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The Impact of Social Rejection on Anxiety Symptoms in Adolescents: The Mediating Role of Loneliness and Mindfulness

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ABSTRACT

Purpose: This study aimed to investigate the impact of social rejection on anxiety symptoms in adolescents, with the mediating roles of loneliness and mindfulness.

Methods and Materials: A descriptive correlational design was employed involving 400 adolescent students (aged 13–18) in Tehran, selected using multistage cluster sampling. Standardized instruments were used to assess social rejection, loneliness, mindfulness, and anxiety symptoms. Data were analyzed using Pearson correlation (SPSS-27) and Structural Equation Modeling (AMOS-21). Model fit was evaluated using multiple fit indices, and the assumptions of normality, linearity, and multicollinearity were verified prior to analysis.

Findings: Results revealed significant positive correlations between social rejection and both anxiety symptoms ($r = .63, p < .001$) and loneliness ($r = .57, p < .001$), while mindfulness was negatively correlated with both variables ($p < .001$). Structural equation modeling demonstrated that social rejection significantly predicted anxiety symptoms directly ($\beta = 0.36, p < .001$), and indirectly through loneliness ($\beta = 0.13, p < .001$) and mindfulness ($\beta = 0.09, p < .001$). The total effect of social rejection on anxiety was substantial ($\beta = 0.58, p < .001$). The model fit indices indicated a good fit ($\chi^2/df = 1.94, CFI = 0.96, TLI = 0.95, RMSEA = 0.048$).

Conclusion: The findings highlight that social rejection significantly contributes to adolescent anxiety symptoms, both directly and indirectly through increased loneliness and reduced mindfulness. These results emphasize the importance of addressing peer-related social stress and enhancing protective psychological resources such as mindfulness to mitigate anxiety in adolescents. The study contributes to a deeper understanding of the psychosocial mechanisms underlying adolescent mental health and offers practical implications for school-based prevention programs.

Keywords: *Adolescents; Social Rejection; Anxiety Symptoms; Loneliness; Mindfulness*

1. Introduction

Adolescence is a critical developmental period marked by significant emotional, social, and psychological transitions. During this stage, individuals are especially sensitive to interpersonal experiences, and their mental health can be profoundly shaped by social interactions. Among the numerous psychological challenges adolescents face, anxiety symptoms have emerged as one of the most prevalent and persistent conditions affecting their well-being and functioning (Janssen et al., 2025; Okońska et al., 2025).

Social rejection—defined as the experience of being deliberately excluded, ignored, or devalued by others—is a powerful stressor with far-reaching consequences for adolescents' psychological health. Adolescents who are exposed to rejection by peers, family members, or social groups often internalize these experiences, which may manifest in increased anxiety, emotional dysregulation, and negative self-perception (Andrews et al., 2022). Social rejection is not limited to overt exclusion but also includes subtle forms such as neglect, emotional invalidation, or digital exclusion on social media platforms (Saranya, 2025; Sheng, 2025). A recent surge in online interactions has further intensified the emotional impact of social rejection, as adolescents today often equate their digital presence and peer validation with their self-worth (Balamurali, 2025; Wal et al., 2024).

Empirical evidence supports the link between social rejection and anxiety symptoms in adolescents. Andrews et al. (2022) demonstrated that both online and offline social rejection significantly predicted anxiety sensitivity, particularly among adolescents with existing vulnerabilities. Similarly, Sheng (2025) found that adolescents who experienced frequent exclusion on social media reported higher levels of generalized anxiety and social anxiety. These findings are corroborated by studies suggesting that adolescents with depression or emotional disorders often encounter a "harsher social reality" online, which exacerbates their existing symptoms (Janssen et al., 2024, 2025). Moreover, perceived peer rejection has been shown to impair adolescents' emotional development and increase their susceptibility to internalizing disorders (Petrulytė et al., 2024; Wu et al., 2023).

While the direct relationship between social rejection and anxiety is well established, recent research suggests that mediating variables—such as loneliness—may help to explain how rejection leads to negative emotional outcomes. Loneliness, defined as the subjective feeling of social

disconnection or lack of meaningful relationships, is often a psychological consequence of perceived rejection (Öztekin, 2024). Adolescents who feel socially excluded are more likely to experience chronic loneliness, which in turn contributes to emotional distress, including anxiety and depression (Wu et al., 2023; Zhang, 2023). Öztekin (2024) emphasized that loneliness not only correlates with anxiety but also acts as a mediating variable that links social anxiety to diminished well-being. Similarly, Li (2023) reported that adolescents' feelings of loneliness significantly predicted their social maladjustment and anxiety, particularly in contexts where supportive social interactions were lacking.

