

The Relationship Between Alexithymia, Attachment Styles, and Interpersonal Problems in Female Lower Secondary School Students

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ABSTRACT

The present study was conducted with the aim of investigating the relationship between attachment styles and interpersonal problems among female lower secondary school students in Sari County. In terms of purpose, this study was applied research, and in terms of methodology, it was a descriptive correlational study. The statistical population consisted of all female students enrolled in public lower secondary schools in Sari County during the 2023–2024 academic year, totaling 3,500 students. Based on the Krejcie and Morgan table, 346 female lower secondary school students were selected as the sample size. The data collection instruments included the standardized Inventory of Parent and Peer Attachment developed by Armsden and Greenberg (1987), the Toronto Alexithymia Scale (1994), and the Inventory of Interpersonal Problems developed by Barkham (1994). Data analysis was performed using SPSS-24 software, Pearson correlation tests, and stepwise multiple regression analysis. The findings indicated that there was a positive and statistically significant correlation between the components of alexithymia (difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking) and interpersonal problems among students. Furthermore, there was a negative and statistically significant correlation between attachment to father and attachment to mother and interpersonal problems among students. In addition, the regression findings demonstrated that alexithymia had the greatest contribution in predicting interpersonal problems among students.

Keywords: alexithymia, attachment styles, interpersonal problems.

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Introduction

Interpersonal problems during adolescence represent a clinically and educationally important domain because they shape students' emotional adjustment, peer integration, family communication, help-seeking behavior, and vulnerability to later psychological distress. In lower secondary school, girls experience rapid changes in identity formation, emotional awareness, social comparison, peer dependency, and autonomy from parents; therefore, difficulties in understanding emotions and forming secure relational bonds may become visible through conflict, withdrawal, dependency, aggression, reduced assertiveness, or excessive sensitivity in social interactions. Contemporary psychological research increasingly shows that interpersonal functioning cannot be explained only by external social conditions, because students' internal emotional

processing capacities and attachment-based expectations also determine how they interpret, regulate, and respond to interpersonal experiences (1, 2). From this perspective, alexithymia and attachment styles are two central constructs for understanding why some adolescents experience persistent interpersonal difficulties despite apparently similar social environments.

Alexithymia refers to a multidimensional difficulty in identifying feelings, describing feelings, and using emotion-related information in reflective thinking. Rather than simply indicating emotional coldness, alexithymia reflects a deficit in emotional awareness and symbolic processing that may impair interpersonal communication, empathy, self-disclosure, and adaptive regulation of distress. Recent studies have shown that alexithymia is associated with broad forms of psychopathology, including depression, anxiety, personality pathology, addictive behaviors, and emotional-behavioral problems (3-6). Because interpersonal relationships require the capacity to recognize one's own emotional state and communicate it clearly to others, adolescents with higher alexithymia may misinterpret social cues, avoid emotional conversations, respond rigidly to conflict, or rely on maladaptive behavioral strategies when they cannot verbalize inner distress (7, 8). Accordingly, alexithymia can be considered not only an intrapersonal emotional-processing limitation but also a relational risk factor.

Attachment theory provides another essential framework for explaining interpersonal problems. Attachment styles are internalized relational patterns formed through repeated interactions with caregivers and later extended to peers, teachers, romantic partners, and broader social networks. Secure attachment is generally associated with emotional trust, flexible coping, and constructive interpersonal behavior, whereas insecure attachment may increase fear of rejection, dependency, avoidance, emotional suppression, or hyperactivation in relationships (9, 10). Research on attachment and emotional regulation demonstrates that attachment patterns influence resilience, emotion regulation, coping style, and interpersonal expectations (2, 11). Therefore, students' attachment to father, mother, and peers may provide different relational resources or vulnerabilities that shape their capacity to manage interpersonal demands in school and family contexts.

