International Journal of
Mental Health Promotion

Tech Science Press

http://doi.org/10.32604/ijmhp.2026.079716

ARTICLE

# Linking Parenting Styles and Peer Relationships: The Serial Mediating Roles of Emotional Intelligence and Psychological Capital

**Yuan Sun*, Jiahao Li and Xin Liu**

School of Education, Jianghan University, Wuhan, China
*Corresponding Author: Yuan Sun. Email: dbnjyuan@163.com

Received: 26 January 2026; Accepted: 09 May 2026; Published: 28 May 2026

**ABSTRACT: Background:** During the upper primary school years, children's primary interpersonal relationships shift from parent-child interactions to peer relationships. This study investigated the underlying mechanisms between parenting styles and primary school students' peer relationships, providing theoretical guidance for fostering harmonious peer interactions. **Methods:** A cluster sampling design was employed, yielding 702 valid responses from fifth and sixth-grade students. Measures included the Short-form Parenting Styles Scale, Peer Relationship Scale, Emotional Intelligence Scale, and Positive Psychological Capital Questionnaire. Data were analyzed using SPSS 27.0 and AMOS 29, with serial mediation models examined via the PROCESS macro. **Results:** Positive parenting styles correlated positively with peer relationships ($r = 0.533$, $\beta = 0.521$, $p < 0.001$), whereas negative parenting styles correlated negatively ($r = -0.538$, $\beta = -0.528$, $p < 0.001$). Serial mediation analysis revealed that emotional intelligence and psychological capital acted as sequential mediators. Specifically, this serial indirect effect accounted for 31.3% of the total indirect association in the relationship between positive parenting and peer relationships ($\beta = 0.248$, $p < 0.001$), and 27.5% in the relationship involving negative parenting styles ($\beta = -0.176$, $p < 0.001$). **Conclusions**: Parenting styles are significantly associated with peer relationships among primary school students. Parents should adopt warm, supportive styles and reduce rejecting or overprotective behaviors. Furthermore, educational interventions targeting children's emotional intelligence and psychological capital are crucial pathways for enhancing harmonious peer interactions.

**KEYWORDS:** Parenting styles; peer relationships; emotional intelligence; psychological capital; serial mediation

## 1 Introduction

Peer relationships are defined as mutually beneficial relationships established through interpersonal interaction among individuals of similar age and comparable psychological developmental levels within the classroom environment [1]. They play a significant role in the healthy development and social adaptation of children and adolescents, particularly in the areas of social competence, cognition, emotion, self-concept, and personality.

During the primary school years, children's primary interpersonal relationships transition from parent-child interactions to peer relationships. This shift becomes particularly evident among upper-grade students, who enter early adolescence and experience rapid development in self-awareness. These children often exhibit resistance to excessive parental control and intervention, while increasingly seeking recognition, belonging, and self-esteem within more egalitarian peer interactions. Peer relationships constitute a vital component of social development in primary school students, with positive peer

interactions playing a crucial role in their healthy growth. Such relationships facilitate social exploration, enhance social skills, and strengthen self-confidence, security, and a sense of belonging. Furthermore, they contribute to the development of self-concept and personality, help reduce emotional and behavioral problems, and promote overall psychological well-being [2].

The family serves as a critical environment in a child's life, with the family system is closely linked to child development. Parenting styles constitute a key element within this system. Research indicates that positive family parenting styles are essential for the development of children's peer interaction skills. Authoritative parenting styles provide positive conditions for the development of peer interaction abilities, whereas authoritarian, permissive, and neglectful styles may hinder peer engagement or contribute to social difficulties [3]. Parenting styles are not only associated with children's early experiences but are also related to their long-term development. Studies have shown that positive parenting can promote prosocial behaviors in children, thereby increasing their acceptance among peers, while authoritarian, restrictive, or rejecting parenting may lead to peer rejection [4].

Emotional intelligence refers to an individual's ability to process emotional information and to use emotions to facilitate thinking and behavior [5]. It primarily encompasses the capacity to recognize, understand, and manage one's own emotions, as well as to identify, comprehend, and influence the emotions of others. Emotional intelligence is significantly associated with peer relationships. Research has shown that children with higher emotional intelligence are better able to understand and regulate their own emotions, recognize and adapt to the emotions of others, and consequently demonstrate stronger social skills and greater adaptability in peer interactions [6].

Psychological capital refers to a positive psychological state manifested during an individual's growth and development, encompassing elements such as hope, optimism, self-efficacy, and resilience [7]. Children with higher levels of psychological capital generally possess greater self-confidence and a stronger ability to cope with challenges. In peer interactions, they are able to maintain a positive attitude and effectively manage conflicts and difficulties, a pattern that is associated with the establishment of favorable peer relationships.

Prior research has investigated the significance of peer relationships, as well as the association between factors such as parenting styles, emotional intelligence, and psychological capital and these relationships [8–11]. However, most studies have predominantly focused on individual variables in isolation, without examining their potential interactions. To address this gap, the present study focuses on upper primary school students. It aims to explore in greater depth the relationship between parenting styles and emotional intelligence, psychological capital, and peer relationships among this population. Furthermore, the study seeks to examine how parenting styles may relate to peer relationships through the serial mediating roles of emotional intelligence and psychological capital. This investigation is expected to deepen the theoretical understanding of how familial environmental factors relate to children's social development through individual psychological characteristics, and to provide insights of practical significance.

To systematically understand the transition from family-centric to peer-centric social networks in children, this study draws upon Bronfenbrenner's ecological systems theory [12]. According to this framework, the family and the peer group are two fundamental microsystems that profoundly and interactively shape child development. The transition between these microsystems is heavily governed by the initial social blueprint provided by parents. Building upon Baumrind's classic typology of parenting styles [13], parenting behaviors—categorized broadly into positive and negative dimensions—serve as the primary micro-environmental stimulus for a child's psychological and social growth. Furthermore, guided by Bandura's social learning theory [14], children acquire emotional regulation strategies and social interaction norms through observing and modeling their parents' behaviors. Therefore, this study aims to

elucidate the internal psychological mechanisms (i.e., emotional intelligence and psychological capital) that translate early family socialization into later peer relationship outcomes.

### *1.1 Parenting Styles and Peer Relationships*

A correlation exists between parenting styles and children's peer relationships. Parenting styles are indirectly linked to children's peer relationships through cumulative associations. Specifically, if parents employ positive parenting strategies—demonstrating understanding, acceptance, and respect toward their children in daily life—this is positively associated with children's behavior. As a result, children are more likely to exhibit respectful and empathetic behaviors during peer interactions, a pattern associated with the development of healthy peer relationships. Conversely, the use of negative parenting strategies may be associated with difficulties in children's social development [15]. When parenting styles are characterized by care and understanding, children tend to perceive others as reliable and safe, which facilitates the establishment of stable interpersonal relationships, enhances peer acceptance, and leads to higher levels of peer approval. In contrast, children raised in environments marked by indifference, hostility, or harsh punishment often display higher levels of aggression and hostility, resulting in strained peer relationships and increased likelihood of peer rejection [16].

Based on this, this study proposes **Hypothesis 1**: Positive parenting styles are positively correlated with children's peer relationships, whereas negative parenting styles are negatively correlated with children's peer relationships.

### *1.2 The Mediating Role of Emotional Intelligence*

Emotional intelligence is formed through children's daily interactions with their parents within the family context [17]. Research indicates a significant positive correlation between parental warmth and children's ability to perceive, understand, and manage emotions [18]. Parenting styles are closely related to the emotional intelligence of adolescents, with an authoritative (democratic) style promoting its development [19]. Similarly, among university students, emotional intelligence is positively correlated with positive parenting factors and negatively correlated with negative factors [20].

Children's ability to recognize facial expressions and understand others' emotional perspectives is positively associated with their social competence. Specifically, stronger emotional understanding predicts the use of more positive and constructive strategies in peer conflict resolution [21]. Furthermore, high school students with higher emotional intelligence are more likely to develop positive peer relationships compared to their peers with lower emotional intelligence [22].

Based on these findings, **Hypothesis 2** is proposed: Positive parenting styles are positively correlated with emotional intelligence, whereas negative parenting styles are negatively correlated with emotional intelligence. Emotional intelligence is positively correlated with peer relationships.

### *1.3 The Mediating Role of Psychological Capital*

Research indicates that positive parenting styles are positively associated with the formation of adolescents' self-confidence and resilience, which are internalized as personal psychological capital [23]. Positive parenting styles characterized by warmth, understanding, and encouragement can enhance an individual's psychological capital, whereas rejecting, dismissive, or overprotective behaviors are negatively associated with their development [24,25]. Parenting styles are significantly related to psychological capital, with the dimension of emotional warmth showing significant positive correlations with all four components of psychological capital [11,26].

Studies further demonstrate that psychological capital is positively associated with prosocial behavior and negatively associated with aggressive behavior in children and adolescents [27]. Individuals with higher levels of psychological capital tend to exhibit lower interpersonal sensitivity [28], possess stronger interpersonal communication skills [29], and are better able to maintain harmonious relationships with others, thereby leading to more positive peer relationships [30,31].

Based on this, **Hypothesis 3** is proposed: Positive parenting styles are positively correlated with psychological capital, whereas negative parenting styles are negatively correlated with psychological capital. Psychological capital is positively correlated with peer relationships.