The mediating role of loneliness in the pathway from social rejection to anxiety is particularly relevant in the post-pandemic context, where many adolescents report disrupted social networks and limited opportunities for in-person interaction (Wang, 2023). A growing number of studies highlight that even in the presence of online connections, adolescents often lack genuine emotional bonds, leading to persistent feelings of isolation and disconnection (Kathono et al., 2024; Rothe, 2023). Furthermore, adolescents who experience both familial and peer rejection are especially vulnerable to loneliness-induced anxiety, a dynamic observed across diverse cultural settings (Pokharel, 2025; Sánchez-Reyes et al., 2024).

While loneliness can intensify the psychological impact of rejection, protective psychological factors may mitigate its effects. One such factor is mindfulness, a trait and skill that enables individuals to maintain present-moment awareness with an accepting and nonjudgmental attitude. Mindfulness has been shown to promote emotional regulation, reduce stress reactivity, and enhance overall psychological resilience in adolescents (Harahap et al., 2024; Öztekin, 2024). Adolescents who possess higher levels of dispositional mindfulness are better equipped to manage social rejection and prevent it from escalating into anxiety. By enhancing self-awareness and cognitive flexibility, mindfulness allows adolescents to reframe negative experiences and reduce the emotional salience of perceived rejection (Goldenshluger et al., 2022).

Building on these theoretical and empirical foundations, the present study investigates the impact of social rejection on anxiety symptoms in adolescents, while exploring the mediating roles of loneliness and mindfulness.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a descriptive correlational design to investigate the impact of social rejection on anxiety symptoms in adolescents, with the mediating roles of loneliness and mindfulness. The target population consisted of high school students aged 13 to 18 in Tehran, Iran. A sample of 400 participants was selected based on Krejcie and Morgan's (1970) sample size determination table for a large population with a 95% confidence level and 5% margin of error. Participants were selected using a multistage cluster sampling method from various public and private schools across five educational districts of Tehran. Informed consent was obtained from all participants and their legal guardians. The inclusion criteria were: being an adolescent student, the ability to read and write Persian, and voluntary participation in the study. Students with any diagnosed psychiatric disorder (as reported by the school counselor) were excluded.

2.2. Measures

To assess anxiety symptoms in adolescents, the Screen for Child Anxiety Related Emotional Disorders (SCARED) developed by Birmaher et al. (1997) is a widely used and validated self-report tool. The instrument contains 41 items and evaluates five subscales: Panic Disorder or Significant Somatic Symptoms, Generalized Anxiety Disorder, Separation Anxiety Disorder, Social Anxiety Disorder, and School Avoidance. Respondents rate each item on a 3-point Likert scale (0 = Not true or hardly ever true, 1 = Somewhat true or sometimes true, 2 = Very true or often true), with higher scores indicating greater anxiety symptomatology. The SCARED has demonstrated strong psychometric properties, including high internal consistency and test-retest reliability. In Iran, its reliability and validity have been confirmed in multiple studies with adolescent populations, showing good cultural adaptability and construct validity.

To measure perceived social rejection, the Social Rejection Scale (SRS) developed by Zimmer-Gembeck et al. (2007) is a valid and reliable tool designed for adolescents. The scale comprises 15 items and captures the experience of being excluded, ignored, or devalued by peers. It includes components such as overt rejection, relational exclusion, and lack of social acceptance. Items are rated on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), with higher scores reflecting higher levels of perceived rejection. The scale has been used in Iranian studies and has demonstrated acceptable internal

consistency and construct validity among adolescents, making it suitable for cross-cultural research.

The UCLA Loneliness Scale (Version 3) developed by Russell (1996) is one of the most recognized tools for assessing subjective feelings of loneliness and social isolation. It includes 20 items scored on a 4-point Likert scale from 1 (Never) to 4 (Often), with higher scores indicating greater perceived loneliness. The scale measures dimensions such as emotional loneliness and social dissatisfaction. It has demonstrated strong internal consistency and test-retest reliability across different cultural settings. In Iran, the UCLA Loneliness Scale has been psychometrically validated in adolescent samples, confirming its factorial structure, convergent validity, and reliability, thus ensuring its appropriateness for the present study.