The relationship between attachment and alexithymia is particularly relevant because early relational environments are among the primary contexts in which children learn to name, understand, and regulate emotions. Warm, responsive, and emotionally validating family interactions may help adolescents develop emotional clarity, whereas emotionally neglectful, controlling, or inconsistent parenting may restrict emotional expression and increase alexithymic traits (12, 13). Studies on childhood trauma, psychological abuse, and early life stress further indicate that adverse interpersonal experiences can disrupt emotional development and increase later vulnerability to alexithymia, depression, social avoidance, and maladaptive coping (14-17). In this sense, alexithymia may partly represent the emotional consequence of insecure or unsupportive relational histories and may subsequently contribute to interpersonal difficulties.

Empirical evidence supports the close association between family functioning, alexithymia, and social maladjustment. For example, research among students has shown that family function can influence social anxiety through the mediating role of alexithymia, suggesting that poor family emotional climate may contribute to social difficulties by weakening emotional recognition and expression (18). Similarly, parental psychological control has been linked to alexithymia, social avoidance and distress, and coping style, showing that restrictive parenting can shape both emotional processing and interpersonal behavior (11).

Other studies have shown that parenting style, alexithymia, and fear of intimacy are interrelated, indicating that the emotional quality of parent-child relationships may influence later comfort with closeness and relational vulnerability (13). These findings are especially relevant for female adolescents, for whom interpersonal acceptance, peer belonging, and emotional disclosure often become salient developmental concerns.

Attachment to parents may reduce interpersonal problems by providing a secure base for emotional exploration and social learning. Secure attachment to mother and father can support self-worth, trust, emotion regulation, and constructive conflict resolution. Conversely, weak or insecure parental attachment may increase relational insecurity, defensive avoidance, dependency, or heightened sensitivity to rejection. Studies in different populations have linked attachment insecurity with psychological symptoms, maladaptive relational patterns, and reduced well-being (19-21). Research on couple satisfaction has also shown associations among attachment styles, alexithymia, and relational satisfaction, suggesting that emotional unawareness may mediate the path from insecure attachment to relationship dysfunction (21). Although such findings are often reported in adults or university students, the mechanisms are conceptually relevant to adolescence, when attachment-based working models are actively reorganized across family and peer relationships.

Peer attachment is also a complex variable in adolescence. On the one hand, supportive peer relationships can strengthen belonging, identity, and social competence. On the other hand, excessive peer dependency, maladaptive peer comparison, and reliance on peer approval may intensify interpersonal distress. Contemporary research on problematic digital behaviors provides useful evidence for this point. Studies have shown that insecure attachment and alexithymia are associated with smartphone addiction, problematic social media use, gaming problems, and online dependency (22-25). These behavioral patterns are not separate from interpersonal functioning; rather, they may reflect attempts to compensate for unmet attachment needs, emotional loneliness, or difficulties in direct social interaction. In this regard, peer attachment may have either protective or risk-enhancing effects depending on whether it is secure, balanced, and emotionally supportive or dependency-based and approval-seeking.

Alexithymia has also been associated with addictive and maladaptive coping behaviors that may indirectly worsen interpersonal functioning. Research has linked alexithymia to mobile phone addiction, social media addiction, internet novel addiction, and problematic online engagement, often through mechanisms such as boredom proneness, insecure attachment, negative body image, and social withdrawal (26-29). For students, these patterns may reduce face-to-face communication skills, increase avoidance of emotionally demanding conversations, and intensify interpersonal misunderstandings. Alexithymia can therefore contribute to interpersonal problems not only directly, through poor emotional communication, but also indirectly, through maladaptive self-soothing strategies and avoidance-based coping.

Body-related concerns, eating problems, and self-image disturbances further demonstrate the interpersonal significance of alexithymia and attachment. Studies have shown that low maternal care and protection, body image dissatisfaction, and psychopathological vulnerabilities are relevant predictors of binge eating in transitional-age youth (30). Other studies have connected alexithymia with eating disorders, body image concerns, obsessive-compulsive symptoms, and treatment-related outcomes (20, 31). These findings matter because adolescent girls are often exposed to heightened social evaluation and body-related

comparison, which may interact with emotional unawareness and insecure attachment to produce interpersonal sensitivity, withdrawal, or conflict. When students cannot articulate distress related to shame, appearance, rejection, or social comparison, these experiences may be expressed through interpersonal tension or avoidance.