### *1.4 The Serial Mediating Roles of Emotional Intelligence and Psychological Capital*

From a conceptual and developmental perspective, the sequential ordering of emotional intelligence (EI) preceding psychological capital (PsyCap) is rooted in the developmental logic of transitioning from foundational abilities to higher-order psychological states. Emotional intelligence is conceptualized as an underlying, ability-based competency for processing emotional information [17,32]. In contrast, psychological capital represents a higher-order, "state-like" integrated positive psychological resource, encompassing hope, optimism, self-efficacy, and resilience [33]. During early adolescence, children must first possess solid foundational emotion recognition and regulation skills (EI) to effectively cope with real-world stressors. It is through the successful application of these emotional processing abilities in peer interactions that individuals can accumulate and enhance more stable psychological resources like PsyCap [8,34]. Therefore, this study posits that foundational emotional abilities constitute the necessary prerequisite for the formation of integrated psychological states.

Emotional intelligence has been found to be significantly associated with levels of psychological capital [35]. Research consistently shows a significant positive correlation between emotional intelligence and psychological capital [8]. Individuals with higher emotional intelligence are generally more effective in coping with stress and challenges, thereby accumulating greater psychological resources such as self-confidence, hope, optimism, and resilience, which in turn contribute to higher levels of psychological capital.

Further studies indicate that emotional intelligence may also be linked to psychological capital through mediating variables such as social adaptation and self-esteem [36,37]. This is because individuals with higher emotional intelligence are better able to recognize and regulate their own emotions, as well as sensitively perceive the emotions of others, leading to improved social adaptability, more positive self-evaluation, and enhanced self-esteem, all of which contribute to the development of psychological capital.

Based on these findings, **Hypothesis 4** is proposed: Positive parenting styles are positively correlated with emotional intelligence, while negative parenting styles are negatively correlated with emotional intelligence; emotional intelligence is positively correlated with psychological capital; and psychological capital is positively correlated with peer relationships.

### *1.5 The Present Study*

Peer relationships are critical for child development, particularly for students undergoing rapid self-awareness growth. While previous research has examined the influence of parenting styles, emotional intelligence, and psychological capital on peer relationships separately, few studies have investigated these variables concurrently. Therefore, the present study focuses on upper primary school students, aiming to explore the associations between parenting styles and emotional intelligence, psychological capital, and

peer relationships, as well as to examine how parenting styles relate to peer relationships through the serial mediating roles of emotional intelligence and psychological capital.

Based on the findings from prior research, the following hypotheses are proposed (Fig. 1):

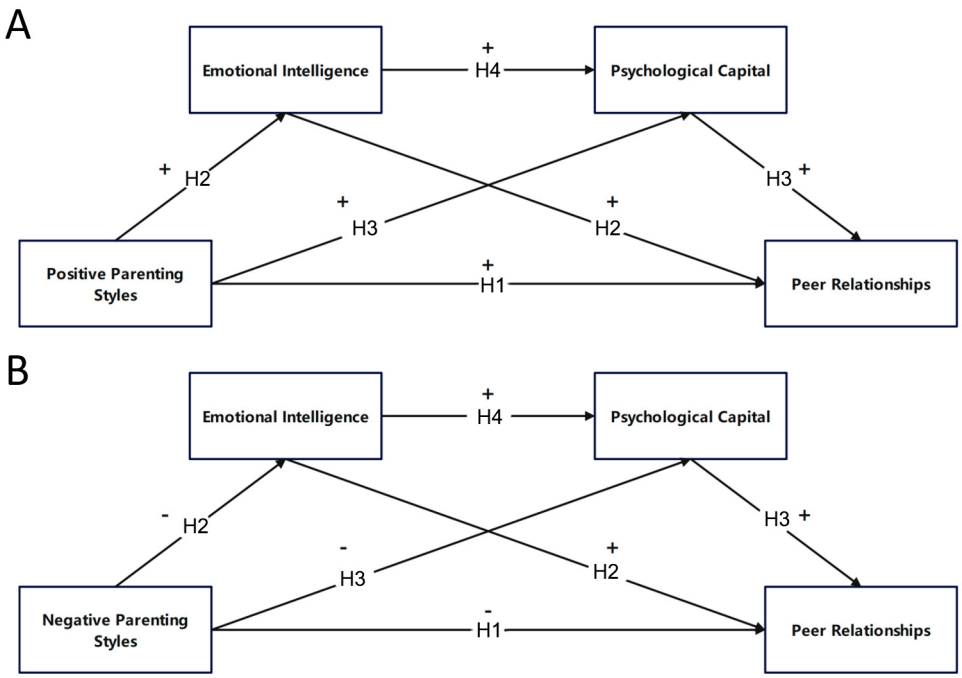


**Figure 1:** Hypothetical serial mediation model of emotional intelligence (EI) and psychological capital (PsyCap) between peer relationships and (**A**) positive parenting styles, (**B**) negative parenting styles. Note: The hypothesis labels (H2, H3) refer to the same underlying theoretical constructs across both panels; their associated statistical signs differ appropriately due to the opposite valence of the predictors (positive vs. negative parenting).

## 2 Methods

### *2.1 Research Subjects*

A cluster sampling design was employed in this study, with intact classrooms serving as the primary sampling units. Initially, two primary schools in Wuhan, China, were selected via random cluster sampling. Within these two schools, a total of 15 intact classrooms from Grades 5 and 6 were randomly selected. To ensure the completeness and representativeness of the sample, all students within the selected classrooms were included in the survey. Prior to data collection, written informed consent was obtained from the students, their parents, and teachers. The questionnaires were then administered using standardized procedures by trained research personnel. A total of 770 questionnaires were distributed. After data screening, 702 valid responses were retained, yielding an effective response rate of 91.17%. The final sample comprised 389 females (55.4%) and 313 males (44.6%).

The study involving human participants was approved by the Ethics Committee in the College of Education at Jianghan University (Reference Number: JHDXKJLL2025–263) and was conducted in accordance with local legislation and institutional requirements. Prior to data collection, written informed consent was obtained from the parents or legal guardians of all participating students, and informed assent was obtained from the students themselves. Permission to conduct the surveys was granted by the school teachers.

### *2.2 Research Instruments*

#### *2.2.1 Short-Form Parenting Styles Scale*

The Chinese version of the Short-form parenting styles scale, revised by Jiang, was used in this study [38]. The revised scale consists of 42 items rated on a 4-point Likert scale, with item 15 being reverse-scored. It includes two parallel sections—a father version and a mother version—each containing 21 identical items. The scale measures three dimensions: Emotional Warmth, Rejection, and Overprotection. The Emotional Warmth dimension comprises 7 items, the Rejection dimension comprises 6 items, and the Overprotection dimension comprises 8 items. Following previous research practices, scores from the father and mother versions for each dimension were combined. Parenting styles were further categorized into two broader dimensions: positive and negative. Emotional Warmth is considered to represent positive parenting, while Rejection and Overprotection reflect negative parenting [30]. In the current study, the Cronbach's $\alpha$ coefficients were 0.933 for positive parenting styles and 0.904 for negative parenting styles, indicating good internal consistency for both dimensions.

#### *2.2.2 Peer Relationship Scale*

The Peer Relationship Scale revised by Zou et al. was used in this study [1]. This questionnaire consists of 30 items rated on a 4-point Likert scale and is primarily divided into two dimensions: Peer Acceptance and Fear of Peer Interaction. Items 1–20 belong to the Peer Acceptance subscale, with items 1, 3, 4, 7, 11, and 17 being positively scored and the remaining items reverse-scored. Higher total scores on this subscale indicate greater peer acceptance and, consequently, better peer relationships. Items 21–30 constitute the Fear of Peer Interaction subscale, all of which are positively scored. Higher scores on this subscale reflect greater anxiety experienced during peer interactions, indicating poorer peer relationships. Following previous research practices, scores on the Fear of Peer Interaction dimension were reversed and then combined with the Peer Acceptance dimension to generate a total score, where higher scores indicate better overall peer relationships. In the present study, the Cronbach's $\alpha$ coefficient for this scale was 0.945.

#### *2.2.3 Emotional Intelligence Scale*

The Emotional Intelligence Scale used in this study was developed by American psychologists Schutte et al. [39] based on the emotional intelligence model proposed by Mayer and Salovey, and was subsequently translated into Chinese by Professor Wang Caikang of South China Normal University [40]. This scale demonstrates good reliability and validity. It employs a 5-point Likert scale and consists of 33 items, among which items 5, 28, and 33 are reverse-scored. The scale is divided into four dimensions: Emotional Perception, Self-Emotion Management, Management of Others' Emotions, and Utilization of Emotions. A higher total score on the questionnaire indicates a higher level of emotional intelligence. In the present study, the Cronbach's $\alpha$ coefficient for this scale was 0.871.

Although this scale was originally developed for adults, extensive subsequent empirical research has successfully adapted and validated its use among Chinese children and young adolescents, demonstrating sound psychometric properties. Furthermore, during data collection, trained administrators provided standardized instructions and clarified any ambiguous terms to ensure comprehension. To rigorously verify its construct validity for our specific sample of 10–12 year olds, we conducted an item-level Confirmatory Factor Analysis (CFA) on the 33-item scale. The absolute fit indices indicated an acceptable model fit: $\chi^2/df = 3.639$ and root mean square error of approximation (RMSEA) = 0.073 (90% CI: 0.069, 0.076). However, we explicitly acknowledge that the incremental fit indices were poor by conventional standards (comparative

fit index [CFI] = 0.769, Tucker-Lewis Index [TLI] = 0.750). While methodological literature notes that models with a large number of observed indicators are often penalized on indices like CFI and TLI [41], this does not render the item-level fit fully acceptable. Crucially, however, the primary analyses in this study (i.e., the serial mediation models) relied on scale-level composite scores rather than item-level latent variables. Given the strong internal consistency reliability ($\alpha$ = 0.871) and the use of scale-level composites, the measurement was deemed appropriate for the present study's analytical purposes.