Mindfulness was assessed using the Mindful Attention Awareness Scale for Adolescents (MAAS-A), a 14-item scale adapted from the original MAAS developed by Brown and Ryan (2003) and modified for adolescents by Brown et al. (2011). The scale focuses on the core feature of mindfulness: present-centered attention and awareness. Items are scored on a 6-point Likert scale ranging from 1 (Almost always) to 6 (Almost never), with higher scores indicating greater mindfulness. The MAAS-A has shown high internal consistency and has been validated in diverse adolescent populations, including in Iran. Iranian studies have reported adequate psychometric properties, including convergent and discriminant validity, making it an appropriate measure for examining mindfulness in youth.

2.3. Data Analysis

Data were analyzed using SPSS version 27 for descriptive statistics (mean, standard deviation, frequency, percentage) and Pearson's correlation coefficient to assess the bivariate relationships between anxiety symptoms and the independent variables (social rejection, loneliness, and mindfulness). Furthermore, Structural Equation Modeling (SEM) was conducted using AMOS version 21 to examine the hypothesized mediation model. Model fit was assessed using indices such as Chi-square/df, RMSEA, CFI, and TLI. Prior to inferential analysis, data were screened for normality, outliers, and multicollinearity to ensure the assumptions of SEM were met.

3. Findings and Results

Of the 400 participants, 223 were female (55.8%) and 177 were male (44.3%). The mean age of participants was 15.47 years ($SD = 1.42$), with ages ranging from 13 to 18. Regarding grade level, 89 students (22.3%) were in the first year of high school, 104 students (26.0%) were in the second

year, 118 students (29.5%) were in the third year, and 89 students (22.3%) were in the final year. In terms of parental education, 24.5% of fathers and 27.8% of mothers held university degrees. Most participants (71.3%) reported living in nuclear families.

Table 1

Descriptive Statistics for Study Variables (N = 400)

Variable	Mean (M)	Standard Deviation (SD)
Social Rejection	47.62	9.84
Loneliness	42.75	10.43
Mindfulness	52.18	8.96
Anxiety Symptoms	39.54	11.27

As shown in Table 1, the highest mean score belonged to mindfulness ($M = 52.18$, $SD = 8.96$), suggesting a relatively high level of present-moment awareness among participants. Social rejection had a moderate mean ($M = 47.62$, $SD = 9.84$), while anxiety symptoms and loneliness showed slightly lower average scores ($M = 39.54$, $SD = 11.27$; $M = 42.75$, $SD = 10.43$, respectively).

Prior to conducting SEM, all statistical assumptions were tested. The data met the assumption of normality, with skewness and kurtosis values for all variables falling within the acceptable range of -1.96 to +1.96 (e.g., skewness for

anxiety = 0.77, kurtosis = 1.45). Multicollinearity was not a concern, as the Variance Inflation Factor (VIF) for all predictor variables ranged between 1.12 and 1.29, which is below the cutoff value of 5. Additionally, Mahalanobis distance was used to detect multivariate outliers, and 8 cases were excluded due to extreme values ($p < .001$). Linearity and homoscedasticity of residuals were visually checked and confirmed through scatterplots. Therefore, the dataset was deemed appropriate for Pearson correlation and SEM analysis.

Table 2

Pearson Correlations Between Study Variables

Variable	1	2	3	4
1. Social Rejection	—			
2. Loneliness	.57** ($p < .001$)	—		
3. Mindfulness	-.41** ($p < .001$)	-.39** ($p < .001$)	—	
4. Anxiety Symptoms	.63** ($p < .001$)	.59** ($p < .001$)	-.48** ($p < .001$)	—

As seen in Table 2, social rejection was positively and significantly correlated with loneliness ($r = .57$, $p < .001$) and anxiety symptoms ($r = .63$, $p < .001$), while negatively correlated with mindfulness ($r = -.41$, $p < .001$). Anxiety

symptoms also had strong positive correlations with loneliness ($r = .59$, $p < .001$) and a significant negative correlation with mindfulness ($r = -.48$, $p < .001$).