The clinical relevance of alexithymia is also supported by trauma-focused and psychotherapy research. Zorzella et al. showed that alexithymia plays a role in trauma therapy outcomes, including improvements in posttraumatic stress, dissociation, and interpersonal problems (32). Dynamic therapy research has similarly emphasized the importance of experiencing previously avoided emotions, such as anger, in reducing depression through alliance and insight (33). These findings suggest that the ability to access, understand, and express emotions is central to psychological improvement and interpersonal functioning. If emotional avoidance and alexithymia remain unaddressed, interpersonal problems may persist even when external social conditions improve.

Recent studies also point to loneliness and perceived social support as important mediating mechanisms between alexithymia, attachment, and mental health. In individuals with chronic health conditions, alexithymia and attachment have been linked to mental health through perceived social support and loneliness (34). This pattern is highly relevant to adolescents because school-based interpersonal problems often involve perceived exclusion, lack of emotional support, inability to seek help, or loneliness despite being surrounded by peers. When alexithymic students cannot express needs clearly, others may perceive them as distant, hostile, passive, or overly dependent, thereby creating a cycle in which emotional unawareness leads to interpersonal misunderstanding and reduced support.

The broader literature also suggests that alexithymia and attachment should be examined together rather than separately. Studies have investigated adult attachment, fear of intimacy, negative mood regulation expectancies, and alexithymia, demonstrating that insecure attachment may contribute to relational difficulties partly through emotional-processing problems (10). Similarly, research on alexithymia, fear of intimacy, and relationship satisfaction confirms that difficulty identifying and verbalizing emotions can undermine relational closeness (35). In addition, ideal attachment style approaches have been proposed as a way to reduce alexithymic traits, further supporting the conceptual connection between attachment security and emotional awareness (36). Therefore, studying alexithymia and attachment styles simultaneously may provide a more complete explanation of interpersonal problems among adolescent students.

Although much of the existing literature has examined university students, clinical groups, adults, or digital behavior outcomes, fewer studies have focused specifically on female lower secondary school students in school settings. This gap is important because early adolescence is a sensitive developmental period in which emotional literacy, attachment reorganization, peer belonging, and interpersonal competence develop rapidly. Evidence from international studies and symposium-based scholarly discussions shows increasing attention to the intersection of adolescent mental health, attachment, alexithymia, and social functioning (37). However, localized studies are necessary because cultural expectations around family relationships, emotional expression, gender roles, and peer interaction may influence how alexithymia and attachment styles manifest in interpersonal problems.

In the Iranian school context, female lower secondary students may encounter overlapping developmental and social pressures, including academic expectations, family relational demands, peer comparison, and emotional changes associated with adolescence. When emotional awareness is limited, students may struggle to distinguish sadness from anger, anxiety from shame, or dependency from closeness; these difficulties may increase interpersonal misunderstandings and behavioral problems. At the same time, attachment to father, mother, and peers may function as relational frameworks that either buffer or intensify these problems. Secure parental attachment may reduce interpersonal vulnerability, while insecure or excessive peer-oriented attachment may heighten dependency, social comparison, or sensitivity to rejection. Theoretical and empirical evidence therefore supports the need to examine alexithymia and attachment styles as predictors and correlates of interpersonal problems in this population (1, 22, 24, 28).

Overall, the literature suggests that alexithymia impairs emotional recognition and communication, attachment styles shape interpersonal expectations and emotion regulation, and both constructs are closely related to social adjustment, psychological symptoms, and maladaptive coping behaviors. However, a simultaneous investigation of alexithymia, attachment to father, attachment to mother, attachment to peers, and interpersonal problems among female lower secondary school students can provide more precise evidence for school counseling, prevention programs, and adolescent mental health interventions. Therefore, the aim of the present study was to investigate the relationship between alexithymia, attachment styles, and interpersonal problems among female lower secondary school students in Sari County.