#### *2.2.4 Positive Psychological Capital Questionnaire*

The Positive Psychological Capital Questionnaire (PPQ), developed by Zhang et al., was used in this study [42]. It comprises four dimensions: Self-efficacy, Resilience, Hope, and Optimism. The questionnaire employs a 7-point Likert scale and consists of 26 items. Higher scores indicate more positive psychological capital. In the present study, the Cronbach's $\alpha$ coefficient for this questionnaire was 0.943.

It is noteworthy that while the PPQ uses a 7-point Likert scale and was initially designed for adults, prior research has successfully adapted and validated this specific questionnaire among upper elementary students in China, demonstrating adequate reliability and validity [43]. However, we explicitly acknowledge that this prior evidence is primarily derived from regional educational surveys, which limits its rigorous psychometric validation for this specific age group. To address this limitation and ensure comprehension, trained administrators provided standardized instructions and clarified any ambiguous terms during data collection. To rigorously verify the instrument's construct validity for our specific sample of 10–12-year-olds, we conducted an item-level CFA on the 26-item PPQ. The measurement model yielded an acceptable fit to the data: $\chi^2$ = 3.668, RMSEA = 0.073 (90% CI: 0.068, 0.078), CFI = 0.893, and TLI = 0.878. Given the complexity of the 26-indicator model, these indices provide robust empirical evidence that the original four-factor structure of psychological capital holds well and is psychometrically sound for the pre-adolescent children in this study.

### *2.3 Data Analysis*

Data analyses were conducted using SPSS 27.0 and AMOS 29 (IBM Corp., Armonk, NY, USA). Prior to the formal analyses, all collected questionnaires were screened for data quality. Questionnaires were excluded if more than 10% of the items were left blank or if the responses followed a clear repetitive pattern. Among the 702 valid responses retained, missing data accounted for less than 1% of the total responses and were initially handled using the series mean substitution method to maintain the integrity of the dataset. A sensitivity analysis employing listwise deletion yielded essentially identical results, indicating that the chosen method of missing data handling does not compromise the validity of our findings.

To ensure the robustness of the findings, several preliminary assessments were conducted. First, a confirmatory factor analysis (CFA) was performed using AMOS 29 to evaluate the construct validity of the measurement model. Additionally, because the data were collected via self-report measures, Harman's single-factor test was conducted to check for potential common method bias. Following the model assessments, preliminary analyses, including descriptive statistics and Pearson correlation analyses, were performed to examine the central tendencies and bivariate associations among the primary study variables.

Finally, the serial mediation model was tested using Model 6 of the SPSS PROCESS macro. The significance of the indirect effects was evaluated utilizing the bootstrapping method with 5000 resamples to estimate the 95% confidence intervals (CIs). An indirect effect was considered statistically significant if the 95% CI did not include zero.

## 3 Results

### *3.1 Common Method Bias Test*

As the variables in this study were assessed using self-report questionnaires, there was a potential risk of common method bias. To address this issue, Harman's single-factor test was conducted. The results indicated that 27 factors had eigenvalues greater than 1, and the largest factor accounted for 23.67% of the variance, which is below the 40% threshold. This suggests that serious common method bias was not present in the data of this study.

### *3.2 Multicollinearity Diagnostics and Discriminant Validity Assessment*

Given the high correlation observed between emotional intelligence and psychological capital ($r$ = 0.804), further diagnostics were performed to evaluate multicollinearity and discriminant validity. These assessments were critical to ensure that the substantial variance overlap between the two constructs would not lead to estimation bias or the instability of path coefficients when both variables were simultaneously entered into the mediation model.

#### *3.2.1 Multicollinearity Diagnostics*

Using peer relationships as the dependent variable, we computed the Tolerance and Variance Inflation Factor (VIF) values for each predictor to assess potential multicollinearity. As presented in Table 1, across models incorporating either positive or negative parenting styles, Tolerance values for all predictors were well above the 0.1 cut-off, and VIF values ranged from 1.678 to 3.183. These values fall substantially below the conservative threshold of 5. These results suggest that despite the high intercorrelation between emotional intelligence and psychological capital, multicollinearity does not pose a significant threat to the model's integrity, ensuring the statistical stability of the estimated mediation path coefficients.

**Table 1:** Multicollinearity diagnosis results of core variables (N = 702).

| Predictors | Tolerance | VIF |
|---|---|---|
| Model 1: Positive Parenting | | |
| Positive Parenting Styles | 0.513 | 1.950 |
| Emotional Intelligence | 0.332 | 3.009 |
| Psychological Capital | 0.314 | 3.183 |
| Model 2: Negative Parenting | | |
| Negative Parenting Styles | 0.596 | 1.678 |
| Emotional Intelligence | 0.334 | 2.995 |
| Psychological Capital | 0.330 | 3.033 |

Note: VIF, variance inflation factor.

#### *3.2.2 Discriminant Validity Assessment: Emotional Intelligence and Psychological Capital*

To further confirm that emotional intelligence (EI) and psychological capital (PsyCap) represent distinct and differentiable latent variables within the current sample, we conducted a CFA using AMOS. Following the item-parceling approach, the four sub-dimensions of each scale were utilized as observed indicators. We compared the goodness-of-fit of a single-factor model (where all indicators loaded onto one latent construct) against a two-factor model (where EI and PsyCap were treated as separate constructs).

As presented in Table 2, the single-factor model demonstrated a poor fit to the data. In contrast, the two-factor model yielded acceptable-to-excellent fit indices, with both the CFI and TLI exceeding the recommended 0.90 threshold. Furthermore, chi-square difference tests indicated that the two-factor model

provided a significantly better fit than the single-factor model ($p < 0.001$). Collectively, these findings provide robust evidence of discriminant validity, justifying the inclusion of EI and PsyCap as distinct constructs within the proposed serial mediation model.

**Table 2:** Discriminant validity test of emotional intelligence and psychological capital (N = 702).

| Model | $\chi^2$ | df | $\chi^2$/df | RMSEA | CFI | TLI | $\Delta\chi^2$ ($\Delta$df) |
|---|---|---|---|---|---|---|---|
| Single-factor model | 455.162 | 21 | 21.674 | 0.204 | 0.829 | 0.763 | - |
| Two-factor model | 121.284 | 19 | 6.383 | 0.104 | 0.96 | 0.94 | 333.878(2)*** |

Note: ***$p < 0.001$. RMSEA, root mean square error of approximation; CFI, comparative fit index; TLI, Tucker-Lewis index; df, degree of freedom.

### *3.3 Tests for Differences in Demographic Variables*

The results of the difference tests are presented in Table 3. No significant differences were found between male and female participants in terms of positive parenting styles ($t = 0.958$, $p > 0.05$), peer relationships ($t = -0.024$, $p > 0.05$), emotional intelligence ($t = -0.767$, $p > 0.05$), or psychological capital ($t = -0.210$, $p > 0.05$). However, a significant gender difference was identified in negative parenting styles ($t = 3.360$, $p < 0.001$, $d = 0.255$), with males scoring significantly higher than females in this domain.

Significant differences were observed across all variables between grade levels. Compared to fifth-grade students, sixth-grade students scored significantly higher in positive parenting styles ($t = -6.756$, $p < 0.001$, $d = -0.540$), peer relationships ($t = -3.580$, $p < 0.001$, $d = -0.286$), emotional intelligence ($t = -5.076$, $p < 0.001$, $d = -0.406$), and psychological capital ($t = -4.590$, $p < 0.001$, $d = -0.367$). Conversely, sixth-grade students scored significantly lower in negative parenting styles than fifth-grade students ($t = 3.181$, $p < 0.01$, $d = 0.254$).

Significant differences were also found across all variables based on only-child status. Only children scored significantly higher than non-only children in positive parenting styles ($t = 6.178$, $p < 0.001$, $d = 0.467$), peer relationships ($t = 4.679$, $p < 0.001$, $d = 0.354$), emotional intelligence ($t = 4.548$, $p < 0.001$, $d = 0.344$), and psychological capital ($t = 4.652$, $p < 0.001$, $d = 0.352$). Conversely, non-only children scored significantly higher in negative parenting styles ($t = -2.509$, $p < 0.05$, $d = -0.190$).

Thus, gender, grade level, and only-child status were identified as significant factors and were included as control variables in the subsequent analysis.

### *3.4 Descriptive Statistics and Correlation Analysis*

Table 4 presents the descriptive statistics and correlation matrix for the key variables. The descriptive statistics indicated the mean scores for positive and negative parenting styles were 45.30 (SD = 9.93) and 47.10 (SD = 12.46), respectively. Furthermore, the participants reported mean scores of 98.17 (SD = 15.10) for peer relationships, 128.77 (SD = 19.81) for emotional intelligence, and 138.80 (SD = 29.48) for psychological capital.

The results show that positive parenting styles were significantly and positively correlated with peer relationships ($r = 0.533$, $p < 0.001$), emotional intelligence ($r = 0.650$, $p < 0.001$), and psychological capital ($r = 0.674$, $p < 0.001$). Conversely, negative parenting styles were significantly and negatively correlated with peer relationships ($r = -0.538$, $p < 0.001$), emotional intelligence ($r = -0.600$, $p < 0.001$), and psychological capital ($r = -0.607$, $p < 0.001$).