Table 3

Fit Indices of the Structural Model

Fit Index	Value	Threshold for Acceptable Fit
Chi-Square (χ^2)	143.28	—
df	74	—
χ^2/df	1.94	< 3.00
GFI	0.94	≥ 0.90
AGFI	0.91	≥ 0.90
CFI	0.96	≥ 0.95
RMSEA	0.048	< 0.06
TLI	0.95	≥ 0.95

The model demonstrated an excellent fit to the data. The chi-square value was 143.28 with 74 degrees of freedom, and the relative chi-square ($\chi^2/df = 1.94$) was within the

acceptable range. Fit indices indicated good to excellent model adequacy: CFI = .96, TLI = .95, GFI = .94, AGFI = .91, and RMSEA = .048.

Table 4

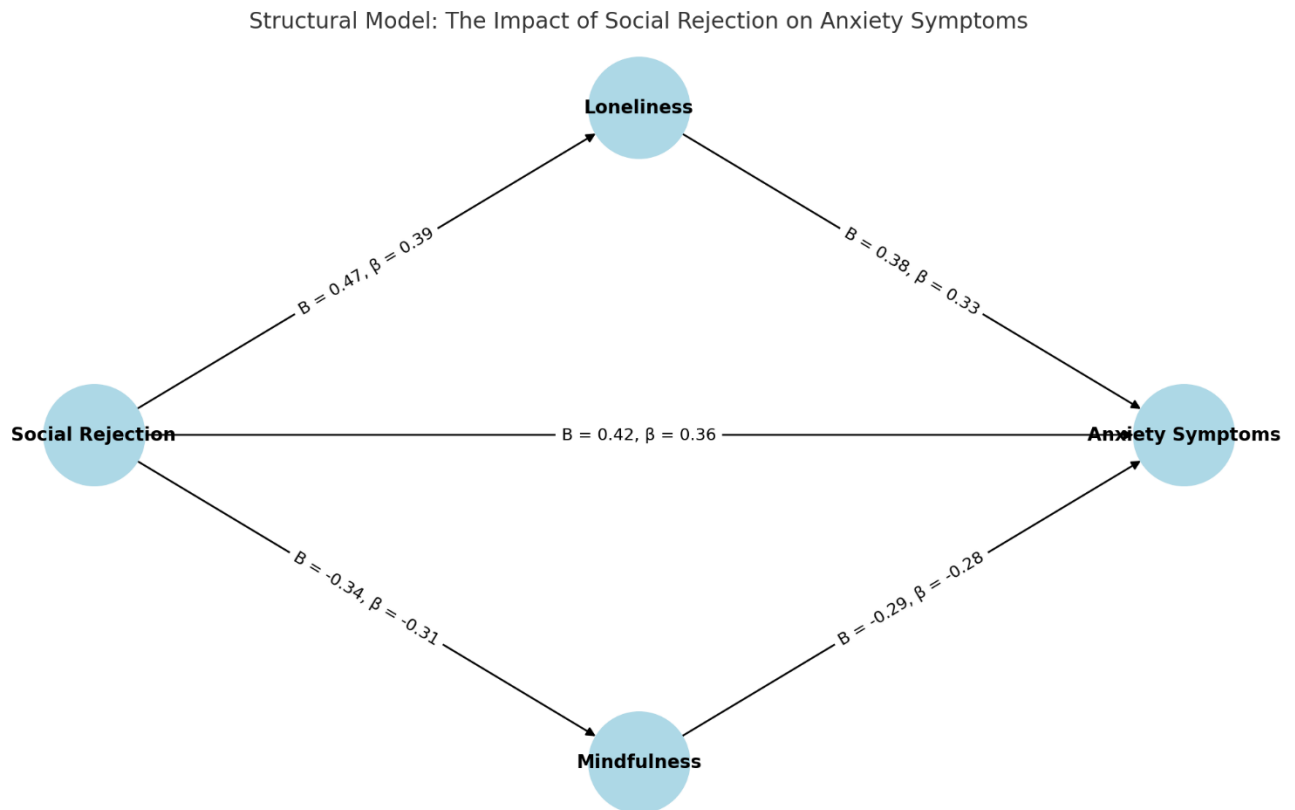
Direct, Indirect, and Total Effects Among Variables in the Structural Model

Path	B	S.E.	β	p
Social Rejection → Anxiety	0.42	0.05	0.36	< .001
Social Rejection → Loneliness	0.47	0.06	0.39	< .001
Loneliness → Anxiety	0.38	0.05	0.33	< .001
Social Rejection → Mindfulness	-0.34	0.04	-0.31	< .001
Mindfulness → Anxiety	-0.29	0.05	-0.28	< .001
Social Rejection → Anxiety (indirect via Loneliness)	0.18	—	0.13	< .001
Social Rejection → Anxiety (indirect via Mindfulness)	0.10	—	0.09	< .001
Total Effect (Social Rejection → Anxiety)	0.70	—	0.58	< .001