Methods and Materials

Study Design and Participants

This study was applied research in terms of purpose and descriptive-correlational in terms of methodology. The statistical population consisted of all female students enrolled in public lower secondary schools in Sari County during the 2023–2024 academic year, totaling 3,500 students. Based on the Krejcie and Morgan table, 346 female lower secondary school students were selected as the sample. The data collection instruments included the standardized Inventory of Parent and Peer Attachment developed by Armsden and Greenberg (1987), the Toronto Alexithymia Scale (1994), and the Inventory of Interpersonal Problems developed by Barkham (1994). Data analysis was performed using SPSS-24 software, Pearson correlation analysis, and stepwise multiple regression analysis.

Data Collection

The Inventory of Parent and Peer Attachment (IPPA) was developed by Armsden and Greenberg (1987) to assess adolescents' perceptions of positive and negative cognitive-emotional dimensions in relationships with parents and close friends. The questionnaire consists of 75 items and three sections as follows: 25 items related to the mother, 25 items related to the father, and 25 items related to peers. This questionnaire assesses relationships with significant individuals in the respondent's life, including mother, father, and close friends. The instrument contains separate scales for measuring attachment to mother, father, and close peers.

The Toronto Alexithymia Scale (1994) is a 20-item instrument that measures three subscales, including difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking, on a five-point

Likert scale ranging from 1 to 5. Higher scores indicate higher levels of alexithymia, whereas lower scores indicate lower levels of alexithymia. In the Persian version of the scale, Cronbach's alpha coefficients for total alexithymia and the three subscales of difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking were reported as .85, .82, .75, and .72, respectively, indicating good internal consistency of the scale. Test-retest reliability of the Toronto Alexithymia Scale-20 was confirmed in a sample of 65 participants over a four-week interval, with coefficients ranging from .80 to .87 for total alexithymia and its subscales. Concurrent validity of the scale was also examined and confirmed through correlations between the test subscales and measures of emotional intelligence, psychological well-being, and psychological distress.

The Inventory of Interpersonal Problems was introduced by Barkham et al. (1994). This questionnaire was derived from the original 127-item version based on a factor analytic approach. One of the objectives of developing this form was to increase its potential use in clinical settings. In the initial study conducted by Barkham et al. (1994), six factors were extracted following exploratory factor analysis. The 32-item version of the Inventory of Interpersonal Problems can be used for both clinical patients and non-clinical individuals in the general population. Regarding the validity and reliability of the questionnaire, Fath et al. (2013) confirmed the validity of the instrument. Cronbach's alpha coefficients for the factors of assertiveness and sociability, openness, consideration for others, aggression, supportiveness and participation, and dependency were reported as .80, .70, .61, .88, .77, and .61, respectively.

Data Analysis

Data were analyzed using SPSS-24 software. Descriptive statistics, including mean, standard deviation, skewness, and kurtosis, were used to summarize the data. The normality of variable distributions was assessed using the Kolmogorov-Smirnov test. Pearson correlation analysis was employed to examine the relationships between alexithymia, attachment styles, and interpersonal problems. In addition, stepwise multiple regression analysis was conducted to determine the predictive role of alexithymia and attachment styles in explaining interpersonal problems among female lower secondary school students.

Findings and Results

Table 1 presents the descriptive statistics, including the means and standard deviations, for the research variables. The mean and standard deviation of interpersonal problems among female students were 81.96 ± 2.07 . Furthermore, the skewness and kurtosis values for all variables were within the range of -2 to +2, indicating that the variables did not exhibit substantial skewness or kurtosis.

