

Original Article

Positive Parenting Moderates the Association between Alexithymia and Aggression in Iranian Early Adolescents: A Cross-Sectional Study

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Abstract

Background and Aim: Aggression is a common behavioral problem during adolescence associated with difficulties in emotional processing. Alexithymia is linked to higher levels of aggression, while positive parenting practices may influence this relationship. This cross-sectional correlational study examined the moderating role of positive parenting practices in the association between alexithymia and aggression among adolescents.

Materials and Methods: Participants were 151 middle school students (aged 12–15 years) from Khorramabad, Iran, selected through multistage cluster sampling during the 2023–2024 academic year. Data were collected using the Toronto Alexithymia Scale (TAS-20), the Anger and Aggression Scale, and the Alabama Parenting Questionnaire. Pearson correlation and hierarchical regression analyses were conducted using SPSS-26.

Results: Alexithymia was positively correlated with aggression ($r = 0.603$, $p < .01$), whereas positive parenting practices were negatively correlated with both alexithymia and aggression. Moderation analysis indicated that positive parenting practices significantly moderated the association between alexithymia and aggression ($\Delta R^2 = 0.039$, $\beta = -0.205$, $p = .002$). Higher levels of positive parenting were associated with a weaker relationship between alexithymia and aggression.

Conclusion: The findings suggest that positive parenting practices may buffer the association between alexithymia and aggression in adolescents. These results highlight the potential importance of supportive parenting environments in adolescent emotional and behavioral adjustment. Findings should be interpreted in light of the cross-sectional design and reliance on self-report measures.

Keywords: Aggression; Alexithymia; Adolescents; Parenting practices; Emotion regulation; Moderator; Cross-sectional study

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Introduction

Young individuals represent a critical human resource and a valuable asset for any society. Consequently, prioritizing mental health initiatives to foster an efficient workforce is a paramount public health concern (1). Among the various factors threatening the mental health of youth and adolescents, aggression stands out. In the literature, aggression is defined as behavior aimed at harming others (2) and is recognized as one of the most common and costly societal challenges (3, 4). According to a UNESCO survey, 32% of students' experience physical violence annually, a statistic that continues to rise (5). Aggressive behavior is not only pervasive among peers (6) but also transgenerational (7), inflicting significant damage on various aspects of life, including career development (8, 9) and overall physical and mental well-being (10). If left unmanaged, this destructive trait can impose a substantial burden on society, manifesting in consequences such as delinquency and property damage (11); thus, researchers have consistently emphasized the necessity of controlling and reducing aggression (12). To explore the etiology and mitigation of aggression, scholars have examined different developmental stages, highlighting that adolescence is a period marked by significant transformations (13). During this phase, individuals develop temperamental differences—such as varying reactions to the environment and the ability to regulate these responses (14, 15). These characteristics are strong predictors of psychological adjustment (or maladjustment) and related vulnerabilities (16), potentially serving as either protective factors against or risk factors for psychopathology (17). Alexithymia is defined as a multidimensional construct characterized by a profound inability to differentiate between personal emotions and bodily sensations (18–20). Far from being a clinical disorder, it is recognized as a personality trait manifesting through deficits in emotional awareness, limited imaginative capacity, an externally oriented cognitive style, and an avoidance of internal conflict (21). Essentially, individuals with alexithymia struggle to recognize, describe, and express their emotional states, reflecting broader deficiencies in emotional

regulation and cognitive processing (22).

Research indicates that these individuals often channel internal tension into external behavioral manifestations—such as anger, violence, or physiological reactivity—rather than employing adaptive internal coping mechanisms (23). Consequently, alexithymia has been robustly associated with externalizing behavioral problems during adolescence (24, 25). Reduced capacity for the cognitive processing of emotional experiences limits an adolescent's ability to regulate their affect (26), while diminished emotional awareness has been linked to various psychopathologies, including both internalizing and externalizing problems (27). In adulthood, this construct has been identified as a mediator between adverse experiences (e.g., maltreatment) and maladaptive outcomes, such as risky sexual behavior (28), impulsivity (29), self-injury (30), and suicidal ideation (4).

Theoretically, the relationship between alexithymia and aggression is not static; it appears to be moderated by the family environment (31). While models of emotion regulation suggest that adolescents who struggle to identify and express emotions are prone to maladaptive behaviors like aggression (18), a supportive family environment may serve as a buffer, fostering the development of adaptive regulation skills and thereby attenuating the behavioral consequences of emotional deficits (32).