**Table 3:** Results of variability tests for demographic variables (N = 702).

| Variable | Category | Positive Parenting Styles | Negative Parenting Styles | Emotional Intelligence (EI) | Psychological Capital (PsyCap) | Peer Relationships |
|---|---|---|---|---|---|---|
| Gender | Male, mean ± SD | 45.70 ± 9.51 | 48.85 ± 12.37 | 128.13 ± 20.27 | 138.54 ± 29.40 | 98.15 ± 15.67 |
| | Female, mean ± SD | 44.97 ± 10.25 | 45.70 ± 12.37 | 129.29 ± 19.43 | 139.01 ± 29.58 | 98.18 ± 14.63 |
| | $t$ | 0.958 | $3.360^{***}$ | −0.767 | −0.210 | −0.024 |
| | Cohen's $d$ | - | 0.255 | - | - | - |
| Grade | Grade 5, mean ± SD | 43.55 ± 10.58 | 48.16 ± 12.91 | 126.13 ± 20.35 | 135.23 ± 30.92 | 96.73 ± 15.34 |
| | Grade 6, mean ± SD | 48.76 ± 7.39 | 45.01 ± 11.25 | 134.03 ± 17.56 | 145.90 ± 24.98 | 101.02 ± 14.22 |
| | $t$ | $-6.756^{***}$ | $3.181^{**}$ | $-5.076^{***}$ | $-4.590^{***}$ | $-3.580^{***}$ |
| | Cohen's $d$ | −0.540 | 0.254 | −0.406 | −0.367 | −0.286 |
| Only-child status | Yes, mean ± SD | 47.42 ± 9.15 | 46.00 ± 12.48 | 131.92 ± 19.77 | 143.60 ± 28.68 | 100.63 ± 14.52 |
| | No, mean ± SD | 42.89 ± 10.24 | 48.36 ± 12.34 | 125.20 ± 19.27 | 133.37 ± 29.48 | 95.37 ± 15.27 |
| | $t$ | $6.178^{***}$ | $-2.509^{*}$ | $4.548^{***}$ | $4.652^{***}$ | $4.679^{***}$ |
| | Cohen's $d$ | 0.467 | −0.190 | 0.344 | 0.352 | 0.354 |

Note: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Furthermore, both emotional intelligence ($r$ = 0.705, $p$ < 0.001) and psychological capital ($r$ = 0.713, $p$ < 0.001) were significantly and positively correlated with peer relationships. A strong positive correlation was also observed between emotional intelligence and psychological capital ($r$ = 0.804, $p$ < 0.001).

**Table 4:** Descriptive statistics and correlations among variables (N = 702).

| Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Positive Parenting Styles | 1 | | | | |
| 2. Negative Parenting Styles | −0.452*** | 1 | | | |
| 3. Peer Relationships | 0.533*** | −0.538*** | 1 | | |
| 4. Emotional Intelligence | 0.650*** | −0.600*** | 0.705*** | 1 | |
| 5. Psychological Capital | 0.674*** | −0.607*** | 0.713*** | 0.804*** | 1 |
| Mean | 45.30 | 47.10 | 98.17 | 128.77 | 138.80 |
| SD | 9.93 | 12.46 | 15.10 | 19.81 | 29.48 |

Note: ***$p$ < 0.001. SD, standard deviation.

### *3.5 Serial Mediation Analysis*

#### *3.5.1 Examination of the Serial Mediation Effect of Emotional Intelligence and Psychological Capital between Positive Parenting Styles and Peer Relationships*

Firstly, Model 6 of the SPSS PROCESS macro was employed to examine the Serial Mediation effect. In this model, positive parenting styles was specified as the independent variable, peer relationships as the dependent variable, and emotional intelligence and psychological capital as the mediating variables. Gender, grade level, and only-child status were included as control variables. The results are presented in Table 5.

**Table 5:** Serial mediation regression analysis of emotional intelligence and psychological capital between positive parenting styles and peer relationships.

| Regression Equation (N = 702) | | Fit Indices | | | Standardized Regression Coefficient | |
|---|---|---|---|---|---|---|
| **Outcome Variable** | **Predictor** | ***R*** | ***$R^2$*** | ***F*** | ***β*** | ***t*** |
| Peer Relationships (Total Effect) | Positive Parenting Styles | 0.536 | 0.287 | 70.180 | 0.521 | 15.440*** |
| | Gender | | | | 0.020 | 0.613 |
| | Grade | | | | −0.001 | −0.033 |
| | Only-child status | | | | −0.056 | −1.694 |
| Emotional Intelligence | Positive Parenting Styles | 0.653 | 0.427 | 129.639 | 0.640 | 21.157*** |
| | Gender | | | | 0.053 | 1.841 |
| | Grade | | | | 0.029 | 0.974 |
| | Only-child status | | | | −0.020 | −0.685 |
| Psychological Capital | Positive Parenting Styles | 0.828 | 0.686 | 304.179 | 0.264 | 9.179*** |
| | Emotional Intelligence | | | | 0.634 | 22.604*** |
| | Gender | | | | −0.001 | −0.061 |
| | Grade | | | | −0.015 | −0.668 |
| | Only-child status | | | | −0.008 | −0.349 |
| Peer Relationships (Direct Effect) | Positive Parenting Styles | 0.748 | 0.560 | 147.437 | 0.017 | 0.459 |
| | Emotional Intelligence | | | | 0.368 | 8.406*** |
| | Psychological Capital | | | | 0.402 | 8.947*** |
| | Gender | | | | −0.013 | −0.505 |
| | Grade | | | | −0.013 | −0.506 |
| | Only-child status | | | | −0.040 | −1.549 |

Note: ***$p$ < 0.001.

The analysis indicated that positive parenting styles were significantly and positively associated with peer relationships ($\beta$ = 0.521, $t$ = 15.440, $p$ < 0.001). However, after introducing emotional intelligence and psychological capital as mediating variables, the direct effect of positive parenting styles on peer relationships became non-significant ($\beta$ = 0.017, $t$ = 0.459, $p$ > 0.05). Furthermore, positive parenting styles were significantly and positively associated with both emotional intelligence ($\beta$ = 0.640, $t$ = 21.157, $p$ < 0.001) and psychological capital ($\beta$ = 0.264, $t$ = 9.179, $p$ < 0.001). Emotional intelligence was significantly and positively associated with both psychological capital ($\beta$ = 0.634, $t$ = 22.604, $p$ < 0.001) and peer relationships ($\beta$ = 0.368, $t$ = 8.406, $p$ < 0.001). Similarly, psychological capital was significantly and positively associated with peer relationships ($\beta$ = 0.402, $t$ = 8.947, $p$ < 0.001).

Subsequently, the bootstrap method was employed to further examine the mediating roles of emotional intelligence and psychological capital between positive parenting styles and peer relationships. As presented in Table 6, the 95% bootstrap confidence interval (CI) for the direct effect included zero, indicating its non-significance. In contrast, the 95% CIs for the total and specific indirect effects all excluded zero, confirming their statistical significance. The total indirect association size was 0.767, accounting for 96.8% of the total effect mediated.

**Table 6:** Direct, indirect, and total effects of the hypothesized model (positive parenting).

| Path | Effects | Boot SE | Boot LLCI (95%) | Boot ULCI (95%) | Relative Contribution (%) |
|---|---|---|---|---|---|
| Direct Effect | | | | | |
| Positive Parenting Styles → Peer Relationships | 0.025 | 0.055 | −0.082 | 0.133 | 3.2% |
| Indirect Effects | 0.767 | 0.057 | 0.661 | 0.881 | 96.8% |
| Positive Parenting Styles → Emotional Intelligence → Peer Relationships | 0.358 | 0.057 | 0.248 | 0.471 | 45.2% |
| Positive Parenting Styles → Psychological Capital → Peer Relationships | 0.161 | 0.032 | 0.104 | 0.230 | 20.3% |
| Positive Parenting Styles → Emotional Intelligence → Psychological Capital → Peer Relationships | 0.248 | 0.038 | 0.179 | 0.326 | 31.3% |
| Total Effect | 0.792 | 0.051 | 0.691 | 0.893 | - |

Note: SE, standard error; LLCI, lower limit of confidence interval; ULCI, upper limit of confidence interval.

The results indicate that emotional intelligence and psychological capital account for a substantial proportion of the variance (96.8%) in the relationship between positive parenting styles and peer relationships, demonstrating a highly pronounced indirect effect in the current sample. The mediation comprises three distinct pathways: Positive Parenting Styles → Emotional Intelligence → Peer Relationships, with an effect size of 0.358, accounting for 45.2% of the total effect. Positive Parenting Styles → Psychological Capital → Peer Relationships, with an effect size of 0.161, accounting for 20.3% of the total effect. Positive Parenting Styles → Emotional Intelligence → Psychological Capital → Peer Relationships, with an effect size of 0.248, accounting for 31.3% of the total effect. The proposed mediation model is illustrated in Fig. 2.

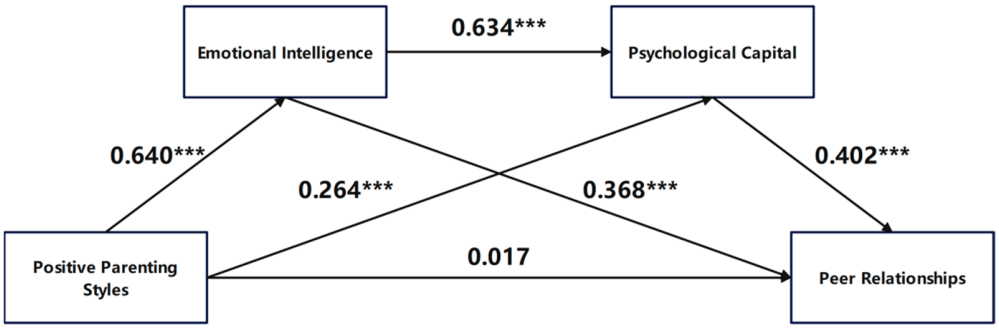


**Figure 2:** The serial mediation model of emotional intelligence and psychological capital between positive parenting styles and peer relationships. Note: $^{***}p < 0.001$. Values represent path coefficients (β).

*3.5.2 Examination of the Serial Mediation Effect of Emotional Intelligence and Psychological Capital between Negative Parenting Styles and Peer Relationships*

The Serial Mediation effect was examined using Model 6 of the SPSS PROCESS macro. In this model, negative parenting styles was specified as the independent variable, peer relationships as the dependent variable, and emotional intelligence and psychological capital as the mediating variables. Gender, grade level, and only-child status were included as control variables. The results are presented in Table 7.

