical population consisted of female students enrolled in lower secondary schools in Tehran during the 2023–2024 academic year. Given that the minimum required sample size for structural equation modeling is 200 (Kline, 2016), a sample size of 396 was considered in this study, accounting for potential participant attrition. After removing outliers and standardizing the data, 385 female students were selected using multistage cluster sampling. For sample collection, permission was obtained from the Tehran Department of Education. One educational district was randomly selected from the city, and then six girls' lower secondary schools from that district were randomly chosen. From each school, three classes were selected, and from each class, 22 students were selected, totaling 396 participants.

All ethical considerations were observed, including obtaining informed consent, maintaining confidentiality, and voluntary participation. Participant identities remained confidential throughout the study, and they were allowed to withdraw without any consequences. Moreover, principles of honesty, integrity, and textual authenticity were strictly followed. Inclusion criteria were: being between 12 and 16 years of age and willingness to participate. Exclusion criteria included observable psychological disorders based on researcher observation and student health records, as well as lack of consent to participate.

2.2. Measures

Iranian Youth Risky Behavior Scale: This questionnaire was developed and validated by Zadehmohammadi, Hamd-Abadi, and Heydari (2008). It consists of 38 items assessing adolescents' vulnerability to seven categories of risky behaviors, including violence, smoking, substance use, alcohol consumption, reckless driving, sexual behavior, and opposite-sex tendencies. Responses are rated on a 5-point Likert scale from "strongly agree" (5) to "strongly disagree" (1), with total scores ranging from 38 to 190. Higher scores indicate greater risk-taking behavior. Zadehmohammadi et al. (2008) assessed construct validity using exploratory factor analysis with principal components, which explained 64.84% of the variance. Cronbach's alpha was reported at 0.94 for the overall scale, and between 0.74 to 0.93 for subcomponents, indicating high reliability. Sharei et al. (2024) reported a Cronbach's alpha of 0.91 for the entire scale. In the present study, Cronbach's alpha was 0.89.

Psychological Capital Questionnaire: This instrument was developed by Luthans et al. in 2007 and includes 24 items covering four subscales: self-efficacy, hope, resilience, and optimism. Items are scored on a 6-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (6), with total scores ranging from 24 to 144. The developers reported an overall Cronbach's alpha of 0.80, and subscale reliability ranging from 0.72 to 0.85 (Luthans et al., 2007). Confirmatory validity indices include a chi-square value of 24.6, CFI of 0.97, and RMSEA of 0.08. Numerous studies have reported strong psychometric properties for this tool. In Iran, Moradi Moghaddam and Dalavarpour (2023) reported Cronbach's alpha coefficients above 0.73 for all subscales. Sepand et al. (2023) reported

E-ISSN: 3041-8828

0.88. In the present study, the overall Cronbach's alpha was 0.89.

Attachment Styles Questionnaire: Developed by Hazan and Shaver (1987), this self-report instrument includes 21 items based on Ainsworth's three attachment styles: secure, avoidant insecure, and ambivalent insecure. It uses a 5-point Likert scale from 1 (none) to 5 (very much). Higher scores indicate a stronger presence of the respective attachment style (Hazan & Shaver, 1987). Hazan and Shaver (1987) reported a test-retest reliability of 0.81 and Cronbach's alpha of 0.78. In Iran, test-retest reliability coefficients for 300 participants over a four-week interval were 0.87 (secure), 0.83 (avoidant), and 0.84 (ambivalent) for women, and 0.88, 0.83, and 0.83 respectively for men. Content validity was confirmed by correlating scores from 15 psychology experts, with Kendall's coefficients at 0.80 (secure), 0.61 (avoidant), and 0.57 (ambivalent) (Besharat, 2003). Khorasani et al. (2023) reported Cronbach's alpha for secure, avoidant, and ambivalent styles as 0.73, 0.85, and 0.89, respectively, with validity coefficients at 0.62, 0.65, and 0.66. In the present study, Cronbach's alpha was estimated at 0.77 (secure), 0.79 (avoidant), and 0.80 (ambivalent).