The results indicate that social rejection has a significant direct effect on anxiety symptoms ($\beta = 0.36$, $p < .001$), and also indirectly affects anxiety through both loneliness ($\beta = 0.13$, $p < .001$) and mindfulness ($\beta = 0.09$, $p < .001$). The total effect of social rejection on anxiety was $\beta = 0.58$ ($p < .001$), suggesting a robust influence. Loneliness also had a strong direct effect on anxiety ($\beta = 0.33$, $p < .001$), whereas mindfulness had a protective effect, reducing anxiety symptoms ($\beta = -0.28$, $p < .001$).

Figure 1

Final Structural Model



4. Discussion and Conclusion

The present study aimed to investigate the effect of social rejection on anxiety symptoms in adolescents, with a focus on the mediating roles of loneliness and mindfulness. The results of both the correlation analysis and structural equation modeling (SEM) indicated that social rejection is significantly and positively associated with anxiety symptoms. Furthermore, loneliness was found to play a significant mediating role in this relationship, while mindfulness had both a direct negative effect on anxiety and an indirect buffering role. These findings align with contemporary research highlighting the multifaceted impact of social factors on adolescent mental health.

The direct relationship between social rejection and anxiety symptoms observed in this study reinforces a substantial body of literature demonstrating that exclusion, marginalization, or peer invalidation can significantly increase adolescents' vulnerability to internalizing disorders. Consistent with Andrews et al. (2022), who found that social rejection sensitivity is a predictor of anxiety-related emotional distress in both online and offline contexts, our findings confirm that perceived rejection significantly contributes to adolescents' psychological symptoms (Andrews et al., 2022). Sheng (2025) also documented that increased social media use heightens adolescents' exposure to online rejection, which can trigger elevated levels of anxiety and emotional dysregulation (Sheng, 2025). Similarly, Wal et al. (2024) emphasized that social media often reinforces negative self-perceptions in socially excluded adolescents, exacerbating anxiety symptoms (Wal et al., 2024).

This study also found that loneliness serves as a partial mediator between social rejection and anxiety, suggesting that feelings of isolation resulting from rejection are a significant pathway through which anxiety symptoms are intensified. This aligns with the work of Öztekin (2024), who demonstrated that loneliness not only increases vulnerability to anxiety but also serves as a mediating variable between social anxiety and psychological distress (Öztekin, 2024). Supporting this, Li (2023) reported that adolescents with fewer quality social interactions often develop feelings of disconnection that heighten their sensitivity to emotional triggers, including anxiety (Li, 2023). Furthermore, Wang (2023) found that during periods of social isolation, such as the COVID-19 pandemic, adolescents experienced heightened loneliness, which in turn contributed to deteriorating emotional well-being (Wang, 2023). The present findings corroborate these results and extend them by establishing the mediating role of

loneliness specifically in the context of social rejection among adolescents in Tehran.

Moreover, mindfulness demonstrated both a direct and indirect negative association with anxiety symptoms, supporting its role as a psychological buffer. Adolescents who reported higher levels of mindfulness exhibited fewer symptoms of anxiety, even when experiencing social rejection. This finding is consistent with Öztekin (2024), who showed that mindfulness helps adolescents manage social anxiety and maintain subjective well-being (Öztekin, 2024). Similarly, Sofrona and Giannakopoulos (2024b) found that mindfulness moderated the negative impact of parental stress on adolescent mental health outcomes (Sofrona & Giannakopoulos, 2024b). Taddi et al. (2024) further emphasized that mindful adolescents are better equipped to navigate digital stressors, including cyber rejection, which supports the idea that mindfulness promotes resilience in emotionally charged environments (Taddi et al., 2024).

Our study also supports the protective value of mindfulness through its mediating and moderating functions. Adolescents who are more mindful tend to engage in present-moment awareness and non-judgmental thinking, reducing the tendency to ruminate over rejection and thus minimizing its emotional impact. This resonates with findings by Wu et al. (2023), who demonstrated that mindfulness enhances self-efficacy and emotional regulation in adolescents, particularly those affected by negative parenting practices or peer pressure (Wu et al., 2023). Sofrona and Giannakopoulos (2024a) additionally concluded that mindfulness improves adolescent quality of life even when environmental stressors like rejection are present (Sofrona & Giannakopoulos, 2024a). Altogether, the buffering role of mindfulness found in this study reinforces the growing consensus in adolescent psychology that mindfulness interventions can serve as effective tools for enhancing resilience and mental health.