**Table 7:** Serial Mediation Regression Analysis of Emotional Intelligence and Psychological Capital between Negative Parenting Styles and Peer Relationships.

| Regression Equation (N = 702) | | Fit Indices | | | Standardized Regression Coefficient | |
|---|---|---|---|---|---|---|
| **Outcome Variable** | **Predictor** | ***R*** | ***$R^2$*** | ***F*** | ***β*** | ***t*** |
| Peer Relationships (Total Effect) | Negative Parenting Styles | 0.558 | 0.312 | 78.964 | −0.528 | −16.493*** |
| | Gender | | | | −0.064 | −2.033* |
| | Grade | | | | 0.055 | 1.727 |
| | Only-child status | | | | −0.118 | −3.706*** |
| Emotional Intelligence | Negative Parenting Styles | 0.621 | 0.386 | 109.540 | −0.583 | −19.285*** |
| | Gender | | | | 0.042 | 1.403 |
| | Grade | | | | 0.105 | 3.498*** |
| | Only-child status | | | | −0.102 | −3.386** |
| Psychological Capital | Negative Parenting Styles | 0.821 | 0.673 | 286.973 | −0.201 | −7.347*** |
| | Emotional Intelligence | | | | 0.675 | 24.423*** |
| | Gender | | | | −0.037 | −1.675 |
| | Grade | | | | 0.014 | 0.638 |
| | Only-child status | | | | −0.038 | −1.730 |
| Peer Relationships (Direct Effect) | Negative Parenting Styles | 0.753 | 0.567 | 151.815 | −0.112 | −3.431** |
| | Emotional Intelligence | | | | 0.338 | 7.779*** |
| | Psychological Capital | | | | 0.368 | 8.436*** |
| | Gender | | | | −0.026 | −1.042 |
| | Grade | | | | 0.012 | −0.466 |
| | Only-child status | | | | −0.044 | −1.730 |

Note: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

The results indicated that negative parenting styles were significantly and negatively associated with peer relationships ($\beta = -0.528$, $t = -16.493$, $p < 0.001$). After introducing emotional intelligence and psychological capital as mediating variables, the direct effect of negative parenting styles on peer

relationships remained significant ($\beta$ = −0.112, $t$ = −3.431, $p$ < 0.01). Furthermore, negative parenting styles were significantly and negatively associated with both emotional intelligence ($\beta$ = −0.583, $t$ = −19.285, $p$ < 0.001) and psychological capital ($\beta$ = −0.201, $t$ = −7.347, $p$ < 0.001). The analysis further revealed that Emotional intelligence was significantly and positively associated with both psychological capital ($\beta$ = 0.675, $t$ = 24.423, $p$ < 0.001) and peer relationships ($\beta$ = 0.338, $t$ = 7.779, $p$ < 0.001). Similarly, psychological capital was significantly and positively associated with peer relationships ($\beta$ = 0.368, $t$ = 8.436, $p$ < 0.001).

Subsequently, the bootstrap method was employed to analyze the mediating roles of emotional intelligence and psychological capital between negative parenting styles and peer relationships, with the results presented in Table 8. The 95% bootstrap CI for the direct effect did not include zero, confirming a significant direct effect (Effect = −0.136), which accounted for 21.3% of the total effect. Additionally, the 95% bootstrap CIs for the total and specific indirect effects did not include zero, indicating that these mediating roles were statistically significant. The total indirect effect size was −0.504, accounting for 78.7% of the total effect.

**Table 8:** Direct, indirect, and total effects of the hypothesized model (negative parenting).

| Path | Effects | Boot SE | Boot LLCI (95%) | Boot ULCI (95%) | Relative Contribution (%) |
|---|---|---|---|---|---|
| Direct Effect | | | | | |
| Negative Parenting Styles → Peer Relationships | −0.136 | 0.040 | −0.214 | −0.058 | 21.3% |
| Indirect Effects | −0.504 | 0.032 | −0.568 | −0.444 | 78.7% |
| Negative Parenting Styles → Emotional Intelligence → Peer Relationships | −0.239 | 0.039 | −0.315 | −0.163 | 37.3% |
| Negative Parenting Styles → Psychological Capital → Peer Relationships | −0.090 | 0.018 | −0.128 | −0.056 | 14.1% |
| Negative Parenting Styles → Emotional Intelligence → Psychological Capital → Peer Relationships | −0.176 | 0.028 | −0.233 | −0.123 | 27.5% |
| Total Effect | −0.640 | 0.039 | −0.716 | −0.564 | - |

Note: SE, standard error; LLCI, lower limit of confidence interval; ULCI, upper limit of confidence interval.

The results demonstrate that emotional intelligence and psychological capital partially mediate the relationship between negative parenting styles and peer relationships. Three significant mediating pathways were identified: Negative Parenting Styles → Emotional Intelligence → Peer Relationships, with an effect size of −0.239, accounting for 37.3% of the total effect. Negative Parenting Styles → Psychological Capital → Peer Relationships, with an effect size of −0.090, accounting for 14.1% of the total effect. Negative Parenting Styles → Emotional Intelligence → Psychological Capital → Peer Relationships, with an effect size of −0.176, accounting for 27.5% of the total effect. The final model depicting these mediating relationships is presented in Fig. 3.

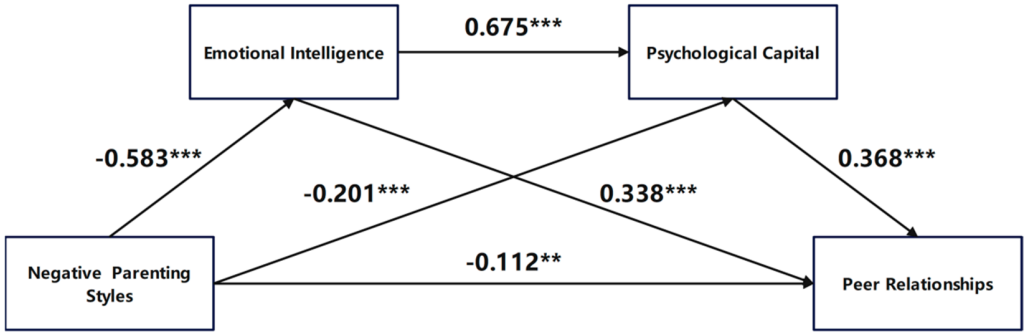


**Figure 3:** The serial mediation model of emotional intelligence and psychological capital between negative parenting styles and peer relationships. Note: $^{**}p < 0.01$, $^{***}p < 0.001$. Values represent path coefficients (β).

### *3.5.3 Alternative Model Testing*

To examine the sequence of the serial mediators, an alternative model (Parenting Styles → Psychological Capital → Emotional Intelligence → Peer Relationships) was tested. Because the alternative model and the hypothesized model are statistically saturated equivalent models, their global fit indices are mathematically identical, precluding a comparison based on statistical model fit.

As shown in Table 9, in the alternative model, the specific indirect effect of psychological capital accounted for over 50% of the total indirect effect, while the independent mediating effect of emotional intelligence accounted for approximately 14%. We opted to retain the hypothesized model (EI → PsyCap) because it aligns more closely with existing theoretical frameworks, which posit that foundational emotion-processing abilities (EI) precede the development of higher-order psychological states (PsyCap).

However, we explicitly acknowledge that cross-sectional data cannot adjudicate between statistically equivalent models. Therefore, the hypothesized ordering was retained as theoretically more consistent, rather than being definitively proven by the current dataset.

**Table 9:** Specific indirect effects of the alternative models (PsyCap → EI).

| Model (Predictor) | Alternative Mediation Path | Effect Size (Estimate) | Relative Contribution |
|---|---|---|---|
| Positive Parenting Styles | Positive Parenting → PsyCap → Peer Relationships | 0.409 | 53.10% |
| | Positive Parenting → EI → Peer Relationships | 0.111 | 14.40% |
| | Positive Parenting → PsyCap → EI → Peer Relationships | 0.250 | 32.50% |
| Negative Parenting Styles | Negative Parenting → PsyCap → Peer Relationships | −0.269 | 52.50% |
| | Negative Parenting → EI → Peer Relationships | −0.073 | 14.30% |
| | Negative Parenting → PsyCap → EI → Peer Relationships | −0.17 | 33.20% |

Note: Hypothesized models (see Tables 6 and 8). EI, emotional intelligence; PsyCap, psychological capital.

### *3.5.4 Robustness Check Using Latent Variable SEM*

To further examine the robustness of the findings and address potential concerns regarding the use of composite scores, a latent variable structural equation model (SEM) was estimated using item parcels representing the four subdimensions of emotional intelligence and psychological capital as indicators.

The results indicated that the pattern and significance of the structural path coefficients were highly consistent with those obtained from the PROCESS analysis, with all key mediation pathways remaining significant. These findings suggest that the use of composite scores did not substantially bias the results and that the hypothesized mediation model is robust.

## 4 Discussion

### *4.1 Comparative Analysis of Demographic Variables across All Factors*

#### *4.1.1 Parenting Styles*

The present findings indicate no significant gender differences regarding positive parenting styles; however, boys scored significantly higher than girls on negative parenting dimensions (e.g., rejection and denial). This discrepancy may stem from gender differences in the developmental trajectories of behavioral traits and self-control during the upper elementary grades, which consequently elicit differential parental feedback [44]. However, given the cross-sectional nature of the present study, this directionality cannot be conclusively determined; the reverse sequence—that differential parental treatment shapes these child behavioral traits—is equally plausible. Regarding grade-level variations, sixth-grade students perceived significantly more positive parenting and less negative parenting compared to their fifth-grade counterparts. This likely reflects a parental tendency to provide enhanced emotional support during critical developmental milestones, such as the transition from elementary to middle school. Furthermore, only children reported experiencing more positive and less negative parenting than those with siblings. Consistent with Resource Dilution Theory, parental time, energy, and emotional resources in multi-child families may become dispersed, resulting in a relative reduction in the positive attention allocated to each individual child [45].