Self-Compassion Scale: This scale was developed by Neff (2003) to assess self-compassion. It contains 26 items measuring six components: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification, reflecting both positive and negative dimensions of the three main self-compassion domains. Items are rated on a 5-point Likert scale from 1 (almost never) to 5 (almost always), with total scores ranging from 26 to 130. Higher scores indicate greater self-compassion (Neff, 2003). The original internal consistency was reported at 0.92 (Neff, 2003). Internationally, construct validity has been supported by correlations between total score and subscales, ranging from 0.77 to 0.88 (Neff et al., 2018). In Iran, Khosravi, Sadeghi, and Yabandeh (2014) confirmed the six-factor structure via exploratory factor analysis, and reported a Cronbach's alpha of 0.86. Salimi and Zare Mahdiabadi (2023) also reported an alpha of 0.86. In the present study, Cronbach's alpha for the entire scale was 0.89.

2.3. Data Analysis

Data analysis was conducted using Pearson correlation and structural equation modeling via SPSS version 27 and LISREL version 8.8.

3. Findings and Results

A total of 385 female students with a mean age of 14.26 years (SD = 0.91), within the age range of 12 to 16 years, participated in the study. Among the participants, 23.1% (n = 89) were in seventh grade, 37.7% (n = 145) in eighth grade, and 39.2% (n = 151) in ninth grade. Regarding birth order, 49.4% (n = 190) were firstborn, 43.1% (n = 166) second-born, 5.5% (n = 21) third-born, and 2.1% (n = 8) fourth-born or later.

Among the mothers of the participants, 27% (n = 104) had a high school diploma or lower, 16.1% (n = 62) had an associate degree, 34.5% (n = 133) held a bachelor's degree, and 22.3% (n = 86) had a master's degree or higher. In terms of occupation, 62.3% (n = 240) were housewives, 1% (n = 4) were laborers, 7.3% (n = 28) were self-employed, 24.2% (n = 93) were employees, and 5.2% (n = 20) were retired.

Among the fathers, 16.9% (n = 65) had a high school diploma or less, 12.5% (n = 48) had an associate degree, 24.9% (n = 96) had a bachelor's degree, and 45.7% (n = 176) had a master's degree or higher. Regarding employment, 3.1% (n = 12) were laborers, 10.9% (n = 42) were self-employed, 77.4% (n = 298) were employees, and 8.6% (n = 33) were retired.

Table 1

Descriptive Statistics of Study Variables

Variable	Component	Mean	SD	Skewness	Kurtosis
Risky behavior tendency	Reckless driving	12.39	4.84	0.16	-0.34
	Violence	14.94	4.62	0.16	-0.25
	Smoking	14.99	4.83	0.21	-0.32
	Drug use	20.52	9.29	0.21	-1.20
	Alcohol use	13.97	6.71	0.63	-0.70
	Opposite-sex friendship	13.72	4.49	0.12	-0.84
	Sexual behavior	5.89	4.79	0.16	-1.03
	Total score	96.42	30.43	0.28	-0.50
Psychological capital	Self-efficacy	26.80	6.74	-0.98	0.02
	Hope	26.69	6.98	-0.86	-0.34

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	Resilience	26.55	6.74	-0.90	0.01
	Optimism	26.20	6.52	-0.95	0.05
	Total score	106.23	25.51	-0.92	-0.17
Attachment styles	Secure	25.46	7.20	-0.67	-0.51
	Avoidant insecure	14.44	6.20	0.97	0.14
	Ambivalent insecure	16.56	6.76	0.69	0.68
Self-compassion	Self-kindness	14.95	4.54	-0.12	-0.71
	Self-judgment	13.39	4.31	0.48	0.12
	Common humanity	11.50	3.87	-0.05	-0.84
	Isolation	10.59	3.47	0.44	0.28
	Mindfulness	11.70	3.61	0.03	-0.71
	Over-identification	10.49	3.51	0.56	0.22
	Total score	72.62	19.01	0.23	0.20