Similarly, attachment theory posits that warm and responsive parenting fosters emotional security and facilitates healthier emotion processing, thereby protecting adolescents from externalizing behaviors (33). Furthermore, social learning theory emphasizes that parents serve as primary models for emotional expression and conflict resolution. Consistent with this framework, positive parenting practices may function as a protective contextual factor that mitigates the association between alexithymia and aggression (34). Positive parenting is an educational approach grounded in the cultivation of empathetic, nurturing parent-child relationships. This approach prioritizes the reinforcement of constructive behaviors, the enhancement of effective communication, and the development of children's social, emotional, and cognitive competencies (34). Key principles of this model involve consistent responsiveness to the

emotional and psychological needs of the child (35). Empirical evidence consistently demonstrates that supportive and affectionate parenting is associated with lower levels of destructive and aggressive behavior in youth (36). By guiding children in recognizing and managing their emotions, parents equip them with essential coping strategies for stressful situations (37). Moreover, positive parenting fosters social skills such as empathy and cooperation, providing viable alternatives to aggressive conduct (38). In summary, strategies inherent to positive parenting—such as encouraging adaptive emotional expression (39), teaching problem-solving skills, and implementing appropriate, non-punitive responses to aggression—are well-documented as effective in reducing adolescent aggression (40).

Parenting styles exert a profound influence on emotional development. Authoritative and positive parenting approaches foster secure environments, enabling children to effectively recognize and articulate their internal states (41). By validating a child's emotions and encouraging open expression, parents serve as protective buffers against the onset of alexithymia (42). Furthermore, when parents consistently model adaptive emotion regulation, they provide a blueprint for their children's emotional management (43). Conversely, neglectful or overly strict parenting—where emotional needs are dismissed or criticized—can impede emotional maturation and contribute to the development of alexithymia traits (44).

Beyond emotional development, positive parenting directly mitigates aggressive tendencies. By prioritizing warm, supportive, and non-coercive interactions over punitive measures, this approach cultivates self-esteem, reduces behavioral problems, and enhances social-emotional competence (39). Adolescence is a particularly critical developmental window for investigating these dynamics, as this stage entails significant shifts in cognitive and emotional functioning (18). As adolescents navigate increasing interpersonal and academic pressures, deficits in emotional awareness (alexithymia) may become more pronounced (13). Nevertheless, parents remain central to shaping behavioral adjustment throughout this phase (15). Consequently, exploring these processes within an Iranian context offers critical insights into

how familial factors function within a non-Western society to foster emotional well-being and attenuate aggressive behavior.

It follows that individuals raised within a framework of positive parenting are theoretically less prone to both alexithymia and aggression. While previous research has well-documented the individual associations between alexithymia and aggression, and between parenting practices and adolescent outcomes, less attention has been directed toward the specific conditions under which alexithymia manifests as aggression. In particular, empirical evidence is sparse regarding whether positive parenting practices modulate the strength of the relationship between these two variables during adolescence. Consequently, it remains unclear whether supportive family environments can effectively buffer the behavioral risks stemming from deficits in emotional awareness and expression. Given the significant emotional, cognitive, and social transformations characteristic of this developmental stage, identifying such protective family factors is critical. Therefore, the present study aims to investigate the moderating role of positive parenting in the association between alexithymia and aggression among adolescents.

Methods

Study Design and Participants

The present study employed a cross-sectional correlational design. Given its observational nature, the findings should be interpreted as reflecting associations among the study variables rather than causal relationships. The target population consisted of middle school students (Grades 7-9) enrolled in public schools in Khorramabad, Iran, during the 2023-2024 academic year. A sample of 151 adolescents aged 12-15 years was recruited using multistage cluster sampling. The sample size was determined using Cochran's formula and was considered adequate for examining associations among the study variables through correlational and hierarchical regression analyses.

The sampling procedure was conducted in several stages. First, one educational district was randomly selected from the two districts of Khorramabad. Next, five schools were randomly selected from the chosen district, and ten classes were randomly selected from

those schools. Students who met the inclusion criteria were invited to participate. The inclusion criteria were: (a) age between 12 and 15 years, (b) enrollment in Grades 7-9, (c) willingness to participate, and (d) no known history of psychiatric disorders. The exclusion criteria included refusal to participate, withdrawal from the study at any stage, and incomplete questionnaire responses.