Table 1. Descriptive Statistics of the Research Variables

Variable	N	Mean	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
Assertiveness and Sociability	246	14.21	0.40	14	15	1.42	0.02
Openness	246	16.19	0.43	14	17	0.75	1.75
Consideration for Others	246	11.66	0.48	11	13	-0.56	-1.28
Aggression	246	11.54	0.50	11	13	-0.07	-1.67
Supportiveness and Participation	246	14.68	0.51	14	17	0.02	0.84
Dependency	246	16.65	0.52	14	18	-0.94	0.85
Interpersonal Problems	246	81.96	2.07	80	92	-0.17	-0.51
Difficulty Identifying Feelings	246	21.58	0.78	17	24	-1.67	1.71
Difficulty Describing Feelings	246	21.61	0.70	16	24	-1.70	1.12
Externally Oriented Thinking	246	38.48	0.63	38	40	0.97	-0.13
Alexithymia	246	81.68	1.51	72	87	-1.34	1.71
Attachment to Father	246	63.47	1.58	57	65	-1.18	1.04
Attachment to Mother	246	48.44	1.66	42	50	-1.24	1.03
Attachment to Peers	246	49.21	0.40	49	50	1.42	0.03

The descriptive statistics for alexithymia indicated a mean and standard deviation of 81.68 ± 1.51 . In addition, the skewness and kurtosis indices fell within the acceptable range of -2 to +2, indicating normal distribution characteristics. Regarding attachment styles, the mean and standard deviation for attachment to father were 63.47 ± 1.58 , for attachment to mother were 48.44 ± 1.66 , and for attachment to peers were 49.21 ± 0.40 . The skewness and kurtosis values for these variables also ranged between -2 and +2, confirming the absence of severe skewness or kurtosis.

Furthermore, according to the results of the Kolmogorov-Smirnov test, the distribution of all variables was normal because the significance levels were greater than .05. Therefore, the assumptions required for the use of parametric tests were satisfied, and Pearson correlation and regression analyses were employed.

Table 2. Pearson Correlation Matrix Between Alexithymia and Interpersonal Problems Among Female Lower Secondary School Students in Sari County

Variable	1	2	3	4
1. Difficulty Identifying Feelings	1			
2. Difficulty Describing Feelings	.80**	1		
3. Externally Oriented Thinking	-.07	-.03	1	
4. Interpersonal Problems	.48**	.56**	.29**	1

The results presented in Table 2 indicate a significant correlation between alexithymia and interpersonal problems among female lower secondary school students in Sari County ($p < .01$). Specifically, difficulty identifying feelings (.48), difficulty describing feelings (.56), and externally oriented thinking (.29) showed positive and statistically significant correlations with interpersonal problems. In other words, as the components of alexithymia increased, interpersonal problems among students also increased, and vice versa.

Table 3. Pearson Correlation Matrix Between Attachment Styles and Interpersonal Problems Among Female Lower Secondary School Students in Sari County

Variable	1	2	3	4
1. Attachment to Father	1			
2. Attachment to Mother	.93**	1		
3. Attachment to Peers	-.18**	-.17**	1	
4. Interpersonal Problems	-.53**	-.51**	.52**	1

The results presented in Table 3 indicate a significant correlation between attachment styles and interpersonal problems among female lower secondary school students in Sari County ($p < .01$). Specifically,

attachment to father (-.53) and attachment to mother (-.51) showed negative and statistically significant correlations with interpersonal problems. This indicates that increased attachment to parents was associated with decreased interpersonal problems among students, and vice versa. Furthermore, attachment to peers (.52) demonstrated a positive and statistically significant correlation with interpersonal problems, indicating that greater peer attachment was associated with increased interpersonal problems among students, and vice versa.

Table 4. Summary of ANOVA Results for Predicting Interpersonal Problems (Criterion Variable) Based on Alexithymia and Attachment Styles (Predictor Variables)

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	1014.647	4	253.662	181.363	.000
Residual	476.937	341	1.399		
Total	1491.580	345			

The results presented in Table 4 indicate that the significance level was .000, which was smaller than $\alpha = .01$. Therefore, the null hypothesis was rejected and the alternative hypothesis was confirmed. Accordingly, the assumption of linearity between the independent variables and the dependent variable was supported. The predictive paths from alexithymia and attachment styles to interpersonal problems were statistically significant at the .01 level. These findings further indicate that the independent variables possessed substantial explanatory power and were able to effectively explain the variance in the dependent variable.