Table 1 presents the descriptive statistics, including the mean and standard deviation, for scores on risky behavior tendencies, psychological capital, attachment styles, and self-compassion. The observed skewness values for all these variables fall within the acceptable range of -2 to +2, indicating normal distribution and symmetry. Similarly, kurtosis values also fall within the -2 to +2 range, supporting the assumption of normal distribution for these variables.

Table 2

Correlation Matrix of Study Variables

Variables	1	2	3	4	5	6
1. Risky behaviors	1					
2. Psychological capital	-0.62**	1				
3. Secure attachment	-0.65**	0.70**	1			
4. Avoidant insecure attachment	0.59**	-0.63**	-0.65**	1		
5. Ambivalent insecure attachment	0.64**	0.66**	-0.77**	0.68**	1	
6. Self-compassion	-0.57**	0.50**	0.52**	-0.51**	-0.53**	1

**p < .01

Based on the Pearson correlation results in Table 2, there is a significant and negative correlation between risky behavior tendencies and psychological capital ($r = -0.62$, $p < .01$), secure attachment style ($r = -0.65$, $p < .01$), and self-compassion ($r = -0.57$, $p < .01$). Conversely, significant and positive correlations exist between risky behavior tendencies and avoidant insecure attachment ($r = 0.59$, $p < .01$) as well as ambivalent insecure attachment ($r = 0.64$, $p < .01$). Additionally, self-compassion is significantly and positively correlated with psychological capital ($r = 0.62$, $p < .01$) and secure attachment ($r = 0.65$, $p < .01$), and significantly and negatively correlated with avoidant ($r = -0.59$, $p < .01$) and ambivalent insecure attachment ($r = -0.64$, $p < .01$). These correlations support the possibility of analyzing the mediating role of self-compassion in the relationship between psychological capital and attachment styles with risky behaviors.

To examine the relationship between psychological capital and attachment styles with risky behavior tendencies through the mediating role of self-compassion, structural equation modeling (SEM) was employed. Prior to analysis, assumptions for SEM were evaluated. One critical assumption is the absence of multicollinearity among predictor variables, which was tested using tolerance values and variance inflation factors (VIF). Tolerance values below 0.20 and VIF values above 5 indicate multicollinearity. The tolerance and VIF values for psychological capital, secure attachment, avoidant insecure attachment, ambivalent insecure attachment, and self-compassion were 0.43 (VIF = 2.31), 0.33 (VIF = 3.02), 0.45 (VIF = 2.21), 0.34 (VIF = 2.97), and 0.65 (VIF = 1.54), respectively, indicating low multicollinearity and satisfying this assumption. The Durbin-Watson statistic was 1.63, which falls within the 1.5–2.5 range, indicating no autocorrelation in the residuals. Standardized coefficients from the structural model are presented in Figure 1.

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Table 3

Model Fit Indices

Fit Index	Value	Acceptable Range	Result
Chi-square/df	2.79	< 3	Acceptable
RMSEA	0.068	Good: < 0.08; Moderate: 0.08–0.10	Good
CFI	0.92	> 0.90	Acceptable
GFI	0.92	> 0.90	Acceptable
AGFI	0.85	> 0.80	Acceptable

As shown in Table 3, the model fit indices indicate a good model fit. Therefore, the hypothesized model structure is confirmed.