The absence of psychiatric disorders was determined based on participants' self-reports during recruitment. Because no structured diagnostic interview or standardized psychiatric screening instrument was administered, the possibility of misclassification regarding clinical status cannot be entirely ruled out. The final sample consisted of 75 boys (49.7%) and 76 girls (50.3%), representing all three middle-school grades. Because participants were recruited through multistage cluster sampling, potential clustering effects should be taken into account when interpreting the findings. Ethical principles related to research with adolescent participants were strictly upheld throughout the study. Approval to conduct the research was obtained from the relevant educational authorities and school administrators. Before data collection, the study objectives and procedures were explained to the students and their parents or legal guardians. Written informed consent was obtained from parents or legal guardians, and verbal assent was obtained from the students. Participation was voluntary, and participants were informed that they could withdraw from the study at any time without penalty. To protect confidentiality, questionnaires were completed anonymously, and the data were used exclusively for research purposes and reported only in aggregate form. Data analysis was conducted using moderated hierarchical regression in SPSS 26.

Instruments

Toronto Alexithymia Scale (TAS-20): Alexithymia was assessed using the 20-item Toronto Alexithymia Scale (TAS-20), developed by Bagby et al. (45). This instrument comprises three subscales: Difficulty Identifying Feelings (DIF; Items 1, 3, 6, 7, 9, 13, and 14), Difficulty Describing Feelings (DDF; Items 2, 4, 11, 12, and 17), and Externally Oriented Thinking (EOT; Items 5, 8, 10, 15, 16, 18, 19, and 20). Responses are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items

4, 5, 10, 18, and 19 are scored reversely. Total scores range from 20 to 100, with higher scores indicating higher levels of alexithymia. The Persian version of the TAS-20, previously validated in Iranian clinical and non-clinical populations, was used in the present study (46).

Previous psychometric evaluations have demonstrated satisfactory reliability and validity, with Cronbach's alpha coefficients of 0.85 for the total scale, 0.82 for Difficulty Identifying Feelings, 0.75 for Difficulty Describing Feelings, and 0.72 for Externally Oriented Thinking (46). Test-retest reliability coefficients ranging from 0.80 to 0.87 have also been reported (46). The availability of validated Persian items and evidence supporting the construct validity of the scale have contributed to its widespread use in studies involving Iranian adolescents and young adults. In the present study, the internal consistency of the TAS-20 was acceptable, with a Cronbach's alpha coefficient of 0.83.

Anger and Aggression Scale: aggression was measured using the Children's Inventory of Anger (CIA), a 39-item self-report instrument developed by Nelson and Finch (47) for children and adolescents aged 6–16. The scale evaluates anger-provoking situations, emotional intensity, and behavioral responses across four domains: Frustration (11 items), Physical Aggression (9 items), Peer Relationships (9 items), and Authority Relationships (10 items). Items are rated on a 4-point Likert scale ranging from 1 ('I do not care') to 4 ('I get really upset and angry'), with total scores ranging from 39 to 156; higher scores reflect greater levels of anger and aggression. The validated Persian version was utilized in the present study (48). Previous psychometric evaluations in Iranian populations have demonstrated satisfactory reliability and validity, with test-retest coefficients ranging from 0.65 to 0.75, internal consistency coefficients between 0.85 and 0.86, and construct validity coefficients of 0.93 across subscales (48). Further evidence has supported its validity through significant correlations with other aggression measures within this cultural context. In the current study, the internal consistency was satisfactory, with a Cronbach's alpha coefficient of 0.79.

Alabama Parenting Questionnaire (APQ): Parenting practices were assessed using the Alabama Parenting

Questionnaire (APQ), developed by Frick (49). The 42-item instrument evaluates five dimensions of parenting: Parental Involvement (Items 1, 4, 7, 9, 11, 14, 15, 20, 23, 26), Positive Parenting (Items 2, 5, 13, 16, 18, 27), Inconsistent Discipline (Items 3, 8, 12, 22, 25, 31), Poor Monitoring/Supervision (Items 6, 10, 17, 19, 21, 24, 28, 29, 30, 32), and Corporal Punishment (Items 33, 35, 39).