#### *4.1.2 Peer Relationships*

The results indicated no significant gender differences in peer relationships; however, significant variations emerged regarding grade level and sibling status. Specifically, sixth-grade students scored significantly higher on the peer relationship measure than fifth-grade students. Social cognition in children and adolescents is widely recognized as a critical determinant of peer relationship quality [1]. Consistent with normative developmental trajectories, sixth graders exhibit greater maturity in both interpersonal interactions and social-cognitive processing, equipping them to cultivate higher-quality peer associations. Additionally, only children demonstrated significantly higher peer relationship scores compared to children with siblings. This may be attributed to a compensatory dynamic: lacking sibling interactions within the family unit, only children may develop stronger extrafamilial social motivation, thereby investing greater effort into establishing peer networks within the school environment [46].

#### *4.1.3 Emotional Intelligence*

The current study found no significant gender differences in emotional intelligence, aligning with several previous findings [47]. This outcome may indicate that within the contemporary sociocultural context, gender disparities in emotional expression and emotional socialization are gradually narrowing. Furthermore, this absence of gender differences might be attributable to the specific developmental stage of the current sample or unique educational environments (e.g., standardized school-based mental health interventions). However, this hypothesis warrants further empirical validation using controlled designs in future research.

A significant grade-level effect was observed, with sixth-grade students demonstrating higher emotional intelligence than fifth-grade students. Upper elementary school students are transitioning into preadolescence, a critical period characterized by the accelerated development of emotional socialization [48]. As age and the complexity of peer interactions increase, older students experience greater development in their emotion recognition and regulation capacities [49]. Additionally, only children exhibited significantly higher emotional intelligence compared to children with siblings. This advantage may be linked to only

children receiving more concentrated emotional feedback and emotional scaffolding resources within the family unit, a finding that corroborates previous research [50].

#### *4.1.4 Psychological Capital*

No significant gender differences were observed in psychological capital. Consistent with prior research [51], this suggests that within contemporary educational and family environments, male and female students receive relatively equitable support in developing psychological capital (e.g., self-efficacy and optimism). Regarding grade-level variations, sixth-grade students exhibited significantly higher levels of psychological capital than their fifth-grade counterparts. Longitudinal studies have demonstrated that psychological capital is not a static trait; rather, its short-term intra-individual enhancement serves as a crucial internal resource that is significantly associated with reductions in subsequent problem behaviors [52].

In terms of sibling status, only children demonstrated significantly higher levels of psychological capital than children with siblings. The four core components of psychological capital (self-efficacy, optimism, hope, and resilience) are highly dependent on the financial, emotional, and educational support provided by the family system. Existing literature indicates that the concentrated investment of family resources facilitates the enhancement of an individual's self-efficacy and resilience against adversity. Conversely, families with multiple children may experience resource dilution, resulting in individuals receiving relatively less systemic support in critical areas such as goal-setting and recovery from setbacks [28].

### *4.2 The Relationship between Parenting Styles and Peer Relationships*

The results of this study demonstrate that positive parenting styles are significantly and positively associated with peer relationships, whereas negative parenting styles show a significant negative association. These findings align with prior research [4], thereby supporting **Hypothesis 1** of this study.

A democratic and warm family environment provides children with a sense of security and models for social interaction, enabling them to engage with peers more confidently and proactively. Conversely, parenting styles characterized by rejection and overprotection may be linked to children experiencing feelings of being negated or excessively controlled. This, in turn, can manifest as social withdrawal, anxiety, or aggression during peer interactions, ultimately hindering the development of healthy peer relationships. As a primary microsystem, the family has the most direct and profound link to child development through its parenting styles.

### *4.3 The Mediating Role of Emotional Intelligence*

The results of this study indicate that emotional intelligence plays a significant mediating role in the relationship between parenting styles and peer relationships. Positive parenting styles were found to be positively associated with emotional intelligence, whereas negative styles showed a negative association, with these patterns in emotional intelligence subsequently relating to peer relationships. This finding supports **Hypothesis 2**.

Positive parenting styles, characterized by understanding and acceptance of a child's emotions, are associated with the development of a child's ability to perceive, comprehend, and manage their emotions [53]. Conversely, negative parenting styles may inhibit the development of these emotional competencies [54]. Children with higher emotional intelligence are better able to regulate their own emotional responses during peer interactions and accurately interpret social cues from peers. Consequently, they demonstrate stronger social skills and establish higher-quality peer relationships [22]. Thus, parenting styles are not

only directly associated with a child's peer relationships but also indirectly linked to their social world through their association with core emotional capacity.

### *4.4 The Mediating Role of Psychological Capital*

The results of this study demonstrate a significant mediating effect of psychological capital in the relationship between parenting styles and peer relationships. Specifically, positive parenting styles were found to be positively associated with children's internal positive psychological resources, thereby corresponding with better peer relationships. Conversely, negative parenting styles were observed to be negatively associated with these psychological resources, which is subsequently linked to the poorer development of healthy peer relationships. This finding supports **Hypothesis 3** of the study.

Positive parenting styles are significantly associated with the components of psychological capital—hope, optimism, resilience, and self-efficacy [55]. In contrast, negative parenting styles are inversely related to the development of these positive psychological qualities [56]. Children with higher levels of psychological capital possess greater psychological resources, enabling them to maintain optimism, employ hopeful thinking to seek solutions, and recover from conflicts through resilience when faced with challenges and setbacks in peer interactions. These qualities are associated with a higher likelihood of being accepted and welcomed by their peers [52]. As an intrinsic positive force within the individual, psychological capital acts as a correlational link between the family parenting environment and external social success.

### *4.5 The Serial Mediating Roles of Emotional Intelligence and Psychological Capital*

The results of this study indicate a significant serial mediating effect of emotional intelligence and psychological capital in the relationship between parenting styles and peer relationships. Specifically, parenting styles were found to first relate to children's emotional intelligence, which subsequently was linked to their psychological capital, ultimately associating with the quality of their peer relationships. This finding confirms **Hypothesis 4**.

Positive parenting styles provide children with a secure space for emotional expression, thereby facilitating the development of emotional intelligence, whereas negative parenting styles tend to hinder its development [57]. Emotional intelligence serves as a fundamental competency for processing emotional information, while psychological capital represents a more stable and positive psychological state built upon this foundation [58,59]. A child who can effectively manage emotions is more likely to maintain optimism in the face of challenges, set and pursue goals, believe in their ability to handle interpersonal relationships, and recover quickly from setbacks, thereby accumulating substantial psychological capital. This reservoir of psychological capital is, in turn, strongly associated with the establishment of positive peer relationships [31].

It is noteworthy that the indirect pathways accounted for a very high proportion (96.8%) of the total effect in the positive parenting model. This estimate should be interpreted with caution, as it may be inflated due to shared method variance associated with self-report measures. Moreover, it is theoretically unlikely that distal interpersonal outcomes such as peer relationships are fully explained by only two internal traits. This potential overestimation becomes more apparent when contrasted with the negative parenting model, in which the indirect effects accounted for a more moderate 78.7% alongside a significant residual direct effect. While the positive parenting model is statistically consistent with a full mediation pattern, a more cautious interpretation is that emotional intelligence and psychological capital represent major, but not exclusive, mechanisms. This interpretation is reinforced by the residual direct effect observed in the negative parenting model, which serves as a meaningful reference point for comparison.

### *4.6 Relationships among the Four Variables*

Rather than viewing the associations among parenting styles, emotional intelligence (EI), psychological capital (PsyCap), and peer relationships in isolation, these findings are best understood through the integrated lenses of Bandura's social learning theory [14] and Bronfenbrenner's ecological systems theory.

Viewed through social learning theory, family environments are considered the primary observational models for emotional and social development. Parents who adopt warm, positive styles function as adaptive models, providing an "emotional coaching" environment and "equal-negotiation" social scripts. These scripts are internalized by children through observational learning and are subsequently associated with adaptive emotional regulation and conflict mediation behaviors in peer contexts [60]. Conversely, negative parenting styles provide maladaptive models that hinder the acquisition of these core social-emotional competencies [61].

An important theoretical insight of this study is the elucidation of the internal "progression and transformation" of psychological resources during early adolescence [8]. From a conceptual standpoint, within the directional framework tested here, emotional intelligence (EI) can be regarded as a foundational set of emotion-related abilities that supports adaptive information processing in social contexts. These abilities may facilitate the development of higher-order, state-like psychological resources such as psychological capital (PsyCap), particularly in the context of navigating peer demands and interpersonal challenges [62,63].

Ultimately, consistent with ecological systems theory, harmonious peer relationships are not formed in isolation but may be understood as external manifestations of accumulated psychological resources shaped by the family microsystem and expressed in the broader peer environment.

Furthermore, while the current model examines emotional intelligence as a precursor to psychological capital based on developmental theory, the conceptual relationship between these two constructs may be more appropriately viewed as bidirectional. Individuals with higher levels of psychological capital may also exhibit stronger capacities to perceive, understand, and regulate emotional information, suggesting a reciprocal developmental process between PsyCap and emotional intelligence over time. However, the cross-sectional nature of the present study precludes any definitive conclusions regarding temporal ordering. Future longitudinal research is therefore needed to disentangle their directional relationships and to further examine these mutually reinforcing dynamics.