Table 4

Direct Effects in the Research Model

Variables	Path Coefficient (β)	T-value	Standard Error	Significance
Psychological Capital → Risky Behavior Tendency	-0.14	-2.48	0.095	$p < .05$
Psychological Capital → Self-Compassion	0.16	2.75	0.041	$p < .05$
Secure Attachment → Risky Behavior Tendency	-0.21	-3.44	0.087	$p < .05$
Secure Attachment → Self-Compassion	0.19	3.22	0.030	$p < .05$
Avoidant Insecure Attachment → Risky Behavior Tendency	0.10	1.99	0.122	$p < .05$
Avoidant Insecure Attachment → Self-Compassion	-0.22	-3.64	0.025	$p < .05$
Ambivalent Insecure Attachment → Risky Behavior Tendency	0.14	2.55	0.105	$p < .05$
Ambivalent Insecure Attachment → Self-Compassion	-0.17	-2.91	0.036	$p < .05$
Self-Compassion → Risky Behavior Tendency	-0.27	-4.36	0.019	$p < .05$

As shown in Table 4, the path coefficients of the direct effects among the research variables are significant at $p < .05$. The findings indicate that risky behavior tendency among adolescent girls has a direct and significant negative relationship with psychological capital (β = -0.14, T = -2.48), secure attachment (β = -0.21, T = -3.44), and self-compassion (β = -0.27, T = -4.36), and a direct and significant positive relationship with avoidant insecure attachment (β = 0.10, T = 1.99) and ambivalent insecure attachment (β = 0.14, T = 2.55).

To examine the indirect effects of psychological capital and attachment styles on risky behaviors via the mediating role of self-compassion, the Sobel test was used. Additionally, the Variance Accounted For (VAF) index was applied to assess the strength of the mediation effect. The results are presented in Table 5.

Table 5

Indirect Effects Analysis Results

Indirect Effects	Sobel T	Standardized Path Coefficient	VAF Statistic	Significance	Result
Psychological Capital → Self-Compassion → Risky Behavior Tendency	5.165	0.043	0.236	$p < .05$	Confirmed
Secure Attachment → Self-Compassion → Risky Behavior Tendency	6.671	0.051	0.196	$p < .05$	Confirmed
Avoidant Insecure Attachment → Self-Compassion → Risky Behavior Tendency	7.882	0.059	0.373	$p < .05$	Confirmed
Ambivalent Insecure Attachment → Self-Compassion → Risky Behavior Tendency	5.727	0.046	0.247	$p < .05$	Confirmed

Based on the Sobel T statistics presented in Table 5, all values exceed the critical range (±1.96), confirming that the indirect effects of psychological capital and attachment styles on risky behavior tendencies via self-compassion are statistically significant. Therefore, in addition to their direct effects, psychological capital and attachment styles also