Table 5. Regression Coefficients for Predicting Interpersonal Problems Based on Alexithymia and Attachment Styles

Variables	B	Standard Error	Beta	t	Sig.	Tolerance	VIF
Constant	-1.76	8.84	—	-0.20	.842	—	—
Alexithymia	0.68	0.04	0.50	15.057	.000	0.852	1.174
Attachment to Father	-0.79	0.11	-0.603	-6.661	.000	0.115	1.730
Attachment to Mother	0.24	0.114	0.194	2.131	.034	0.113	1.811
Attachment to Peers	1.41	0.168	0.277	8.415	.000	0.860	1.156

As shown in Table 5, alexithymia ($\beta = .50$), attachment to father ($\beta = -.603$), attachment to peers ($\beta = .277$), and attachment to mother ($\beta = .194$) were able to explain a portion of the variance in interpersonal problems among students. Alexithymia had the greatest effect on interpersonal problems, whereas attachment to father demonstrated the smallest effect. Furthermore, the VIF values for all paths and variables indicated no multicollinearity, and the tolerance coefficients were acceptable. Therefore, the high tolerance values and low variance inflation factors confirmed the absence of multicollinearity and the adequacy of the regression model ($VIF < 5$).

Discussion and Conclusion

The present study aimed to investigate the relationship between alexithymia, attachment styles, and interpersonal problems among female lower secondary school students in Sari County. The findings demonstrated that the components of alexithymia, including difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking, had positive and significant relationships with interpersonal problems among students. In addition, attachment to father and attachment to mother were negatively and significantly associated with interpersonal problems, whereas attachment to peers showed a

positive and significant relationship with interpersonal problems. Furthermore, the regression findings indicated that alexithymia had the greatest predictive contribution to interpersonal problems among female students. These findings collectively emphasize the central role of emotional awareness and attachment-based relational experiences in adolescent interpersonal functioning.

One of the most important findings of the study was the significant positive relationship between alexithymia and interpersonal problems. Specifically, students who experienced greater difficulty identifying and describing emotions and who relied more heavily on externally oriented thinking reported higher levels of interpersonal difficulties. This finding is theoretically consistent with models suggesting that interpersonal functioning depends heavily on emotional awareness, emotional communication, and the capacity for reflective emotional processing. Adolescents who cannot accurately identify their emotional states may misunderstand social interactions, react impulsively to interpersonal stressors, or fail to communicate their emotional needs effectively. Similarly, students who struggle to verbalize feelings may experience difficulties in self-disclosure, emotional intimacy, and conflict resolution, which can contribute to interpersonal dissatisfaction and social misunderstanding.

The findings of the present study are aligned with previous studies demonstrating the significant role of alexithymia in emotional and interpersonal maladjustment. Research has shown that alexithymia is strongly associated with emotional-behavioral difficulties, anxiety, depression, dependency, social withdrawal, and problematic interpersonal functioning (3, 4, 6). Chu et al. reported that alexithymia mediated the relationship between family functioning and social anxiety among students, suggesting that poor emotional processing contributes directly to interpersonal distress (18). Likewise, Talbot and Lecours explained that alexithymia functions as a mediator between unsupportive emotional socialization and later psychopathology, indicating that emotional invalidation during development may weaken interpersonal competence through impaired emotional awareness (8). Therefore, the current findings support the notion that alexithymia is not merely an emotional deficit but also a significant relational vulnerability factor.

The positive association between externally oriented thinking and interpersonal problems also deserves attention. Externally oriented thinking reflects a tendency to focus on concrete external events rather than internal emotional experiences. Adolescents with this cognitive-emotional style may avoid introspection, emotional reflection, or empathic engagement in relationships. As a result, they may struggle to understand the emotional perspectives of others or respond appropriately in emotionally demanding interpersonal situations. Similar findings have been reported in studies linking alexithymia to relational dissatisfaction, fear of intimacy, and poor emotional regulation (9, 35). Ferraro and Taylor emphasized that alexithymia and impaired interoceptive awareness contribute to difficulties in emotional regulation and attachment functioning, which may ultimately increase interpersonal distress (9).