Responses are rated on a 5-point Likert scale ranging from 1 ('never') to 5 ('always'), with subscale scores calculated as the mean of constituent items; higher scores indicate greater endorsement of the respective parenting practice. Given the study's focus, only the Positive Parenting subscale was utilized for the current analyses.

The validated Persian version (50) has demonstrated sound psychometric properties in Iranian samples, with construct validity supported by factor-analytic procedures, average inter-factor correlations of 0.71, and robust internal consistency and test-retest reliability coefficients of 0.86 (50). In the present study, the internal consistency of the Positive Parenting subscale was acceptable, with a Cronbach's alpha coefficient of 0.76.

Data Analysis

Data were analyzed using SPSS 26. Prior to the main analyses, the data were screened for data accuracy, missing values, and outliers. Descriptive statistics, including means and standard deviations, were calculated for all study variables. Pearson correlation coefficients were computed to examine the bivariate associations among alexithymia, positive parenting, and aggression.

To test the moderating role of positive parenting, hierarchical multiple regression analysis was performed.

In accordance with standard recommendations for moderation analysis, alexithymia and positive parenting scores were mean-centered prior to creating the interaction term in order to reduce potential multicollinearity and facilitate interpretation of the interaction effect. In Step 1, alexithymia was entered as the predictor. In Step 2, positive parenting was added to the model. In Step 3, the interaction term between alexithymia and positive parenting was entered. The significance of the moderation effect was

evaluated based on the change in explained variance (ΔR^2) associated with the interaction term. Statistical significance was set at $p < .05$.

Results

The sample consisted of 151 middle school students from Khorramabad city, including 75 boys (49.7%) and 76 girls (50.3%), with an age range of 12 to 15 years ($M = 13.42$, $SD = 0.91$). Participants were distributed across grades seven to nine.

Table 1 presents the descriptive statistics and correlation coefficients among the study variables, including alexithymia, positive parenting, and aggression. As shown, the mean score for alexithymia was 68.52 ($SD = 14.36$), for positive parenting 48.64 ($SD = 21.18$), and for aggression 69.39 ($SD = 12.27$). Prior to hypothesis testing, preliminary analyses were conducted to evaluate data quality and the assumptions underlying the statistical procedures. No substantial missing data were identified, and the distributions of the study variables approximated normality.

The assumptions of linearity, homoscedasticity, and independence of errors were also examined and found to be satisfactory. Multicollinearity diagnostics indicated no evidence of problematic overlap among the predictor variables. Descriptive statistics and bivariate correlations among alexithymia, positive parenting, and aggression are presented in Table 1.

The results presented in Table 1 indicated significant correlations among all study variables. Prior to testing the moderation hypothesis, the assumptions underlying hierarchical regression were evaluated. The distribution of residuals was approximately normal, as indicated by the Kolmogorov-Smirnov test ($p > .05$) and visual inspection of normal probability plots. Examination of scatterplots revealed no substantial violations of linearity or homoscedasticity.

The independence of residuals was supported by a Durbin-Watson statistic of 1.89. To reduce potential multicollinearity and facilitate interpretation of the interaction effect, alexithymia and positive parenting scores were mean-centered prior to constructing the interaction term. Multicollinearity diagnostics indicated acceptable values, with tolerance coefficients ranging from .74 to .89 and variance inflation factor (VIF)

values ranging from 1.12 to 1.35. Collectively, these findings suggested that the assumptions required for hierarchical regression were adequately met. A hierarchical regression analysis was then conducted to examine whether positive parenting moderated the association between alexithymia and aggression. The results are presented in Table 2.

These findings suggested that the assumptions required for hierarchical regression analysis were adequately met. Accordingly, hierarchical regression analysis was employed to examine the proposed moderation effect. The results are presented in Table 2. As shown in Table 2, the hierarchical regression analysis revealed a significant change in explained variance across the steps of the model. In the initial steps, alexithymia and positive parenting accounted

for 36.4% and 38.4% of the variance, respectively. With the addition of the alexithymia $\times$ positive parenting interaction term in the final step, the explained variance increased to 42.3%, and this increment remained statistically significant. These findings indicate that positive parenting significantly moderates the relationship between alexithymia and aggression. In other words, the association between alexithymia and aggression differs across high and low levels of positive parenting. To further clarify the nature of this moderating effect, an interaction plot was generated using standardized regression coefficients, with separate regression lines estimated for high and low levels of positive parenting. Figure 1 illustrates the interaction between alexithymia and positive parenting in predicting aggression.