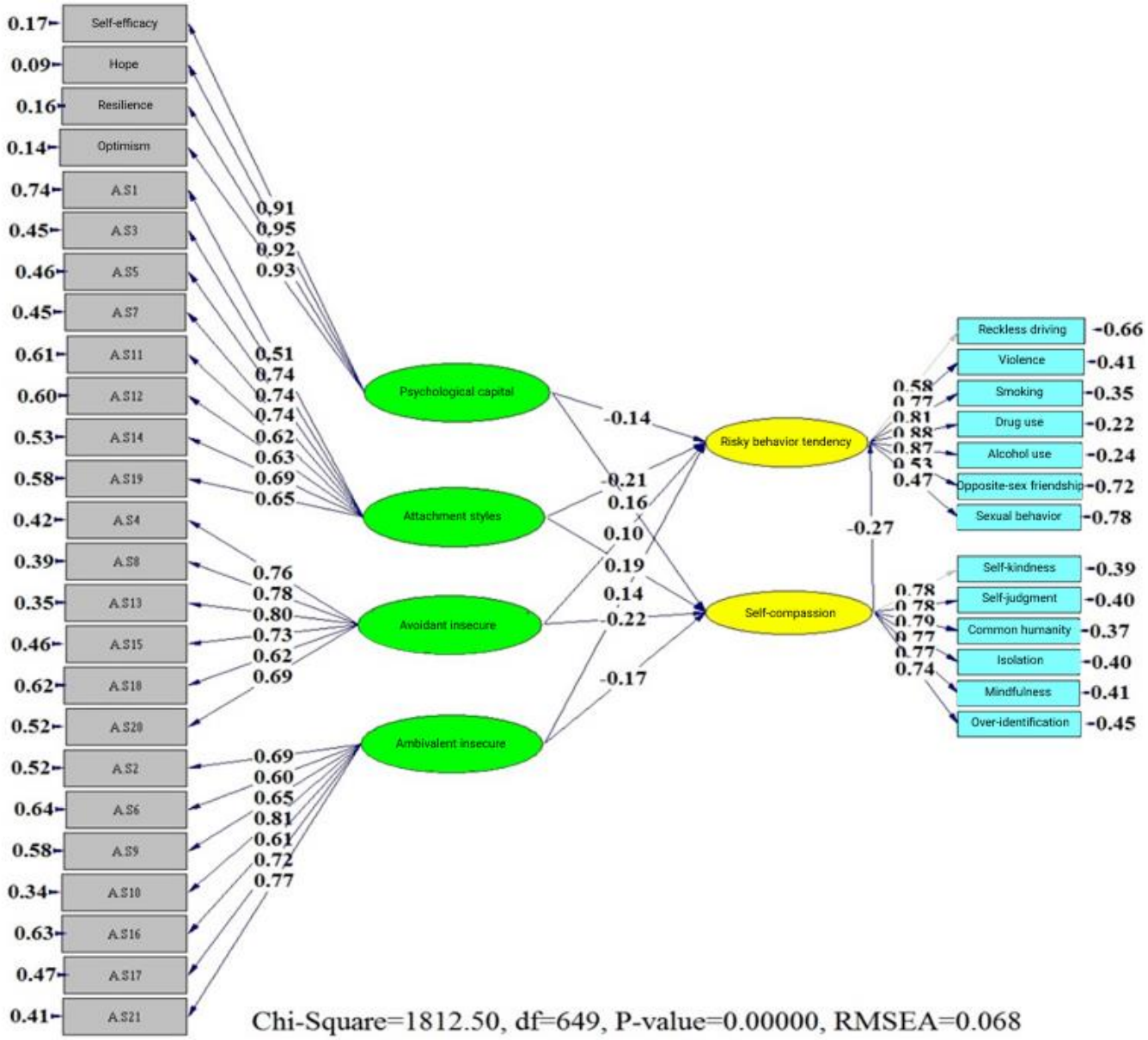
E-ISSN: 3041-8828

influence risky behavior tendencies indirectly through self-compassion.

According to the VAF values, 23.6% of the effect of psychological capital, 19.6% of the effect of secure attachment, 37.3% of the effect of avoidant insecure attachment, and 24.7% of the effect of ambivalent insecure attachment on risky behavior tendencies can be explained through the mediating role of self-compassion.

Figure 1

Risky Behavior Model Based on Psychological Capital and Attachment Styles with the Mediating Role of Self-Compassion (Standardized Coefficients)



4. Discussion and Conclusion

The present study aimed to investigate the direct and indirect effects of psychological capital and attachment styles on risky behaviors among adolescent girls, with self-compassion examined as a mediating variable. The findings revealed that psychological capital, secure attachment style, and self-compassion had significant negative associations with adolescents' tendency toward risky behaviors.

E-ISSN: 3041-8828

Conversely, avoidant and ambivalent insecure attachment styles exhibited significant positive associations with risky behaviors. Moreover, self-compassion was found to mediate the relationship between both psychological capital and attachment styles with risky behaviors. These results offer robust support for an integrative model in which both internal psychological resources and relational schemas contribute to behavioral outcomes during adolescence.