Another important finding was the negative relationship between attachment to parents and interpersonal problems. Students with stronger attachment to father and mother experienced fewer interpersonal difficulties. This finding strongly supports attachment theory, which proposes that secure attachment relationships create internal working models characterized by trust, emotional security, and confidence in social interactions. Adolescents who perceive their parents as emotionally available and supportive are more likely to develop adaptive coping strategies, healthy self-esteem, emotional regulation skills, and constructive interpersonal communication patterns. In contrast, weak attachment relationships may

contribute to insecurity, fear of rejection, emotional withdrawal, dependency, or maladaptive conflict responses.

This finding is consistent with a substantial body of research linking secure attachment with improved emotional and interpersonal functioning. Tang demonstrated that secure attachment styles are associated with better resilience and emotional regulation capacities (2). Similarly, Wei et al. reported that interpersonal problems are closely associated with attachment insecurity and frustration of basic psychological needs (1). Studies on attachment and psychopathology also indicate that insecure attachment increases vulnerability to maladaptive interpersonal behaviors and emotional distress (19, 20). In the present study, attachment to father demonstrated a particularly strong negative relationship with interpersonal problems. This finding may indicate that paternal attachment plays an important protective role in emotional stability, social confidence, and behavioral regulation among adolescent girls.

The findings concerning attachment to mother are also theoretically meaningful. Maternal attachment often serves as a primary emotional foundation for emotional expression, empathy development, and emotional regulation. Adolescents with secure maternal attachment may feel more comfortable expressing vulnerability, discussing emotional concerns, and seeking support during interpersonal stress. Prior studies have similarly shown that supportive and emotionally validating parental relationships reduce emotional dysregulation and relational insecurity (12, 13). Kahya and Uluç further demonstrated that attachment processes are significantly associated with alexithymia and psychological well-being, particularly in contexts involving childhood trauma and emotional distress (38). Therefore, the present findings support the idea that emotionally supportive parent-child relationships function as important protective mechanisms against interpersonal maladjustment.

An interesting finding of the study was the positive relationship between attachment to peers and interpersonal problems. At first glance, this result may appear contradictory because peer attachment is often considered beneficial during adolescence. However, the finding may reflect the complexity of peer relationships during early adolescence. In some cases, excessive emotional dependence on peers, heightened sensitivity to peer evaluation, or unstable peer attachment patterns may increase interpersonal vulnerability rather than reduce it. Adolescents who rely excessively on peer approval may become more susceptible to social anxiety, conflict, rejection sensitivity, and emotional instability within peer interactions.

This interpretation is supported by previous studies examining dependency, insecure attachment, and maladaptive social behaviors. Gritti et al. found that interpersonal dependency and attachment insecurity are associated with maladaptive smartphone and social network use, suggesting that excessive relational dependence may contribute to problematic social functioning (25). Similarly, Scalone et al. reported that insecure attachment and alexithymic features contribute to problematic gaming behaviors, which may reflect compensatory strategies for unmet interpersonal and emotional needs (24). Research on smartphone addiction and social media use also suggests that insecure attachment and emotional dysregulation increase adolescents' reliance on external social validation (22, 23). Therefore, the positive relationship between peer attachment and interpersonal problems observed in the present study may indicate that some students develop dependency-oriented peer relationships characterized by emotional insecurity and social vulnerability.

The regression findings demonstrated that alexithymia had the strongest predictive effect on interpersonal problems. This result suggests that emotional processing deficits may be more central to interpersonal maladjustment than attachment variables alone. Adolescents who cannot identify, interpret, and express their emotions may experience chronic misunderstandings in social interactions regardless of the quality of their attachment relationships. Emotional unawareness can impair empathy, emotional communication, conflict management, and help-seeking behavior, thereby intensifying relational difficulties over time. The findings are consistent with studies indicating that alexithymia plays a key mediating role in psychological maladjustment and relational dysfunction (10, 34). Ścigała et al. showed that alexithymia mediates the relationship between attachment and fear of intimacy, suggesting that emotional processing difficulties may explain why insecure attachment contributes to relational dysfunction (10).