## 5 Implications

This study elucidates the complex mechanism linking parenting styles to peer relationships. It not only confirms the direct association of family parenting styles but also reveals the sequential pathway of "parenting style → psychological resources → social adaptation." These findings provide empirical support for constructing an integrated educational framework that encompasses the family, school, and child's psychological development. This approach can contribute to fostering socio-emotional competencies in primary school students from a foundational level, helping to prevent issues such as peer rejection and school bullying, and thereby supporting the holistic well-being of children.

For parents, the importance of positive parenting styles should be emphasized. It is recommended that parents adopt warm, supportive, and democratic approaches, prioritizing encouragement, active listening, and appropriate guidance while minimizing critical, controlling, or indifferent behaviors. Furthermore, parents should focus on cultivating their children's emotional intelligence and psychological capital. This can be achieved through daily activities such as shared reading of picture books, role-playing, and providing positive feedback, all aimed at intentionally developing children's emotional expression, resilience in the face of setbacks, and a positive mindset.

For schools, it is advisable to offer family education guidance courses for parents, disseminating knowledge of positive parenting and providing specific strategies to enhance children's emotional intelligence and psychological capital, thereby establishing a collaborative home-school platform. Simultaneously, emotional education and the cultivation of psychological capital should be integrated into the school's educational system. This can be systematically implemented within mental health education curricula, class meetings, or extracurricular activities by designing modules focused on emotion recognition, interpersonal communication, and self-efficacy enhancement. Such efforts can compensate for potential shortcomings in family parenting environments and promote the social development of all students.

## 6 Study Limitations and Recommendations for Future Research

Although this study provides valuable insights into the serial mediating mechanisms between parenting styles and peer relationships, several limitations must be acknowledged and addressed in future research.

First, all variables were assessed using student self-report questionnaires, which introduces the potential for common method bias (CMB). Although we employed Harman's single-factor test to detect severe bias, methodological literature widely criticizes this basic technique as a weak test that may not adequately control for method variance. Consequently, residual CMB might have artificially inflated the observed correlations among core variables, particularly the high correlation between emotional intelligence and psychological capital. Furthermore, this shared method variance likely contributed to the unusually extreme indirect effect proportion (96.8%) observed in the positive parenting model, artificially suppressing the direct effect to near zero. To rigorously mitigate this issue, future research should adopt multi-informant data collection strategies (e.g., incorporating parent, teacher, and peer ratings) and employ more advanced statistical controls, such as the Unmeasured Latent Method Construct (ULMC) or the CFA marker variable technique. Furthermore, a measurement limitation exists regarding the Emotional Intelligence Scale (EIS), as its item-level fit indices in the current sample were suboptimal (CFI = 0.769, TLI = 0.750). Although the present study utilized the composite score for analysis, the instability of the factor structure at the item level may introduce a degree of interpretive ambiguity when using the total score to measure emotional intelligence in this age group.

Second, there is a methodological limitation regarding the fit indices in our CFA used for discriminant validity testing. While the item-parceling two-factor model demonstrated excellent incremental fit indices (CFI = 0.960, TLI = 0.940), its absolute fit indices were suboptimal. This discrepancy is largely attributable to statistical artifacts rather than model misspecification: the large sample size (N = 702) makes the $\chi^2$ statistic overly sensitive and easily inflated, while models with small degrees of freedom (our model had $df$ = 19) often artificially penalize and inflate the RMSEA value [64]. Nevertheless, the elevated absolute fit indices warrant caution, and future studies should validate the construct structures in independent samples using broader measurement models.

Third, the cross-sectional design utilized in this study precludes the establishment of definitive causal relationships among the variables. While our serial mediation model is grounded in robust developmental psychology theories (e.g., foundational abilities preceding higher-order states), longitudinal or experimental designs are required to conclusively verify these sequential associative pathways. Finally, the sample was restricted to fifth- and sixth-grade students in a specific region. Future research should expand the demographic scope to encompass broader age ranges and diverse sociocultural backgrounds to enhance the external validity and generalizability of the findings.

Fourth, although demographic variables such as grade level and only-child status exhibited significant differences and were included as covariates, this approach assumes additive rather than structural effects.

It is theoretically plausible that the mediation pathways themselves might operate differently across these subgroups (e.g., between fifth- and sixth-grade students, or between only children and those with siblings). A multi-group analysis was not pursued in the current study due to the complexity of the serial mediation model and the associated requirements for stable parameter estimation within a multi-construct latent variable framework. Nevertheless, exploring potential moderated mediation effects across demographic subgroups represents an important direction for future research.

## 7 Conclusions

The present study systematically elucidates the underlying mechanisms between parenting styles and peer relationships among primary school students. By employing a serial mediation model, we provided empirical support consistent with the dynamic transmission pathway of "parenting styles → emotional intelligence → psychological capital → peer relationships". At the structural level, this study reveals that emotional intelligence and psychological capital serve as substantial mediating mechanisms. Although the statistical model for positive parenting exhibited a highly pronounced indirect effect, we interpret this pathway as a critical, yet not exclusive, mechanism linking distal family environments to social outcomes, acknowledging the inherent methodological constraints of self-report data. Concurrently, these internal resources also provide a significant buffering pathway against the adverse interpersonal effects of negative parenting styles.

Overall, our findings advance theoretical research on family-peer dynamics and provide vital practical insights for psychological interventions. It is imperative for educators and school counselors to implement targeted programs that specifically enhance emotional intelligence and psychological capital (e.g., emotional regulation and resilience training) to foster healthy peer interactions. Furthermore, family welfare policies and home-based interventions should be supported to equip parents with positive child-rearing strategies. By building these robust cognitive and emotional skills, we can effectively amplify the benefits of positive parenting and mitigate the social risks associated with negative parenting styles, thereby promoting the holistic social-emotional well-being of primary school students.

**Acknowledgement:** The authors thank research participants for their participation in this study.

**Funding Statement:** This study was supported by the 2025 University-Level Scientific Research Project of Jianghan University (2025SKYB16).

**Author Contributions:** Yuan Sun: Writing—original draft, Writing—review & editing. Jiahao Li: Writing—original draft, Writing—review & editing. Xin Liu: Writing—original draft, Writing—review & editing. All authors reviewed and approved the final version of the manuscript.

**Availability of Data and Materials:** The data that support the findings of this study are available from the Corresponding Author.

**Ethics Approval:** The study involving human participants was approved by the Ethics Committee in the College of Education at Jianghan University (Reference Number: JHDXKJLL2025–263) and was conducted in accordance with local legislation and institutional requirements. Prior to data collection, written informed consent was obtained from the parents or legal guardians of all participating students, and informed assent was obtained from the students themselves. Permission to conduct the surveys was granted by the school teachers.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References


1. Zou H. The developmental function and influencing factors of peer relationships. Psychol Dev Educ. 1998;14(2):39–44. (In Chinese).
2. Liu Y. The role of peer relationships in adolescents' psychological well-being. SHS Web Conf. 2023;180:03027. [CrossRef].
3. Li D, Li W, Lin X, Zhu X. Parenting pathways to friendship: how self-control and emotion management skills mediate preschoolers' social lives in China? BMC Psychol. 2025;13(1):325. [CrossRef].
4. Deković M, Janssens JM. Parents' child-rearing style and child's sociometric status. Dev Psychol. 1992;28(5):925–32. [CrossRef].
5. Mayer JD, DiPaolo M, Salovey P. Perceiving affective content in ambiguous visual stimuli: a component of emotional intelligence. J Pers Assess. 1990;54(3–4):772–81. [CrossRef].
6. Lin J, Zhang L, Kuo YL. The role of social–emotional competencies in interpersonal relationships: a structural equation modeling approach. Front Psychol. 2024;15:1360467. [CrossRef].
7. Luthans F, Avey JB, Avolio BJ, Norman SM, Combs GM. Psychological capital development: toward a micro-intervention. J Organ Behav. 2006;27(3):387–93. [CrossRef].
8. Tjimuku M, Atiku SO, Kaisara G. Emotional intelligence and psychological capital at work: a systematic literature review and directions for future research. Cogent Soc Sci. 2025;11(1):2443559. [CrossRef].
9. Vasiou A, Kassis W, Krasanaki A, Aksoy D, Favre CA, Tantaros S. Exploring parenting styles patterns and children's socio-emotional skills. Children. 2023;10(7):1126. [CrossRef].
10. Li D, Li W, Zhu X. Parenting style and children emotion management skills among Chinese children aged 3–6: the chain mediation effect of self-control and peer interactions. Front Psychol. 2023;14:1231920. [CrossRef].
11. Chen T. The relationship between paternal rearing styles and pro-social behavior of Chinese lower-division undergraduate students: the mediating role of empathy and mental capital. SHS Web Conf. 2023;180:02029. [CrossRef].
12. Bronfenbrenner U. The ecology of human development: Experiments by nature and design. Cambridge, MA, USA: Harvard University Press; 1979. [CrossRef].
13. Baumrind D. Current patterns of parental authority. Dev Psychol. 1971;4(Pt 2):1–103. [CrossRef].
14. Bandura A, Walters RH. Social learning theory. Englewood Cliffs, NJ, USA: Prentice-Hall; 1977.
15. Backman H, Lahti K, Laajasalo T, Kaakinen M, Aronen ET. Positive parenting and adolescent prosocial behaviour–a mediation analysis with representative data. Int J Adolesc Youth. 2024;29(1):2374426. [CrossRef].
16. Zhou H, Tian C, Hong L, Fan Z, Chen W. Relationship between parenting style and peer relationships during early adolescence: the mediating role of parental mentalizing. J Genet Psychol. 2025;186(2):144–61. [CrossRef].
17. Salovey P, Mayer JD. Emotional intelligence. Imagin Cogn Pers. 1990;9(3):185–211. [CrossRef].
18. Alegre A. Parenting styles and children's emotional intelligence: what do we know? Fam J. 2011;19(1):56–62. [CrossRef].
19. Argyriou E, Bakoyannis G, Tantaros S. Parenting styles and trait emotional intelligence in adolescence. Scandinavian J Psychol. 2016;57(1):42–9. [CrossRef].
20. García Linares MC, Carpio Fernández MV, Cerezo Rusillo MT, Casanova Arias PF. Emotional intelligence profiles in college students and their fathers' and mothers' parenting practices. J Adult Dev. 2018;25(4):242–50. [CrossRef].
21. Cao Y, Wang H, Lv Y, Xie D. The influence of children's emotional comprehension on peer conflict resolution strategies. Front Psychol. 2023;14:1142373. [CrossRef].
22. Güler B, Turan S. The role of emotional intelligence in predicting peer relationships in adolescents. J Educ Issues. 2022;8(1):73. [CrossRef].
23. Carroza-Pacheco AM, Bringas-Molleda C, León-del-Barco B. Parenting styles and key aspects of resilience in secondary education students. Adolescents. 2025;5(4):75. [CrossRef].
24. Karmakar R. Positive psychological capital and parenting styles among adolescents: Khasi and non-Khasi scenario. Rom J Psychol. 2016;18(2):47–52.
25. Khan Z, Bukhari I, Hussain A. Role of psychological capital and authoritative parenting in the relationship of spiritual intelligence and identity development of adolescents. Pak J Soc Clin Psychol. 2025;23(2):19–26.