The inverse relationship found between psychological capital and risky behavior aligns with previous literature emphasizing the protective role of psychological capital in adolescent adjustment. Adolescents who possess higher levels of self-efficacy, optimism, hope, and resilience are more likely to engage in constructive problem-solving, regulate their emotions, and resist impulsive or socially pressured behavior (Barahoyi et al., 2023; Bi & Jin, 2021; Zeng & Wei, 2023). Psychological capital fosters adaptive responses to stress and enhances emotional control, reducing the likelihood of engaging in harmful actions such as drug use, aggression, or unsafe sexual activity (Wang et al., 2021; Yang & Yang, 2022). This is consistent with findings showing that psychological capital negatively predicts internalizing and externalizing symptoms, especially in environments that provide limited external support (Moladoost et al., 2022; Moradimoghadam & Delavarpour, 2023). Thus, reinforcing adolescents' psychological capital may serve as a strategic point of intervention in preventing high-risk behaviors.

Similarly, the study confirmed the significant role of attachment styles in predicting risky behaviors. Secure attachment showed a protective effect, while avoidant and ambivalent insecure attachments were positively correlated with behavioral risk-taking. These results resonate with the foundational premise of attachment theory: early relational experiences shape internal working models that influence emotional regulation, impulse control, and interpersonal decision-making (Craig et al., 2021; Gonsalves & Hallett, 2021). Insecure attachment styles, particularly avoidant and ambivalent, are often associated with diminished trust in others, heightened emotional dysregulation, and impaired coping mechanisms, all of which may push adolescents toward maladaptive behaviors (Chokan Sonbol et al., 2023; Kim & Miller, 2020; Mohammadzadeh et al., 2020). These findings mirror previous work showing that attachment insecurity is associated with an increased likelihood of engaging in unprotected sex, substance abuse, and oppositional behavior (Cadely et al., 2020; Saladino et al., 2024; Tucker et al., 2022).

A key contribution of this study lies in the mediating role of self-compassion, which was found to significantly explain the pathway between both psychological capital and attachment styles with risky behavior. The results showed that adolescents with higher psychological capital and secure attachment are more likely to cultivate a compassionate self-attitude, which, in turn, reduces their inclination toward risky behaviors. These findings align with existing literature that positions self-compassion as a self-regulatory mechanism that mitigates emotional distress and fosters psychological resilience (Chwyl et al., 2021; Kıran & Cengiz, 2021; Neff, 2023). Adolescents with greater self-compassion are more capable of acknowledging their suffering without being overwhelmed by self-criticism or feelings of isolation, thus avoiding the need to cope through risky behaviors (Gonçalves et al., 2024; Huang & Hou, 2023). Furthermore, prior studies suggest that self-compassion moderates the link between early relational deficits (such as insecure attachment) and behavioral problems, providing a stabilizing emotional framework (Dabiri, 2022; Salimi et al., 2023).

In explaining the indirect pathways, the current study's use of structural modeling and the Sobel test confirmed that self-compassion significantly mediates the effects of both secure and insecure attachment styles on risky behaviors. For instance, adolescents with insecure attachment who lack internalized secure relational templates may develop low self-worth and emotional instability, which makes them vulnerable to risky behaviors. However, the presence of self-compassion appears to mitigate this trajectory, helping individuals reframe negative emotions and build adaptive coping strategies (Porzoor & Hajipour, 2023; Seyed Khorasani et al., 2023). Likewise, psychological capital was found to contribute positively to self-compassion, reinforcing earlier findings that individuals with greater hope, optimism, and self-efficacy are more likely to treat themselves with kindness and maintain a constructive self-image in the face of failure (Cannon & Rucker, 2022; Wisener & Khoury, 2022). This suggests that developing psychological capital not only provides external behavioral benefits but also strengthens internal affective resources like self-compassion, which play a protective role against high-risk tendencies.