Interestingly, the SEM results also revealed that while social rejection has a significant direct effect on anxiety symptoms, a considerable portion of this effect is transmitted through loneliness. This suggests a nuanced pathway where the psychological interpretation of rejection—as isolation and lack of social belonging—triggers a cascade of emotional dysregulation, culminating in anxiety. This dynamic is in line with the findings of Zhang (2023), who argued that disruptions in family and peer relationships due to rejection can lead to emotional instability and mental health deterioration (Zhang, 2023). Furthermore, the

emotional internalization of rejection is exacerbated by the adolescent developmental stage, which prioritizes peer approval and identity formation (Balamurali, 2025; Rothe, 2023).

From a social-cultural perspective, the results are also congruent with prior studies emphasizing the role of interpersonal rejection in collectivistic or tightly-knit family-oriented societies such as Iran. In such cultures, peer inclusion and familial support are central to adolescents' sense of security and identity. Axame et al. (2024) showed that the absence of such support, especially during critical psychological moments, leads adolescents to experience helplessness and even suicidal ideation (Axame et al., 2024). Similarly, Pokharel (2025) found that social stigma and perceived rejection hinder adolescents' willingness to seek emotional help, further deepening the isolation that contributes to anxiety (Pokharel, 2025).

Additionally, the role of parental behavior as a compounding or mitigating factor cannot be overlooked. Zahra and Saleem (2021) suggested that negative parenting styles often result in both interpersonal problems and internalizing symptoms, such as anxiety and depression, in adolescents (Zahra & Saleem, 2021). This point aligns with findings from Sofrona and Giannakopoulos (2024b), who found that parental rejection can amplify the effects of social rejection and loneliness (Sofrona & Giannakopoulos, 2024b). Hence, social rejection in peer contexts might interact with familial rejection, creating a cumulative risk environment for adolescent anxiety.

Finally, the present findings complement the broader discourse on adolescent mental health and the need to identify both risk and protective factors. As demonstrated by Sánchez-Reyes et al. (2024), adolescents from marginalized social groups (e.g., gender non-conforming youth) are especially vulnerable to the negative effects of rejection and require tailored psychological and social interventions (Sánchez-Reyes et al., 2024). Similarly, Petruelytė et al. (2024) emphasized the importance of emotional resilience and positive parenting in reducing the emotional toll of peer-related stressors (Petruelytė et al., 2024).

Despite the valuable insights provided by this study, several limitations should be acknowledged. First, the study used a cross-sectional design, which limits the ability to infer causality between social rejection, loneliness, mindfulness, and anxiety symptoms. While the SEM model offers theoretical pathways, longitudinal studies are needed to confirm the temporal direction of these relationships. Second, all data were collected through self-report

questionnaires, which may introduce response bias or social desirability effects. Adolescents may underreport or overreport emotional experiences depending on their perceptions of the research process. Third, the study focused exclusively on adolescents in Tehran, which may limit the generalizability of the findings to rural areas or other cultural contexts with different social dynamics.

Future studies could benefit from a longitudinal design to explore how experiences of rejection, changes in loneliness, and growth in mindfulness evolve over time and impact anxiety. Additionally, incorporating multi-informant approaches—such as reports from parents, teachers, or peers—could improve the accuracy and depth of data. Future research might also explore the interaction between online and offline rejection, especially in the digital age where adolescents' social lives span multiple platforms. Investigating the moderating roles of gender, socioeconomic status, and family dynamics could provide a more nuanced understanding of how these factors influence the rejection–anxiety pathway.

The findings of this study highlight the need for schools and mental health professionals to implement programs aimed at reducing peer rejection and fostering inclusion. Social skills training, anti-bullying campaigns, and peer mentorship programs can be effective in addressing social exclusion. Furthermore, incorporating mindfulness-based interventions into school curricula may help adolescents build emotional resilience and reduce anxiety symptoms. Mental health practitioners should also be attentive to signs of loneliness and explore ways to reconnect adolescents with supportive relationships. Overall, interventions targeting both social risk factors and internal coping resources are essential for promoting adolescent psychological well-being.

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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