The findings can also be interpreted within developmental and socio-emotional frameworks of adolescence. Female lower secondary school students experience significant emotional and relational transitions, including increased self-consciousness, heightened emotional sensitivity, greater importance of peer acceptance, and changing family dynamics. During this developmental period, difficulties in emotional awareness may have particularly strong interpersonal consequences because adolescents are expected to navigate increasingly complex social interactions. Students with high alexithymia may become socially withdrawn, emotionally reactive, passive-aggressive, or dependent in relationships because they lack adaptive strategies for emotional expression and regulation. Previous studies have similarly associated alexithymia with social avoidance, distress, emotional dysregulation, and reduced psychological well-being (11, 26).

The present findings are also consistent with trauma-oriented and emotional regulation research. Studies have demonstrated that childhood trauma, psychological abuse, and early life stress negatively affect emotional processing capacities and interpersonal functioning (14, 16, 17). Gibson reported that early life stress influences adult emotional functioning and mindfulness capacities (15). Similarly, Bianciardi et al. showed that low maternal care and protection are associated with later psychopathological difficulties among youth (30). Such evidence suggests that emotional invalidation or relational insecurity during childhood may impair emotional awareness and later contribute to interpersonal maladjustment during adolescence.

Another important implication of the findings concerns the role of emotional regulation and intimacy processes. Previous research has shown that alexithymia is closely associated with fear of intimacy, reduced relationship satisfaction, and maladaptive coping strategies (21, 35). Students who cannot understand or express emotions effectively may avoid emotional closeness or misinterpret interpersonal situations as threatening. Over time, these patterns may lead to chronic interpersonal dissatisfaction, conflict, and social isolation. In therapeutic contexts, studies have shown that improvements in emotional awareness are associated with reductions in interpersonal difficulties and psychological symptoms (32, 33). Therefore, interventions targeting emotional literacy, emotional expression, and attachment security may substantially improve interpersonal functioning among adolescents.

Overall, the present study highlights the interconnected role of emotional processing and attachment experiences in shaping interpersonal functioning among female lower secondary school students. Alexithymia appears to function as a major psychological mechanism underlying interpersonal difficulties,

while secure attachment to parents serves as a protective factor against social maladjustment. In contrast, dependency-oriented peer attachment may increase interpersonal vulnerability during adolescence. These findings emphasize the importance of emotional education, family emotional support, and attachment-informed interventions in school mental health programs.

One limitation of the present study was the use of a correlational design, which prevents causal interpretation of the relationships among alexithymia, attachment styles, and interpersonal problems. In addition, the data were collected using self-report questionnaires, which may have been influenced by social desirability bias or subjective response tendencies. Another limitation was that the study population was restricted to female lower secondary school students in public schools of Sari County, which may limit the generalizability of the findings to other age groups, male students, private schools, or different cultural contexts.

Future research should investigate the causal mechanisms linking alexithymia, attachment styles, and interpersonal problems using longitudinal and experimental designs. Researchers are also encouraged to examine the mediating and moderating roles of variables such as emotional regulation, self-esteem, loneliness, resilience, social anxiety, and family communication patterns. Comparative studies across genders, developmental stages, and cultural contexts may also provide a more comprehensive understanding of the psychological and interpersonal processes associated with alexithymia and attachment.

From a practical perspective, the findings suggest the importance of implementing school-based emotional literacy and interpersonal skills training programs for adolescents. Counselors, teachers, and parents should be educated about the role of emotional awareness and secure attachment in students' social adjustment. Family-focused interventions that strengthen parent-child emotional communication may reduce interpersonal difficulties among adolescents. In addition, screening programs aimed at identifying students with high alexithymia and relational difficulties could help schools provide early psychological support and preventive interventions.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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