Table 1. Correlation Coefficients, Means, and Standard Deviations for Variables

Variables	1	2	3	Mean	SD
1. Alexithymia	-			68.522	14.361
2. Positive Parenting	-0.421**	-		48.645	21.184
3. Aggression	0.603**	-0.383**	-	69.395	12.279

P<0.01

Table 2. Hierarchical Regression Analysis Predicting Aggression from Alexithymia, Positive Parenting, and Their Interaction

Steps	B	Beta	R	R ²	ΔR^2	R Square Change	F Change	P
1. Alexithymia	.603	.603	.603	.364	.360	.364	87.591	.001
2. Positive Parenting	-.157	-.157	.620	.384	.376	.020	5.036	.026
3. Positive Parenting $\times$ Alexithymia	-.218	-.205	.650	.423	.412	.039	10.116	.002

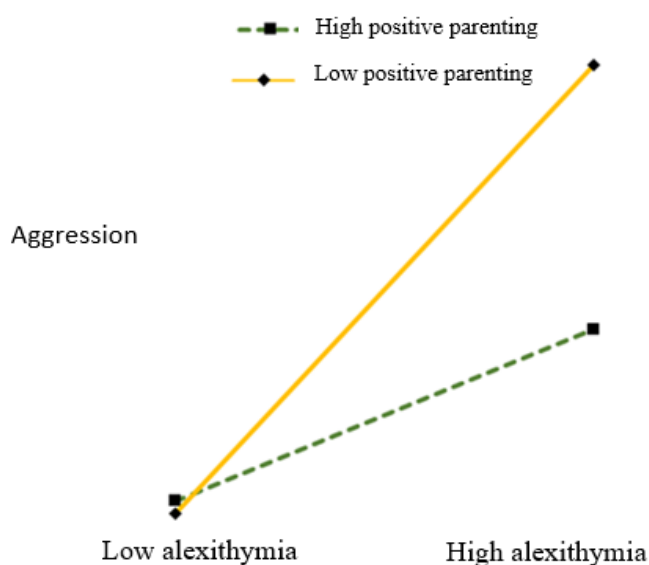


Figure 1. Interactive effects of alexithymia and positive parenting in predicting aggression tendencies.

As illustrated in Figure 1, the highest levels of aggression were observed among adolescents with higher levels of alexithymia and lower levels of positive parenting, whereas the lowest levels were observed among those with lower alexithymia and higher levels of positive parenting. Visual inspection of the interaction pattern further indicated that the positive association between alexithymia and aggression was stronger at lower levels of positive parenting and weaker at higher levels of positive parenting.

These findings suggest that positive parenting may function as a protective contextual factor that attenuates, although it does not entirely eliminate, the association between alexithymia and aggressive tendencies. In other words, adolescents with elevated alexithymia appear less likely to exhibit aggressive tendencies when they experience higher levels of positive parenting than when they are exposed to lower levels of positive parenting.

Discussion

This study aimed to examine the moderating role of positive parenting in the relationship between alexithymia and aggressive tendencies among adolescents.

The results revealed a significant positive association between alexithymia and aggressive tendencies, suggesting that adolescents who struggle to identify, understand, and regulate their emotions are more likely to report higher levels of aggressive behavior. This finding aligns with previous literature reporting significant associations between alexithymia and aggression in youth (19, 23, 27).

One plausible explanation is that adolescents with higher levels of alexithymia may encounter greater difficulty recognizing and managing negative emotional states, thereby increasing the likelihood of maladaptive behavioral responses.

Previous research has indicated that deficits in emotional awareness and regulation are linked to lower empathy, impaired interpersonal functioning, and greater psychological distress—factors that may collectively contribute to aggressive tendencies (51). Consistent with this interpretation, studies have shown that alexithymia is associated with various behavioral

problems, including aggression and externalizing symptoms in adolescents (24, 25). Nevertheless, given the cross-sectional design of the present study, these findings should be interpreted as patterns of association rather than causal evidence.