26. Wang Q. The effect of parenting practices on creativity: mediating role of psychological resilience. Psychol Res Behav Manag. 2023;16:4501–14. [CrossRef].
27. Wang Y, Li D, Sun W, Zhao L, Lai X, Zhou Y. Parent-child attachment and prosocial behavior among junior high school students: moderated mediation effect. Acta Psychol Sin. 2017;49(5):663. [CrossRef].
28. Liu X, Wang Z, Zhang C, Xu J, Shen Z, Peng L, et al. Psychological capital and its factors as mediators between interpersonal sensitivity and depressive symptoms among Chinese undergraduates. Psychol Res Behav Manag. 2024;17:429–41. [CrossRef].
29. Ali A, Gujar N. Effects of psychological capital and self-esteem on emotional and behavioral problems among adolescents. J Mental Health Hum Behav. 2019;24(2):85. [CrossRef].
30. Zhou X, Huang J, Qin S, Tao K, Ning Y. Family intimacy and adolescent peer relationships: investigating the mediating role of psychological capital and the moderating role of self-identity. Front Psychol. 2023;14:1165830. [CrossRef].
31. Altaf M, Aftab R. A predictive study of psychological capital and its relationship with demographics factors, attachment styles, peer relations, and quality of friendship among adolescents in Islamabad. Found Univ J Psychol. 2023;7(2):1–17. [CrossRef].
32. D'Souza GS, Irudayasamy FG, Usman SA, Andiappan VS, Parayitam S. The effect of emotional intelligence and psychological capital on knowledge, service and leadership excellence: Knowledge sharing and trust as moderators. FIIB Bus Rev. 2021;10(4):354–67. [CrossRef].
33. Luthans F, Avolio BJ, Avey JB, Norman SM. Positive psychological capital: measurement and relationship with performance and satisfaction. Pers Psychol. 2007;60(3):541–72. [CrossRef].
34. Gong Z, Chen Y, Wang Y. The influence of emotional intelligence on job burnout and job performance: mediating effect of psychological capital. Front Psychol. 2019;10:2707. [CrossRef].
35. Mohammadi SM, Zahir AT, Ghourchian NG, Jafari P. Surveying the effect of emotional intelligence and meta-cognitive on psychological capital of high school teachers in Boushehr Province. Am J Educ Res. 2015;3(10):1267–9.
36. Ying L, Yang Q. The impact of combat sports on undergraduate students' subjective well-being: chain mediation effects of emotional intelligence and self-esteem. Front Psychol. 2025;16:1659084. [CrossRef].
37. Li L, Gao X. Impact of emotional intelligence on academic procrastination among EFL learners in China: serial mediation role of self-efficacy and psychological resilience. Front Psychol. 2026;17:1693897. [CrossRef].
38. Jiang J, Lu ZR, Jiang BJ, Xu Y. Revision of the short-form egna Minnen av barndoms uppfostran for Chinese. Psychol Dev Educ. 2010;26(1):94–9. (In Chinese).
39. Schutte NS, Malouff JM, Hall LE, Haggerty DJ, Cooper JT, Golden CJ, et al. Development and validation of a measure of emotional intelligence. Pers Individ Differ. 1998;25(2):167–77. [CrossRef].
40. Wang CK. Emotional intelligence, general self-efficacy and coping st yle of delinquent teenagers. Chin Ment Health J. 2002;16(8):565–7. (In Chinese).
41. Marsh HW, Hau KT, Balla JR, Grayson D. Is more ever too much? The number of indicators per factor in confirmatory factor analysis. Multivar Behav Res. 1998;33(2):181–220. [CrossRef].
42. Zhang K, Zhang S, Dong YH. Positive psychological capital: measurement and relationship with mental health. Stud Psychol Behav. 2010;8(1):58–64. (In Chinese).
43. Zeng H, Cao J, Zeng R. An investigation into the autonomous development of primary and secondary school students and analysis of enhancement strategies: a case study of Bao'an District, Shenzhen, Guangdong Province. Teach Manag Educ Res. 2024;9(11):26–30. (In Chinese).
44. Almeida D, Santos G. Parenting styles and youth's externalizing and internalizing behaviors: does self-control matter? Int Criminol. 2024;4(3):248–64. [CrossRef].
45. Qi Y, Qiu J, Zhang Y, Shi Y, Xie C, Zhou J, et al. Birth order and Chinese adolescent mental health within the context of the three-child policy: the roles of parenting styles and parental company. Psychol Res Behav Manag. 2025;18:1621–36. [CrossRef].
46. Arora P, Sharma R. Social and interpersonal skills among single child and children with siblings. Int J Indian Psychol. 2025;13(2):1884–909. [CrossRef].
47. Tommasi M, Sergi MR, Picconi L, Saggino A. The location of emotional intelligence measured by EQ-i in the personality and cognitive space: are there gender differences? Front Psychol. 2023;13:985847. [CrossRef].

48. Li YM, Li J, Zou H, Wei S. Development and validation of the emotion regulation ability test for Chinese youth. J Pac Rim Psychol. 2020;14:e7. [CrossRef].
49. Candeias AA. Emotional intelligence in Portuguese youth: age and gender differences. J Intell. 2025;13(4):48. [CrossRef].
50. Sangole O, Borkar VN, Date N. Emotional intelligence in number of siblings and gender: a comparative study. Int J Indian Psychol. 2023;11(1):1957–79. [CrossRef].
51. Ji X, Wei T, Zuo Y, Wang M. Anxiety and academic burnout in migrant children: a chain mediation model of positive psychology and self-concept. Front Psychol. 2026;17:1768621. [CrossRef].
52. Huo Z, Tan T, Yang N, Wu J. The impact of psychological capital and perceived social support on the development of problem behaviors among rural adolescents: a cross-lagged study. Behav Sci. 2026;16(2):264. [CrossRef].
53. Bekele TA, Woodman AC, McDermott J, Harvey L. Moderating effects of autistic traits on the relationship between parenting and child emotion regulation. J Appl Dev Psychol. 2025;100:101860. [CrossRef].
54. Shaygan M, Bostanian P, Zarmehr M, Hassanipour H, Mollaie M. Understanding the relationship between parenting style and chronic pain in adolescents: a structural equation modelling approach. BMC Psychol. 2021;9(1):201. [CrossRef].
55. Saeed E, Shafique A. Perceived parental involvement and psychological capital among college students: mediating role of self-identity. J Prof Appl Psychol. 2025;6(3):263–80. [CrossRef].
56. An L, Xu X, Li H, Liu Q. Do the four components of psychological capital have differential buffering effects? a longitudinal study on parental neglect and adolescent problematic short-form video use. Behav Sci. 2025;15(10):1396. [CrossRef].
57. Wang Y, Li Z, Zhu L. Emotional intelligence of 3- to 6-year-olds and parenting style: peer communication ability as a mediator. Soc Behav Pers Int J. 2019;47(12):1–12.
58. Lye AJ, Liew PY, Mohd Fadzil H, Foong CC. Effect of emotional intelligence and demographic characteristics on psychological capital among chemical engineering students. J Chem Educ. 2023;100(2):479–88. [CrossRef].
59. Long HC, An HM, Dung PTP, Le Dinh Quy N. Mindfulness practice and work performance: the mediating role of emotional intelligence and psychological capital. Brain Behav. 2025;15:e70291. [CrossRef].
60. Engels RCME, Deković M, Meeus W. Parenting practices, social skills and peer relationships in adolescence. Soc Behav Pers. 2002;30(1):3–17. [CrossRef].
61. Zheng J. The effects of parenting styles on children's emotional and social skill development: the mediating role of emotion regulation skills. Lect Notes Educ Psychol Public Medium. 2025;84(1):6–10. [CrossRef].
62. Zhang X, Xu Z. Exploring the relationship between psychological capital, emotional intelligence, psychological safety, and knowledge sharing among E-commerce practitioners. Front Psychol. 2024;15:1472527. [CrossRef].
63. Tjimuku M, Atiku SO. Mapping emotional intelligence and psychological capital research: a bibliometric analysis and future research agenda. Businesses. 2024;4(2):132–55. [CrossRef].
64. Kenny DA, Kaniskan B, McCoach DB. The performance of RMSEA in models with small degrees of freedom. Sociol Methods Res. 2015;44(3):486–507. [CrossRef].