The cultural and contextual dimensions of this study should also be highlighted. The study was conducted among Iranian adolescent girls, a group exposed to specific sociocultural pressures, including gender-based expectations, strict family monitoring, and a rapidly

E-ISSN: 3041-8828

changing media environment. These factors may amplify psychological vulnerability and increase the appeal of high-risk behaviors as expressions of autonomy or emotional release (Noroozi & Janjani, 2023; Poursaeid Esfahani et al., 2021). In such settings, internal resilience factors such as self-compassion and psychological capital become even more pivotal. The present findings resonate with earlier Iranian studies indicating that these internal assets significantly predict students' well-being and behavioral regulation (Saket et al., 2023; Sepahvand et al., 2023). Moreover, the role of attachment security in buffering external stressors appears particularly relevant in conservative or emotionally restrained environments where open emotional expression is limited.

It is also noteworthy that self-compassion appears to operate as a dynamic bridge between cognitive-emotional resources (psychological capital) and relational-emotional schemas (attachment styles). This suggests that interventions focused on enhancing self-compassion may simultaneously activate and reinforce the protective mechanisms of both psychological and relational domains. For instance, mindfulness-based and compassion-focused therapies have shown efficacy in enhancing self-awareness, emotion regulation, and behavioral inhibition, especially in adolescents with a history of trauma or neglect (Owino & Asakhulu, 2021; Sharei et al., 2025). These findings advocate for integrated interventions in schools and counseling centers that promote emotional literacy and self-directed kindness as part of adolescent development programs.

In summary, the study contributes significantly to the understanding of how psychological capital and attachment styles influence adolescent risky behavior through the mediating role of self-compassion. The results support a multidimensional approach to adolescent risk prevention that emphasizes the development of internal protective resources, secure relational models, and compassionate self-attitudes. The integration of these three constructs—each supported by empirical research—offers a valuable framework for both theoretical advancement and practical intervention.

Despite its valuable contributions, this study is not without limitations. First, the cross-sectional design restricts causal inference. While structural equation modeling provides insight into directional relationships, longitudinal data are needed to confirm temporal and developmental dynamics. Second, the reliance on self-report measures introduces the potential for social desirability bias, particularly in responses related to sensitive behaviors such as substance use or sexual activity. Third, the study sample was limited to female students in urban Tehran, which may limit generalizability to male adolescents or rural populations, whose behavioral patterns and psychosocial contexts may differ significantly. Additionally, cultural factors specific to Iran might have influenced the expression and interpretation of attachment, self-compassion, and risk-taking behaviors, limiting the cross-cultural applicability of the findings.

Future studies should employ longitudinal designs to track the development of psychological capital, attachment styles, and self-compassion over time and examine how these constructs dynamically interact to influence behavioral outcomes. Expanding the sample to include both genders and diverse geographic and socioeconomic groups would enhance generalizability and allow for comparative analyses. Moreover, integrating qualitative approaches such as in-depth interviews could provide richer contextual understanding of adolescents' internal experiences and the nuances of their decision-making processes. Future research could also explore additional mediators or moderators, such as emotion regulation, peer influence, or school connectedness, to refine the explanatory model and capture the broader ecology of adolescent development.

Educational and counseling programs in schools should incorporate targeted interventions to enhance students' psychological capital through resilience training, goal-setting exercises, and self-efficacy workshops. Attachment-focused interventions, such as school-based relational mentoring or parenting education programs, could be implemented to promote secure relational bonds that support adolescents' emotional development. Additionally, self-compassion training, such as mindfulness-based stress reduction or compassion-focused therapy, should be integrated into school curricula to foster emotional resilience and reduce reliance on risky behaviors as coping strategies. These programs can be particularly effective if tailored to the cultural and gender-specific needs of adolescents in different contexts.

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.

E-ISSN: 3041-8828

Transparency Statement

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

Acknowledgments

We hereby thank all individuals for participating and cooperating us in this study.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

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 interview and participated in the research with informed consent. The research protocol was approved by the Ethics Committee of Islamic Azad University, Science and Research Branch, under the ethics code IR.IAU.R.REC.1403.022.

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E-ISSN: 3041-8828