Furthermore, the results confirmed that positive parenting significantly moderated the relationship between alexithymia and aggressive tendencies. Specifically, the association between alexithymia and aggression was attenuated in adolescents who perceived higher levels of positive parenting compared to their counterparts reporting lower levels. While the interaction effect reached statistical significance, the variance explained by the interaction term was relatively modest ($\Delta R^2 = .039$). Consequently, this moderating effect should be interpreted as modest in magnitude, suggesting that while positive parenting serves as a protective buffer, it represents one of several contextual mechanisms influencing the link between alexithymia and adolescent aggression.

The present findings are broadly consistent with previous studies indicating that positive parenting practices are associated with lower levels of aggression and more adaptive emotional and behavioral functioning among children and adolescents (36, 38, 39).

Several theoretical perspectives may help explain this pattern of findings. Emotion regulation theory suggests that supportive parenting practices may facilitate the development of adaptive emotional competencies by helping children identify, understand, and regulate their emotional experiences. Attachment theory further proposes that warm and responsive parent–child relationships promote emotional security and foster healthier emotional processing.

In addition, social learning theory emphasizes that parents serve as important models for emotion expression, conflict resolution, and coping strategies. Through repeated exposure to supportive parental behaviors, adolescents may learn more constructive ways of responding to emotional distress rather than relying on aggressive reactions.

Previous studies have similarly suggested that supportive parenting environments may be associated with better emotional functioning. Positive parenting practices may help children identify and express emotions within a safe and supportive environment,

thereby promoting emotional competence (41). Likewise, research has suggested that parents who acknowledge children's emotions and encourage appropriate emotional expression may be associated with lower levels of alexithymia (42). Taken together, these findings suggest that positive parenting may be associated with lower levels of aggressive tendencies and a weaker association between alexithymia and aggression. However, the present findings do not establish that positive parenting directly reduces aggression or buffers alexithymia; rather, they indicate that positive parenting is associated with differences in the strength of the observed relationship.

The findings of the present study should be interpreted in light of several limitations. First, the cross-sectional design does not permit conclusions regarding causal relationships or the temporal ordering of alexithymia, positive parenting, and aggression. Longitudinal and prospective studies are needed to clarify the directionality of these associations. Second, all study variables were assessed using self-report measures. Consequently, the possibility of common method variance and social desirability bias cannot be entirely ruled out. Although the observed correlations were consistent with theoretical expectations and remained below levels typically considered indicative of substantial construct overlap, future studies would benefit from incorporating multi-informant reports (e.g., parents, teachers, or peers) and behavioral assessments. Third, potentially relevant demographic variables, such as age and gender, were not included as covariates in the moderation model. Future research should examine whether the observed relationships remain stable after controlling for these factors. Fourth, the absence of structured clinical assessments for psychiatric disorders means that some degree of participant misclassification cannot be excluded. Finally, because the sample was drawn from adolescents in a single geographical region of Iran, caution is warranted when generalizing the findings to other populations and cultural contexts. Despite these limitations, the present study contributes to the growing literature by highlighting the potential role of positive parenting in understanding the association between alexithymia and aggression during adolescence.

Conclusion

The findings of this study indicate that alexithymia is positively associated with aggression tendencies among adolescents. In addition, positive parenting was found to be associated with differences in the strength of this relationship, such that the association between alexithymia and aggression appeared weaker among adolescents reporting higher levels of positive parenting. These findings highlight the potential relevance of parenting practices in understanding emotional and behavioral adjustment during adolescence. However, given the cross-sectional and self-report nature of the study, the findings should be interpreted with caution. The results do not permit causal conclusions regarding the relationships among alexithymia, positive parenting, and aggression. Future longitudinal studies using multi-informant and multi-method assessments are needed to clarify the directionality and underlying mechanisms of these associations. Despite these limitations, the present findings contribute to the growing body of research on adolescent emotional development and underscore the importance of considering family factors when examining aggression-related outcomes.

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Ethics Approval

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the ethical standards governing research involving human participants. Permission to conduct the study was obtained from the relevant educational authorities and the administrators of the participating schools prior to data collection. Because the participants were minors, written informed consent was obtained from their parents or legal guardians, and verbal assent was obtained from the students before participation. Participation was entirely voluntary, and participants were informed that they could withdraw from the study at any time without any consequences. To ensure confidentiality and privacy, no personally identifiable

information was collected, all questionnaires were completed anonymously, and the data were used solely for scientific research purposes and reported only in aggregate form.

Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Conflict of Interest

The authors declare that they have no conflict of interest.

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